

Practical Knowledge Transfer Processes in Labour-Intensive Service Multinationals.

Maria Remedios Agulles Simó

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**Practical Knowledge Transfer
Processes in Labour-Intensive Service
Multinationals**

**Tesi Doctoral
Dirigida per**

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Als meus pares

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LIST OF ABBREVIATIONS

CAS	Computer-aided systems (of communication)
CMC	Computer-mediated communication
FTF	Face-to-face (interaction or communication)
HC	Human capital
IT	Information technology
ICT	Information and communication technology
KIF	Knowledge-intensive firm
KM	Knowledge management
KMSs	Knowledge management systems
KT	Knowledge transfer
MNC	Multinational corporation
OL	Organizational learning
OMSs	Organizational memory systems
PSF	Professional services firm
SC	Social capital

INTRODUCTION AND ACKNOWLEDGEMENTS

I. INTRODUCTION

MAIN GOALS AND MOTIVATION

The present dissertation is both a narration of a personal learning process and research on a particular subject. The contents of the learning were vast: organizational knowledge (OL), knowledge management (KM) and knowledge transfer (KT), service firms and multinational corporations (MNCs), and qualitative research and case studies. Additionally, this research addressed the real-world situations in which multinational services companies encounter when promoting knowledge sharing between subsidiaries.

This research aimed to investigate knowledge transfer (KT) processes in a particular portion of the services industry sector. Management literature on knowledge processes commonly focuses on knowledge-intensive firms (such as professional service firms) and manufacturing companies. Service firms that are not knowledge-intensive are commonly companies that are more similar to manufacturing in terms of the skills of their employees and the standardisation of their practices (such as fast-food chains, call centres or parcel services). Some exceptions study organisations such as hospitals, with research investigating how nurses or surgeons work (Pisano, Bohmer and Edmondson, 2001, Tucker, Edmondson and Spear, 2002, Tucker, Nembhard and Edmondson, 2007), or certain crafts (Cook and Brown, 1999, Lave and Wenger, 1991). I sought to explore organisations that employ this wide sector of the workforce called ‘the technologists’ (Drucker, 1999), i.e., organisations delivering ‘technical services’ (Mason, 1992), usually with a high proportion of manual work. I found their absence from the literature sector especially intriguing because if we add together the number of employees of some of the global giants of this portion of the service industry—Aramark, Compass Group, G4S, Securitas, Rentokil-Initial, Sodexo and ISS—, the result is the astounding figure of 2,684,000 individuals.¹ I seemed to me that the idea that only highly sophisticated knowledge, scientific knowledge or knowledge embedded in routines are relevant for companies and academic study could lie behind this absence.

¹ Data from the respective webs of these companies.

Moreover, I believed that research in this particular field could shed light on occupations that are considered indispensable for individuals' wellbeing while simultaneously remain sort of invisible and are not receiving appropriate social recognition.²

The first objection to the present research, when I informed several academics of my research aims, was that KM and KT were in decline in the research panorama, after strong popularity during the 1990s and 2000s. Given that a doctoral dissertation is expected to provide new. Therefore, a well-beaten path was not an advisable territory to explore. However, I decided to conduct this research in a setting that has not been extensively studied. Although knowledge-related processes might not be popular in the academic literature, knowledge-related processes will always exist in human organisations and be a main source of competitive advantage for companies.

The journey of the present dissertation was, first, one of concepts and ideas: to narrow the object of study, I needed a deeper comprehension of the OL, KM, and KT phenomena, and, thus, I decided to focus my literature review on the authors whom we could consider *the classics*, and only from there look for other contributions, in a sort of concentric circles.³ There, I detected a kaleidoscope of perspectives, approaches and philosophical views. Given my philosophical background, I considered that an additional contribution to the field would be to explore the epistemological foundations of and clarify unclear concepts within the different works I studied, which is how some sections of this dissertation—the classifications of epistemological approaches, types of knowledge, KT mechanisms and service firms—arose.⁴ The search for clarity was intended to help me narrow my research while simultaneously providing the tools to analyse future data.

Once I decided the aim of my study—factors affecting the use of certain KT mechanisms by subsidiaries in a service MNC⁵—and formulated hypotheses, the journey of the research became geographical. I had the opportunity to travel to and

² My past personal experience for some years in the hospitality field only increased my interest in these topics.

³ The bibliographic search is described in 1.1.

⁴ The price was perhaps more than initially intended, a vast theoretical framework.

⁵ The selection of the research method and setting are discussed in sections 2.1 and 2.2.

personally meet several outstanding managers⁶ in Spain, the UK and India.⁷ Inquiries into the same issues in different countries and services provided this research with an additional breadth of perspective and complexity. The data collection phase yielded a considerable quantity of data, and the previous conceptualisation phase helped me to avoid the danger of data overloading.

In fact, at some phases of the empirical research, everything looked interesting, relevant and deserving for inclusion in the analysis. Having a conceptual basis to categorise and discriminate information was very useful to elude this obstacle. However, the need to synthesise both in the literature review and the empirical research was perhaps the most difficult part of this dissertation. Several PhDs advised that “doctoral thesis are not completed but terminated,” which has become a cliché that does not satisfy perfectionist candidates; however, I hope this dissertation reached the expected level of completeness.

STYLE AND STRUCTURE OF THE THESIS

What kind of dissertation is the one the reader is going to engage with? We could use Eco’s (2001) specifications to describe it: it is a monographic thesis (vs. a panoramic one), an empirical research about a contemporary topic (although knowledge in itself is a classical one), and a scientific work (vs. political texts). It is based mainly on primary sources. In the elaboration of the text, we followed indications from diverse methodological works but on **formal aspects**, we mainly adopted those from Wolcott (1990) and Yin (2009). Given that this is a doctoral dissertation, we tried to uncover and justify as much as possible all the steps we took in the different sections, a work which

⁶ Due to time and budget constraints, I limited the research to managers, but I endeavoured to contact those that were related to KT processes and near enough to the middle management and front-line to provide me with reliable information.

⁷ The travel to the subcontinent was a great experience, not only because of the good reception I had at the Mumbai-located subsidiary but also because of the opportunity of having a first-hand impression of the complex reality of the country.

is obviated by papers and other types of publications. We apologise if this trait makes the text appear too meticulous in some places.

Regarding the **contents** of the thesis, there are two clearly different blocks: chapter 1 deals with the literature review/theoretical framework of the research and chapter 2 describes the empirical research. The conclusions close the present work.

We will start by **chapter 1**. There we first explain the details of our bibliographic search (1.1.), which was conducted in three stages, what sources we selected, how and why we did it.

The second section (1.2.) is a general overview about the two main clusters of works we have used in this dissertation: those on OL and those on KM. This section has five subsections. There we discuss the differences and connections between both fields (1.2.1.) and also the common *epistemological roots* (1.2.2.). In fact, we found that many different philosophical, sociological and psychological models had influenced the different approaches that could be found in these two literatures: rational economic models, behaviourism, cognitive psychology, social psychology, pragmatism, and constructivism.

Still in the second section, we address the *OL literature* (1.2.3.): its definition and characteristics, the relationships of learning and performance in organizations, and the differences and relationships between organizational and individual learning. In addition, we were interested in investigating how organizations come to learn, but also how they unlearn and even learn that which harms them (anti-learning). Finally, we devote some time to the characteristics of a learning organization, that where knowledge is acquired, created and disseminated more easily.

Related to OL but not coincident with this field, we were also interested in how (individual) learning in practice occurs in organisations, because our empirical research would be focused on operations-related knowledge. To this topic we devote a fourth subsection (1.2.4.), in which we define *practical learning* and we describe the conditions it requires and the obstacles that hinder it. There we also explore the contributions made by diverse approaches to the subject: work-based learning approaches, those that relate learning and imitation, and those that focus on expertise.

Finally, we turn our attention to some elements that are used to facilitate practical learning in diverse ways: instruction, coaching and ICTs.

In the fifth subsection (1.2.5.), we approach the matter of *KM*. To do this, we start by defining knowledge, its characteristics, and the types of knowledge, of which *we propose a classification*. Then we turn to *KM*, its definition and the different ways it has been addressed by literature (computational and organic models and knowledge-based theory).

From here, we move on to other literature clusters that correspond to different aspects of the reality we will study on our empirical research. Thus, we find a section devoted to *KT* (1.3.). In this section, we first (1.3.1.) describe what *KT* is, and the factors that influence *KT* (characteristics of the knowledge, of source and recipient, and of the internal and external context of the transfer). Then, we investigate how *KT* happens in *MNCs* (1.3.2.). To do this, we first need to show that *MNCs* have traits that are specific to them and, therefore, *KT* in *MNCs* may be influenced by some specific factors. Finally, we focus on *KT* mechanisms (1.3.3.): how they are approached by literature, and the relation of this topic with communication channels. We end this subsection with a *proposal of a KT mechanisms map*.

The last area we study in the first chapter is that of *service firms* (1.4.). We start by describing them (1.4.1.), dedicating then another subsection to a group of service firms that has been defined precisely by the way they manage knowledge: knowledge-intensive firms (*KIFs*) (1.4.2.). There we look for the defining traits of these firms, their relationship with *PSFs*, and finally some concepts that are often used to describe these organizations, such as human capital, intellectual capital and social capital. We then zoom out to a more general perspective and, using an existing *taxonomy* of *KIFs*, we analyse its elements, modify it and make it extensive to *all types of service companies*.

Finally, after the literature review, we formulate the *hypotheses* that will guide our empirical research (1.5.).

Chapter 2 contains our empirical research. Its first section (2.1.) is devoted to discuss the *methodology* of this research: a qualitative methodology that consists of a case study. All the methodological section combines a description of literature on research methods and our choices for our study. Thus, we first (2.1.1.) describe what

qualitative research consists in and what grounded theory is, and then what regards to case studies (2.1.2.). At the same time, we justify why these are the inquiry paths more appropriate to our research. This second subsection ends with a description of the structure of our empirical research.

The *setting* for our research deserves a section (2.2.), in which we explain our choice of a facility services MNC and the services and subsidiaries we have selected for our research. Then we proceed to describe the setting: the history of the company (2.2.1.), how it has managed knowledge over time (2.2.2.), and the ongoing KT processes in the year of data collection from the point of view of HQ (2.2.3.) and each of its subsidiaries (2.2.4.).

In the third section (2.3.) we describe the process of *data collection*. Here we also combine contributions from literature and our actual data collection process. First, we provide an overview (2.3.1.) and then we describe the sources we have used (2.3.2.): conversational sources, documentation, and observation. We devote the third subsection to the potential ethical issues we could encounter in our research and how we have solved them (2.3.3.).

After the data collection, we explain how we proceeded with the *analysis* of the data (2.4.). We do it in detail (2.4.2.) after describing the orientations literature on research methods provides on data collection (2.4.1.). The analysis yielded several *results* (2.5.), which we present separately: first the results from general analyses (2.5.1.), then by services (2.5.2.) and finally by countries (2.5.3.). Those results are subsequently *discussed* (2.5.4), and the discussion includes checking the confirmation of the hypotheses and a description of the limitations of the research.

The dissertation ends with the conclusions section. There we summarize the main contributions and findings of this research. These are of different nature: contributions to theory with the epistemological section and the different classifications (of knowledge, of KT mechanisms, and of service companies), and with the empirical research which relates types of service, types of KT mechanisms and also different subsidiaries. This part of the research also provides some implications that may be useful for managerial practice.

II. ACKNOWLEDGEMENTS

No research should end without an acknowledgements section, least of all a doctoral dissertation.

I would like to thank, first of all, my two co-directors, Professors Julia Prats from IESE Business School and Miquel Bastons from UIC Barcelona. They have guided my work with their advice, corrections and patience.

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I am also grateful for the members of the Library service at IESE Business School and UIC Barcelona, who provided me with all the materials I needed for my research, and also those of HelpDesk at IESE, who aided me with Refworks and the transfer of my mailbox to my new account.

To my family and friends, who had to put up with my ‘disappearance’ for more than two months, I also give thanks. I also include here my colleagues at the Institute of Advanced Family Studies in UIC Barcelona, who encouraged me in the final stage of the dissertation.

Finally, I thank the members of the tribunal, who have had the kindness of taking this work seriously.

CHAPTER 1. THEORETICAL FRAMEWORK

This first chapter will be devoted to the development of the theoretical framework of this dissertation. The different elements that intertwine in the present research will be discussed in this chapter. Specifically, knowledge transfer is framed inside a larger field, which includes both knowledge management (KM) and organizational learning (OL). These sources will be addressed in section 1.2., after an account of the bibliographic search (1.1.). What we understand by ‘knowledge transfer’ and also how it can be performed will need to be clarified in section 1.3. There, KM and knowledge transfer are seen in a very particular context, that of multinational corporations (MNCs). In section 1.4., we will also talk about service organizations, taking knowledge intensive firms (KIFs) as the departing point, and there we will explain the reasons for this choice. After reviewing the theory, the last section (1.5.) will be the one in which our hypotheses emerge.

1.1. BIBLIOGRAPHIC SEARCH

In this section we will describe how we have conducted the bibliographic search of the references we needed for the theoretical framework of this thesis.

We could divide this search in four parts, chronologically and thematically separated: the first corresponds to the *organizational learning* (OL) literature, which, in the present work, comprises the general comparison between the OL and knowledge management (KM) literatures, the discussion of the epistemological topics, and the development of the OL literature. All these materials were reviewed in the research project for the Official Master previous to the doctoral programme (Agulles, 2011). A briefer version is offered here (1.2.1., 1.2.2., 1.2.3.).

A second part belongs to a research about *learning in practice* that we had undertaken having in mind a potential future doctoral dissertation. The bibliographic search had been done previously to the mentioned Master but the review was made later. For this reason, we were able to use the literature of this search in the Master research project and the bibliographic search itself was described in that work. The

literature review regarding learning in practice was developed more extensively in an IESE working paper (Agulles and Prats, 2011) but a condensed and updated version was also included in this dissertation (1.2.4.).

The third part is properly the search and review of the literature regarding *knowledge management* (KM) and *knowledge transfer* (KT), *KT in multinational corporations* (MNCs) and *service firms* (1.2.5., 1.3., 1.4.).

As it can be seen, we have been working in a way that could be described as ‘concentric,’ i.e. we sought to capture the phenomenon (certain KT mechanisms in service MNCs) in its different aspects. But, taking the physics metaphor further, the search was not kept on a peripheral position, but took a ‘centripetal’ aim: we tried to go as near the object as possible. At the same time, given the vastity of the scope of this literature review, we decided to reduce the search from 2000 to present. However, some relevant works—including classic pieces and some about core issues such as KT mechanisms or occupation categories related to knowledge—date prior to this period, and we included them here.

Another reduction was applied, this time to the *type* of sources. Regarding books and journals, we limited our search to top management journals and most relevant books. The reason is that we wanted to search for the basis of already acknowledged theories. We were more interested in quality than in quantity. This is also the reason why there are almost no references that are not written in English.

Finally, we limited the *field* of our search to organizational management. Thus, we did not use IT-focused literature or works on knowledge management systems (KMSs). When we talk about training or motivation, we do not refer to psychology literature, or even HR, which also deal with these matters. We do not use education literature to address topics like learning or training, either. All these decisions were made to prevent the research to become so broad that it would lose focus.

The literature search and review was, especially in the third part, conducted in a back and forth movement from texts to the empirical research.

FIRST SEARCH

For the first group of references, we used the following sources: Sage Journals Online, Wiley Online Library, Emerald Full Text, and Informs Journals, all of them part of the *E-Resources List* at IESE Business School. ISI Web of Knowledge was not used for this first part: it was rejected after some trials because looking for sources on KM and OL—even combined with other keywords—yielded an excessively extended list of records.

To these first sources, we added some high impact journals, such as the *Annual Review of Sociology*, the *American Sociological Review*, the *Annual Review of Psychology*, the *Academy of Management Review*, *The Academy of Management Annals*, the *Harvard Business Review*, the *MIS Quarterly*, *Administrative Science Quarterly*, and the *American Journal of Economics and Sociology*. We also considered that KT would be the final area for the doctoral dissertation, so we took note of some interesting articles for later. We show in Table 1 the list of journals.

As it can be seen, some journals of Sociology and Political Sciences were added. However, we did not find materials for our research there. Journals on history of management were also included because they seemed likely to publish literature reviews. Economy and Finance journals in the databases mentioned above were revised, but they did not cover the knowledge subject.

Some relevant journal special issues were also identified during this search. The list of special issues is displayed in Table 2

Table 1	List of journals scanned in the first search
<i>Academy of Management Review</i>	
<i>Accounting and Finance</i>	
<i>Accounting Forum</i>	
<i>Accounting Perspectives</i>	
<i>Acta Sociologica</i>	
<i>Administrative Science Quarterly</i>	
<i>American Behavioral Scientist</i>	
<i>American Journal of Economics and Sociology</i>	
<i>American Sociological Review</i>	
<i>Annual Review of Psychology</i>	
<i>Annual Review of Sociology</i>	
<i>Business and Society Review</i>	
<i>Business Strategy Review</i>	
<i>California Management Review</i>	
<i>Communication Research</i>	
<i>Contemporary Sociology</i>	
<i>Creativity and Innovation Management</i>	
<i>Decision Sciences</i>	
<i>Global Business and Organizational Excellence</i>	
<i>Global Business Review</i>	
<i>Group & Organization Management</i>	
<i>Group Processes & Intergroup Relations</i>	
<i>Harvard Business Review</i>	
<i>Human Relations</i>	
<i>Information Technology & People</i>	
<i>International Journal of Comparative Sociology</i>	
<i>International Journal of Management Reviews</i>	
<i>International Sociology</i>	
<i>Journal of Knowledge Management</i>	
<i>Journal of Leadership & Organizational Studies</i>	
<i>Journal of Management</i>	
<i>Journal of Management Inquiry</i>	
<i>Journal of Organizational Behavior</i>	
<i>Journal of Service Management</i>	
<i>Journal of Strategy and Management</i>	
<i>Journal of the Academy of Marketing Science</i>	
<i>Journal of Workplace Learning</i>	
<i>Leadership</i>	
<i>Management & Organizational History</i>	
<i>Management Learning</i>	
<i>Management Science</i>	
<i>MIS Quarterly</i>	
<i>Organization</i>	
<i>Organization Science</i>	
<i>Organization Studies</i>	
<i>Research in Organizational Behavior</i>	
<i>Research in the Sociology of Organizations</i>	
<i>Strategic Management Journal</i>	
<i>The Academy of Management Annals</i>	
<i>The Annals of the American Academy of Political and Social Science</i>	
<i>The Journal of Applied Behavioral Science</i>	
<i>The Learning Organization</i>	
<i>VINE: The Journal of Information and Knowledge Management Systems</i>	

Table 2	Special issues
	<i>California Management Review</i> (1998) Special Issue on Knowledge and the Firm (vol. 40, issue 3)
	<i>Human Relations</i> (2001) Special Issue on Knowledge Management in Professional Service Firms (vol. 54, issue 7)
	<i>J of Intern Buss Studies</i> (2004) Focused Issue—Organizing Knowledge Processes in the Multinational Corporation (vol. 35, issue 5)
	<i>Journal of Management Studies</i> (1993) Special Issue on Knowledge Workers and Contemporary Organizations (vol. 30, issue 6)
	<i>Journal of Management Studies</i> (2000) Special Issue on Organizational Learning (vol. 37, issue 6)
	<i>Management Science</i> (2003) Special Issue on Managing Knowledge in Organizations: Creating, Retaining, and Transferring Knowledge (vol. 49, issue 4)
	<i>Organization</i> (2007) Special Issue on the Philosophical Foundations of Knowledge Management (vol. 14, issue 1)
	<i>Organization Science</i> (1991) Special Issue: Organizational Learning. Papers in Honor of (and by) James G. March (vol. 2, issue 1)
	<i>Organizational Behavior and Human Decision Processes</i> (2000) Special Issue on the Foundations of Knowledge Transfer in Organizations (vol. 82, issue 1)
	<i>Strategic Management Journal</i> (1996) Special Issue on Knowledge and the Firm (vol 17, issue S2)

After this search, several literature reviews were individuated. These are the articles by Argote (2005), Argote and Greve (2007), Beamish and Armistead (2001), Gallupe (2001), Gueldenberg and Helting (2007), Hazlett *et al.* (2005), Ma & Yu (2010), Marshall (2008), Miller (2008), Nonaka *et al.* (2006), Sapsed *et al.* (2002), Serenko *et al.* (2010); Soo *et al.* (2002); Spender (2008), Spender and Scherer (2007), and Werner (2002). To these, following Spender's (2008) advice, the book chapter by Easterby-Smith & Lyles (2003) was added.

The articles by Werner (2002), Sapsed *et al.* (2002), and Serenko *et al.* (2010), were kept for further research. Sapsed *et al.* (2002) included interesting information about knowledge-sharing processes. The article by Serenko *et al.* (2010) listed top specialized journals on KM and intellectual capital, and a ranking of top publishing institutions and authors. Finally, Werner's (2002) paper provided good sources for later research both in knowledge transfer and multinationals.

On the other hand, the works considered of most interest because of their scope and the number of scholars cited were Easterby-Smith and Lyles's (2003), Ma and Yu's (2010), and Spender's (2008). The two first have been used as the main basis for the

selection of authors cited in the current research project. The third provides a good basis for the epistemological discussion.

Easterby-Smith and Lyles (2003) divide the literature in two large groups of authors, corresponding to OL and KM literatures respectively. Into the OL cluster they place a subgroup devoted to the *learning organization*.⁸ Into the KM group, there is a subdivision dedicated to *organizational knowledge*.⁹ Their review has the value of taking a historical point of view. They first comment the authors considered ‘classics’—i.e. earlier authors whose works have been considered the basis for all the literature on OL and KM—: John Dewey, Frederick Hayek, Edith Penrose, and Michael Polanyi. They then explain briefly the main authors/works of the four groups mentioned above, dividing them into ‘founding’ texts, ‘popularizing’ works and other relevant contributions to the stream. Ma and Yu (2010) conduct a more exhaustive research—always in the area of KM—in which they record the 15 most cited management journals of the period 1998-2007, the 16 most cited documents (journal articles, books and book chapters) of the period 1998-2002, and the 15 most cited ones of the period 2003-2007. In addition, they list the 15 most cited authors of the period 1998-2002, and the 16 most cited ones of the period 2003-2007. They also elaborate co-citation maps for both periods, and, finally, they group the most cited authors based on a statistical analysis of the co-citation matrix.

We considered that crossing the results of both pieces of research would be most advisable, because the first provides a qualitative characterization, and the other is more quantitative, and thus they complement each other: one could correct possible gaps or mistakes that may be present in the other’s work. Specifically, Ma and Yu (2010) give a more exhaustive account of authors and sources than Easterby-Smith and Lyles (2003), but, as the clustering has been made with the aid of an IT system, they might not cluster all of them in the most suiting place. Easterby-Smith and Lyles (2003), in turn, provide

⁸ It is described as “an entity, an ideal type of organization, which has the capacity to learn effectively and hence to prosper.” (Easterby-Smith & Lyles, 2003, p. 2) Although Nonaka and Spender are included in this group, we will cite them extensively when they refer to knowledge creation and also when it comes to epistemological discussions.

⁹ “Those who write about [it] often adopt a philosophical slant in trying to understand and conceptualize the nature of knowledge that is contained within organizations.”(Easterby-Smith & Lyles, 2003, p. 3)

a conceptual and chronologically-based justification of the classification they use, that may help to correct this deficiency.

Taking note of all the authors/works referenced by the mentioned journal articles, a list was made. With the scope to bring order, authors were assigned to the OL or KM areas depending on where they were placed by the different authors. That led to one significant result: some authors appeared in both lists. This outcome has an easy explanation. As it has been stated in section 1.2., both paths share important bases and there are several overlaps between their respective fields of interest.

SECOND SEARCH

An earlier literature search had been made during the spring and summer of 2009. In this case, it had been conducted looking for journal articles on the topics of practical learning, learning in practice, and on-the-job learning. The aim was to review the contributions of management literature on this matter in order to apply them later to the field of technical professions and occupations. The search was made simultaneously in ISI Web of Knowledge and Google Scholar, refining the search by A-journals¹⁰ and a list of keywords (see Table 3).

Two different lists resulted, with almost no coincidence between them: 97 articles for the “ISI” list and 55 for the “Scholar” one. The list was narrowed after reviewing the abstracts of the articles: 28 from the ISI list, and 23 from the Scholar list were selected and read. Of these texts, some referred to OL or KM, and, from this group, a few appeared also in the final list of the group above explained (like Cook and Brown (1999)). For this reason, it seemed interesting to enrich the list we had started by making use of this previous effort. Some of the works included are relevant texts such as the ones by Argyris (1976; 2003), Arrow (1962), Baum and Dahlin (2007), Brown and Duguid (1991; 2001), Cohen and Levinthal (1990), Cook and Brown (1999), Dodgson (1993), Herriott et al. (1985), Inkpen and Crossan (1995), and Wood and Bandura (1989).

¹⁰ A text that had not been published in an A-journal — the one by Cheetham and Chivers (2001) —, was included, because it was a literature review.

Table 3	List of keywords used in the second search
learning by doing AND professions learning AND professions learning AND professionals judgement AND professions judgement AND professionals training AND professionals training AND professions on-the-job AND professionals on-the-job AND professions on-the-job AND training job AND training learning by doing AND occupations learning by doing AND model training AND occupations training AND UK learning in practice practical learning learning in the workplace problem-based learning professional competence learning AND experience experiential learning informal learning practical knowledge vocational training expertise knowledge transfer learning crafts	

In addition, this earlier list contained three literature reviews, which had been used in the present work as a support, especially to clarify some taxonomical issues. They are the papers by Cheetham and Chivers (2001) (on informal learning), Dodgson (1993) (on OL), and Salas and Cannon-Bowers (2001) (about training, but which contains a section devoted to learning).

THIRD SEARCH

First of all, we reviewed the articles we had set aside from the first search. Then, we added another search for items we needed to study, for example, regarding KT or dissemination mechanisms, and job categories and service firms for what would become

parts 1.3.3. and 1.4., respectively. The additional search was conducted in ISI Web of Knowledge and the terms searched for are showed in Table 4.

Table 4	List of keywords used in the third search
	knowledge sharing AND mechanisms
	knowledge sharing mechanisms
	knowledge sharing AND channels
	knowledge sharing channels
	knowledge transfer AND mechanisms
	knowledge transfer mechanisms
	knowledge transfer AND channels
	knowledge transfer channels
	transfer mechanisms AND types of knowledge
	knowledge-sharing mechanisms AND types of knowledge
	best practices transfer
	best practices dissemination
	jobs classification AND manual skills AND knowledge
	tasks classification AND manual skills
	tasks classification
	learning mechanism AND fit AND task
	learning process AND fit AND task
	manual work
	manual labor
	learning practices
	learning practices classification
	knowledge sharing mechanisms
	practical knowledge
	learning strategy AND classification

Searching in the references, some of these articles led to others. For example, Van Wijk, Jansen and Lyles (2008) cited Mowery, Oxley and Silverman (1996). Hong and Nguyen (2009) cited Kostova and Roth (2002). Roth and Kostova (2003) cited also Kostova and Roth (2002), Sutton and Staw (1995), and Janssens, Brett and Smith (1995). Burgess (2005) cited Bhagat *et al.* (2002), Cabrera and Cabrera (2002). Finally, and to end with the examples, Ghoshal, Korine and Szulanski (1994) cited Egelhoff (1982). A similar method was followed for the search about KT in multinational corporations (MNCs), starting from the works by Pedersen and colleagues (Foss and Pedersen, 2002, 2004, Foss *et al.*, 2009, Pedersen, Petersen and Sharma, 2003).

The methodology-related literature was sought separately, focusing on qualitative research methods and case studies. We used the funds of the libraries of IESE Business School and UIC Barcelona and we also relied on the advice of several professors.

To these three searches, some papers on professional service firms (PSFs) from previous works by the researcher was added when it contributed to clarify some of the explanations, especially for the section related to service firms (1.4.).

All these works were listed in a database by themes (OL, KM, KT, Service, MNCs, Methodology, and Other), with the source where it was found and remarks about their main contents.

In addition, we searched for some doctoral theses in TDR¹¹ and in TESEO.¹² There we found some examples that were useful, especially regarding the structure and the way of presenting the information.

1.2. GENERAL FRAMEWORK: ORGANIZATIONAL LEARNING AND KNOWLEDGE MANAGEMENT LITERATURE

A great part of the insights that appear in this dissertation come from the contributions of authors of both OL and KM literature. In this section we will introduce the relationship and differences between these two different streams (1.2.1.), which seem to run parallel most times. Next subsection (1.2.2.) will be devoted to epistemology: considering how these authors understand knowledge, knowing and learning is important to grasp the scope of each contribution. OL literature will be addressed in subsections 1.2.3., followed by a special consideration of learning in practice (1.2.4.). Finally, the KM literature will close this section (1.2.5.).

¹¹ www.tdx.cat (accessed December 2013). The items looked for were ‘Ciencias Sociales,’ ‘Organización del trabajo,’ and ‘Administración y Dirección de Empresas,’ which is where we found some interesting examples.

¹² www.educacion.gob.es/teseo (accessed December 2013). We sought for ‘multinacionales de servicios,’ ‘conocimiento servicios,’ ‘transferencia conocimientos’ (we found examples here), ‘empresa servicio’ and ‘gestión conocimiento.’

1.2.1. THE DIFFERENCE AND THE RELATIONSHIP BETWEEN KM AND OL¹³

That the knowledge transfer field is part of a broader field—KM—was quite obvious since the preliminary searches that were made in pursuit of a clearer definition of the theoretical framework of this dissertation. But the most remarkable finding was that of the intimate connection between the KM and OL fields.

In fact, although differing and representing two large—and often separate—research trends, both KM and OL appear together within the most relevant literature reviews on KM (Argote, 2005, Beamish and Armistead, 2001, Easterby-Smith and Lyles, 2003, Ma and Yu, 2010, Marshall, 2008, Spender, 2008, Spender and Scherer, 2007). These authors and others recognize that there is simultaneously difference and connection, due to an overlapping of contents, being the most obvious that both deal with *knowledge*. However, they rarely show collaboration (Argote, 2005, Huber, 1991, Spender, 2008). This separation appears clearly in cross-references in the academic field. Spender (2008, p. 160) puts it ironically: “In practice, the two literatures run curiously parallel and, worshipping at different altars, honor different high priests; March or Argyris and double loops, on the one hand, versus Polanyi and tacit knowledge, on the other.”

Nevertheless, there is a group of relevant scholars that address both KM and OL. Although in different ways,¹⁴ they acknowledge the connection between both areas. They have in common the interest for fundamental issues, especially knowledge. Some examples are the works by Weick and Roberts (1993), Brown and Duguid (1991), Cohen and Levinthal (1990), Cook and Brown (1999), Huber (1991), Nonaka (1994), Simon(1991), Wenger (1998), and Spender (1996, 2008, Spender and Scherer, 2007).

The first difference between both areas is chronological. Easterby-Smith and Lyles (2003) trace the origins of OL back to the seminal work *A Behavioral Theory of the*

¹³ The contents of subsections 1.2.1., 1.2.2., and 1.2.3. have been revised and abridged from Agulles (2011).

¹⁴ The epistemological section (1.2.2.) will reveal the different positions these authors stand up for.

Firm, by Cyert and March (1963).¹⁵ From then on, the field experienced a ramified evolution as a result of different influences and points of view. On the contrary, the area of KM is relatively more recent, and it has quickly developed some level of complexity (Easterby-Smith and Lyles, 2003, Gallupe, 2001, Hazlett, McAdam and Gallagher, 2005). The latter authors agree in attributing the eclectic character of the field to its still short history.¹⁶ In addition, whereas OL has somehow established in the academic world, for some authors KM is simply a fad that had its start in the 1990s to the first half of the 2000s and that will quickly decline (Brown and Duguid, 2000, Ruggles, 1998, Spender, 2008). This view may be strengthened by the fact that KM literature has a more openly practical side: the point is how to *manage* knowledge. The market nowadays offers a wide range of works full of recommendations and IT systems to this purpose.

These differences are the reflection of a deeper distinctness. Following Gallupe (2001), KM may be defined as the management of the processes including the acquisition, creation, retention, storage,¹⁷ dissemination (transfer), use and protection of knowledge. If we take this definition as good, we could conclude that OL is the set of processes constituting the first part of KM—i.e. knowledge acquisition and creation, or even knowledge transfer as well (Epple, Argote and Devadas, 1991). Thus, OL processes could be considered as subsumed into KM.¹⁸

This structure, albeit apparently intuitive, is not shared by all. There are some few authors who include KM processes as a part of OL. An example is Dodgson (1993, p. 377, emphasis added), when he defines OL as “the ways firms build, supplement *and organize* knowledge and routines around their activities and within their cultures, and adapt and develop organizational efficiency by improving the use of the broad skills of their workforces.” Also Huber (1991) includes information distribution (transfer) and

¹⁵ *Organization Science* dedicated the May/June 2007 issue to Cyert and March’s book. The issue was introduced by Argote and Greve (2007), who summarized the main contributions of the book.

¹⁶ Both Easterby-Smith and Lyles, and Gallupe qualify the stage as “infancy.” Hazlett and colleagues, following Kuhn, talk about a “pre-science stage.”

¹⁷ In addition to knowledge storage, some authors mention knowledge retrieval mechanisms (Brown and Duguid, 1998, Easterby-Smith and Lyles, 2003, Huber, 1991, Tsoukas, 1996). Indeed, it is not enough to retain knowledge; it should be easily retrieved whenever needed.

¹⁸ For example, Goodman and Darr (1998) identify OL with intra-organizational knowledge transfer.

organizational memory processes (retention) in OL. Thus, these authors consider that OL and KM as near to coincident. We suggest that this view comes from envisaging all the knowledge-related processes occurring within the organization as *learning*. We argue that a distinction is necessary and, on the other hand, is followed by most authors. The idea that from KM may result learning may be right, but not all KM processes seek learning as their primary scope: they seek dealing with knowledge as a most valuable resource (Grant, 1996b) that needs to be sought and produced (learning), and efficiently managed for the organizational purposes (Gallupe, 2001). This said, overall good KM processes facilitate OL (Argote, 2005).

According to Argote (2005, p. 43), “organizational learning focuses more on the processes through which organizations acquire knowledge from experience, whereas knowledge management focuses more on managing what is learned.” Although not free from dispute, the approach we will follow here is that of the identification of OL with *organizational knowledge acquisition and creation*. Therefore, processes of OL are part of the knowledge-related processes that happen within an organization and are also studied by the KM literature. We say that this posture is “not free from dispute” because there are scholars who support that OL is knowledge acquisition, and knowledge creation involves totally different processes. Two examples are Nonaka (1994) and Simon (1991).

For Nonaka, organizational knowledge creation, as the result of the complete knowledge cycle he proposes—the SECI model¹⁹—, goes beyond the traditional OL, narrowly understood in terms of learning curves. This is the reason why this author prefers *knowledge creation* rather than *learning*. However, the process he describes can legitimately be considered an organizational learning process in which “organizations continuously create new knowledge by reconstructing existing perspectives, frameworks or premises on a day-to-day basis” (Nonaka, 1994, p. 19). We suggest that similar views respond to the association of the term of *learning* with the mechanistic passivity of behavioural models, or the abstraction of rational models (Cyert and March, 1963, Lei, Hitt and Bettis, 1996, Nonaka, 1994). See how Spender (2008, p. 163) puts it:

¹⁹ SECI stands for Socialisation, Externalisation, Combination, and Internalisation as the different stages of knowledge in an organization.

The organizational learning has generally adopted the notion of learning as behavior change, in this sense, contrasting behaviors at different points in time. Learning is framed as a more effective behavior at time t_2 . The knowledge management literature, more concerned with identifying collecting, distributing and establishing ownership of the organization's knowledge, is less concerned with change over time and has turned instead to other typologies.

From a completely different background, Simon (1991), with his example of research laboratories, also distinguishes between knowledge acquisition—or learning—and knowledge creation. In most of the laboratories, he argues, the amount of knowledge *created* (i.e. new discoveries) is very small, and even null: this is not their main scope but rather *learning* from the outside world (i.e. the scientific community), and this is why they are kept functioning. Again, we see the idea of *learning* as opposed to *knowledge creation*.

As we said before, although it is true that knowledge creation and knowledge acquisition are different, both can be included under the category of *learning*.²⁰ Rather than opposing each other, we consider that knowledge acquisition and knowledge creation complement each other, and somehow require each other. Strictly speaking, there is no such thing as *pure* knowledge creation, i.e. without any previous knowledge basis. At least, there is a knowledge commonly held inside a culture (Cook and Yanow, 1993), and this is something that has certainly been received. Likewise, when knowledge is acquired from without, once it is integrated in an organization—i.e. embedded in shared insights, norms and practices constituting organizational memory (Davenport and Prusak, 1998, Levitt and March, 1988, Pisano, 1994, Shrivastava, 1983, Wood and Bandura, 1989)—, it becomes transformed and different from how it was outside the organization. So knowledge creation requires knowledge acquisition and knowledge acquisition leads also to some sort of knowledge creation.

²⁰ We are aware that the terminology is not consistent in all the authors. This is why we have found it necessary to specify what we understand by “learning”. For example, Davenport and Prusak (1998, p. 53) state: “When we talk about knowledge generation, we mean the knowledge acquired by an organization as well as that developed within it.” Were it written by us, the precedent text would read “organizational learning” instead of “knowledge generation.” For us, *knowledge generation* is the knowledge developed within the organization.

To conclude, given that we understand learning as creating *and* acquiring knowledge, we will include here the contributions of both the OL and KM streams, and, regarding KM, we will draw from scholars who deal with knowledge creation, knowledge acquisition and knowledge transfer. Moreover, we consider that knowledge transfer and knowledge acquisition are two sides of the same coin. In a transfer of knowledge there is always a source that transfers the knowledge and a recipient that receives or *acquires* it.

1.2.2. EPISTEMOLOGICAL ROOTS OF OL AND KM THEORIES

In the discussion on the relationships between KM and OL some conceptual differences have become evident. Depending on how scholars answer to questions such as ‘What is *to learn?*,’ ‘What is *knowledge?*,’ ‘Is it something purely *cognitive* or it has something to do with *action or practice?*,’ or ‘Is there something such as *organizational learning or knowledge?*’, we may find different approaches. For this reason, it may be worth it to undertake the task of tracing epistemological lines of influence underlying each proposal. It is not our purpose here to be exhaustive, but to identify the main streams and provide some examples in each.

Before starting, it is noteworthy that epistemological issues are more often addressed by authors of the OL field, rather than the KM. Of course, there are exceptions, such as Spender (1996, Spender and Scherer, 2007), Nonaka and colleagues (Nonaka, 1994, Nonaka, von Krogh and Voelpel, 2006), Brown and Duguid (1991, 2001) or Tsoukas (1996, Tsoukas and Vladimirov, 2001). However, both OL and KM authors hold one particular conception of knowledge and how it is acquired.

Among those authors, direct references to philosophers are rare. We have found some references to Aristotle, Plato, Descartes, Kant, Taylor, Marx, Kuhn, Ortega y Gasset, Heidegger, Habermas, Popper, Rorty and Wittgenstein (Akbar, 2003, Blackler, 1995, Cook and Brown, 1999, Gueldenberg and Helting, 2007, Hazlett *et al.*, 2005, Kolb and Kolb, 2005, Menger, 1999, Miller, 2008, Nonaka, 1994, Nonaka and Toyama,

2007, Nonaka and Takeuchi, 2011, Raelin, 1997, Sandberg and Pinnington, 2009, Spender, 1996, Spender, 2008, Spender and Scherer, 2007, Tsoukas, 1996, Tsoukas and Vladimirou, 2001), but they are scarce compared with the total bibliography. The notable exception is Polanyi, who is extensively referred to (Akbar, 2003, Brown and Duguid, 1991, Brown and Duguid, 2001, Coff, Coff and Eastvold, 2006, Cook and Brown, 1999, Dyck *et al.*, 2005, Easterby-Smith and Lyles, 2003, Gueldenberg and Helting, 2007, Hazlett *et al.*, 2005, King and Ranft, 2001, Ma and Yu, 2010, March, 1991, Miller, 2008, Nonaka, 1994, Nonaka *et al.*, 2006, Raelin, 1997, Sandberg and Pinnington, 2009, Spender, 2008, Spender and Scherer, 2007, Tsoukas, 1996).

More often, philosophical notions appear mediated by other disciplines, such as sociology, economic theory, and psychology. Thus, we can find Dewey (Cohen and Bacdayan, 1994, Cook and Brown, 1999, Easterby-Smith and Lyles, 2003, Kolb and Kolb, 2005, Miller, 2008, Nicolini and Meznar, 1995, Spender, 1996, Spender, 2008, Spender and Scherer, 2007, Tsoukas, 1996, Tsoukas and Vladimirou, 2001, van der Sluis, Williams and Hoeksema, 2002), Vygotsky (Brown and Duguid, 2001, Cheetham and Chivers, 2001, Kolb and Kolb, 2005, Raelin, 1997, Spender, 2008, Wenger, 1998), Skinner (Cheetham and Chivers, 2001, Shrivastava, 1983) and Bandura (Cheetham and Chivers, 2001, Conger and Kanungo, 1988, Libby and Tan, 1994, Morris and Moore, 2000, Raelin, 1997, Sims, 1983, Wenger, 1998, Wood and Bandura, 1989). Note that these references do not necessarily mean concordance with them by citing authors, but that they are considered relevant interlocutors for academic discussion.

Among all the streams, those that prove to have been a deeper influence are rational economic models (1.2.2.1.), different developments in psychology—behaviourism, cognitive approaches (1.2.2.2.) and social psychology. Social psychology will be approached along with other streams with which it has in common the opposition to rationalism: pragmatism, and constructivism (1.2.2.3.). None of these proposals is found in a “pure” form in any author, but combined in different ways, which poses the question of to what extent it is possible to use or combine different epistemologies (1.2.2.4.).

1.2.2.1. *RATIONAL ECONOMIC MODELS. THE INFLUENCE OF THE NEOCLASSICAL THEORY*

Typical of rational economic models is the focus on costs calculation, resources allocation, and goals and alternatives, in addition to the postulates of economic individualism, with its human agency theory based on the prosecution of profit maximisation and individual self-interest. We can find these influences, for example, in Cyert and March (1963) and Simon's (1991) developments, although not without criticism.

We also can find traces of these ideas in the resource-based approaches to knowledge in the organization (Barney, 1991, Grant, 1996b, Haas and Hansen, 2007, Huber, 1991, Teece, 1977, Teece, Pisano and Shuen, 1997, Zack, 1999). In those, knowledge is treated as one of the most important resources in organizations—the main one, in the so-called knowledge-intensive firms (KIFs) (Starbuck, 1992, 1993)—, in order to produce value. Moreover, these theories have been applied to different areas, such as training costs (Gattiker, 1995, Killingsworth, 1982, Mincer, 1962) and new technology application and transfer (Epple *et al.*, 1991, Jovanovic and Nyarko, 1996) or have been harmonised with other complementary insights, making room for learning from others, experimentation and invention (Foster and Rosenzweig, 1995, Grossman, Kihlstrom and Mirman, 1977, Young, 1993).

The structure input-output is common to these models: the more and better knowledge is implicated, the better the performance is. Related to this notion is the concept of *learning curves* that appeared in economic literature, for example through the work of Arrow (1962), and then went into organization theory (Cohen and Levinthal, 1990, Darr, Argote and Epple, 1995, Epple *et al.*, 1991, Foster and Rosenzweig, 1995, Herriott, Levinthal and March, 1985, Young, 1993).²¹ If the output is positive, the action is repeated on and on (Eisenstein and Hutchinson, 2006). This

²¹ “As early as 1936, U.S. Air Force Production workshops had discovered that the direct labour hours required to complete any production task decreased substantially as the total number of times the job was performed increased” (Shrivastava, 1983, p. 14). This can be mathematically described as a curve, hence the terms learning curve and *learning by doing* as synonyms to *learning by experience*.

suggests the existence of *feedback*, and it explains how rational economic models combine naturally with behavioural psychology, as we will see below.

The first objections to this view came from the cultivators of rational models themselves. For example, Cyert and March (1963) aim to correct the profit-maximisation principle by replacing it by “satisfactory goals” or “satisfactory profits”. They also argue that traditional economic models work under the overoptimistic assumption that firms operate with perfect knowledge, thus ignoring the toils of information search and environmental constraints. Simon (1991) also offers a rational model, but insisting on a “bounded rationality”, which means that the rationality of individuals in the organization is limited in their adaptation to complex environments and also in what refers to innovation. Levitt and March (1988) observe that “pure” learning curve models are too static, because they treat routines as static. Also Levinthal and March (1993) ask for a reformation of this calculative-rationality view—typical of earlier approaches—consisting of well-defined objectives, alternatives assessment, future forecasts, discernment of relevant information, control, and so on. Pisano (1994), focusing on routines design, implementation and replication, states that learning curves are a narrow slice of OL: there is, in addition, purposeful planning and R&D.

As we have seen, one of the main problems of rational models is their difficulty to face a changing or turbulent environment. For this reason, Cangelosi and Dill (1965) precise that Cyert and March’s (1963) proposal of learning as a gradual process of adjusting probabilities may be valid for consolidated organisations that work in a stable environment, but there is a need for a different model of sporadic, stepwise learning for immature organizations and the ones subject to great uncertainty and environmental turbulence. In addition, they argue, Cyert and March don not include relationships between individuals and sub-groups.²²

We will see that the hardest critiques to the rational economic theory come, however, from different positions, which will be commented later, in section 1.2.2.3.

²² In this, Cyert and March show a trait typical of classical liberalism, which envisions society as a collection of individuals who relate to an abstract State, and ignores other intermediate communities.

1.2.2.2. DEVELOPMENTS IN PSYCHOLOGY

Parallel to the described theories, the evolution of psychology over the twentieth century had a strong influence on different streams of OL, mainly.²³ The most relevant point is the debate between cognitive and behavioural psychology, i.e. “between learning as cognitive change and learning as behavioural change” (Inkpen and Crossan, 1995, p. 600, see also Akbar, 2003, Cheetham and Chivers, 2001, Fiol and Lyles, 1985, Morris and Moore, 2000, Shrivastava, 1983, Spender, 2008).

Behaviourist theories follow the stimulus-response model of behaviour. Changes in responses may indicate learning. Neo-behaviourists added to these views the calculation of response probabilities by statistical models (Shrivastava, 1983). It is not surprising that these approaches make a good match with rational theories (Tsoukas, 1996). Theories viewing learning as an *adaptation* process to environmental stimuli or feedback are also closely connected with behavioural models. When the cycle stimulus-response-feedback becomes reiterated, *routines* emerge. Argote and Greve (2007) place Cyert and March (1963) as the ones leading the focus of organizational theory both away from profit maximization and towards behavioural routines. The notion of organizational routines is one of the most relevant and ubiquitous in the areas of KM and OL: in the latter, learning is understood as the institution of routines (Cangelosi and Dill, 1965, Cohen and Bacdayan, 1994, Herriott *et al.*, 1985, Levinthal and March, 1993, Levitt and March, 1988); in the former, organizational knowledge is viewed as embedded in people, *routines* and machinery (Akbar, 2003, Argote and Ingram, 2000, Bhagat *et al.*, 2002, Blackler, 1995, Cohen and Bacdayan, 1994, Davenport, De Long and Beers, 1998, Davenport and Prusak, 1998, Dinur, Hamilton III and Inkpen, 2009, Grant, 1996a, 1996b, Lei *et al.*, 1996, Levitt and March, 1988, Pisano, 1994, Starbuck,

²³ The borrowing of insights from natural sciences and psychology by organizational theorists has caused some humorous observations. For instance, Brown and Duguid (1998, p. 92) comment: “many who argue for self-organization often sound less like economists than entomologists: bees, ants, rats, and termites (as well as bats and other small mammals) provide much of the self-organizing case. In a related vein, others draw examples from “artificial life”, whose systems are themselves usually modeled on insect- and animal-like behavior.” Hedberg (1981, p. 6), in turn, observes: “No theory of organizational learning is based primarily on observations of organizations’ behavior. Instead, experiments with individual humans, mice and pigeons provide the bases upon which theories of organizational learning are mostly built.” We cannot deny that they have their point.

1992, Teece *et al.*, 1997.²⁴ Routines may be narrowly understood as standard operating procedures (SOPs) (Cyert and March, 1963) or, in a broader sense, as the same as skills and habits are for individuals (Cohen and Bacdayan, 1994).²⁵ We will accept both for our research.

Adaptive and behavioural models have received criticism in diverse aspects. The main one is that of passivity (Cook and Yanow, 1993, Dodgson, 1993, Hedberg, 1981, Wenger, 1998). “[Strategies] are not totally reactive, and can proactively seek to influence the environment in which they learn” (Dodgson, 1993, p. 387). In general, we will see later that scholars who stress creativity and proactive capacities of organizations reject the behavioural model (Nonaka, 1994, Spender, 2008, Spender and Scherer, 2007, Torbert, 1994).²⁶ In addition, some authors distinguish between adaptation (i.e. incremental adjustments to environment) and learning (i.e. development of insights, knowledge and associations action-outcome) (Fiol and Lyles, 1985), and between behavioural change and learning (Cook and Yanow, 1993, Fiol and Lyles, 1985).²⁷ Finally, some authors belonging to the behavioural theory of the firm (Levitt and March, 1988, Levinthal and March, 1993) and others (Argyris and Schön, 1978, Huber, 1991) acknowledge that not all routines are beneficial for organizations.

The other school in psychology that influenced the KM and OL fields is **cognitive psychology**. It appeared almost contemporaneously to behaviourism, and it focuses on what happens between input and output, i.e. “the mental processes which accompany [...] learning, reasoning or problem-solving” (Cheetham and Chivers, 2001, p. 251). Here we will comment the most relevant approaches, namely *connectionist approaches* and *Gestalt* psychology.

²⁴ This consideration allows for a notion of organizational memory that goes far beyond data repositories.

²⁵ Other examples of the application of the adaptation-and-routines scheme to individuals are Bonner and Walker (1994), Sims (1983) and van der Sluis *et al* (2002).

²⁶ Moreover, Nonaka and colleagues (2006) note that all these approaches are still based on an obsolete psychology that had its moment in the 1950s.

²⁷ Fiol and Lyles provide a matrix in which behavioural change and learning (cognitive change) are combined in the four possible forms: no learning and no change, learning with change, no learning with change and learning with no change. Cook and Yanow provide several examples of the latter case: when organizations learn in order *not* to change.

Connectionist branches focus on neurology and artificial intelligence studies, and their insights on human brain and/or computers are applied as a model for organizations' internal functioning (Tsoukas, 1996, Weick and Roberts, 1993). Knowledge is seen as residing in connection networks. The power of the metaphor resides in that "complex patterns can be encoded by patterns of activation and inhibition among simple units, if those units are richly connected. This means that relatively simple actors may be able to apprehend complex inputs if they are organized in ways that resemble neural networks." (Weick and Roberts, 1993, p. 359) Traces of this school can be found in concepts such as "organizational mind" (Weick and Roberts, 1993), firms as "distributed knowledge systems" (Tsoukas, 1996), or, in general and more distantly, those who make emphasis on networks and social capital (Argote and Ingram, 2000, Coleman, 1988, Ghoshal, Korine and Szulanski, 1994, Hansen, Mors and Løvås, 2005, Hong and Nguyen, 2009, Nahapiet and Ghoshal, 1998, Reagans and McEvily, 2003, Zander and Kogut, 1995). Cognitive approaches are criticised for failing to acknowledge the importance of affective factors such as emotions and motivation, and other relevant organizational factors such as turnover and environmental complexity (Weick and Roberts, 1993, Wood and Bandura, 1989). How knowledge, simple as it may be, has emerged as distributed across the network, is also something not addressed by connectionist approaches (Tsoukas, 1996).

Gestalt psychology "views consciousness as involving organised structures, patterns and configurations, and learning as a holistic process that cannot meaningfully be broken down into constituent parts, even for purpose of analysis." (Cheetham and Chivers, 2001, p. 251) They focus on mental images, patterns or mind-sets. The most obvious influence is that which shows in scholars who stress the relevance of shared beliefs, common interpretations, and underlying assumptions either as the outcome or as the medium or condition for OL (Argyris, 1976, 2003, Argyris and Schön, 1978, Brown and Duguid, 1991, Cook and Yanow, 1993, Daft and Weick, 1984, Weick and Roberts, 1993). Brown and Duguid (1991) bring these concepts to practice, distinguish between canonical or espoused practices—the "official" corporate practices—and non-canonical practices, which are the actual behaviour of the communities of practice integrating the organization. The cognitive perspective is often criticised by positivists, who consider

this approach too difficult to be operationalized²⁸ and, thus, empirically tested. For Spender (2008) also the problem is subjectivism, which may fall into anarchic relativism.

Although behavioural and cognitive models were originally antagonistic, most of the scholars seek to combine elements of both (Cheetham and Chivers, 2001). For instance, Argyris's terminology of learning loops²⁹ suggests not only different levels of internal cognitive processes, but also the feedback that follows them and restarts the process, and Huber's (1991) definition of OL integrates behavioural and cognitive concepts.³⁰ This is also true for Nonaka's (1994) model of learning as knowledge transformation: knowledge is an input that becomes transformed through a series of processes—the SECI cycle—and produces action and more knowledge in a continuing, dynamic learning spiral.

1.2.2.3. THE REACTION TO RATIONALISM: SOCIAL PSYCHOLOGY, PRAGMATISM, CONSTRUCTIVISM

The sources of the positions we will examine here are as varied as sociology (pragmatism), social psychology and even philosophy of language (constructivism). What they have in common is their criticism towards what they deem to be rationalistic

²⁸ It is a triple problem, which derives from self-reporting, the interpretation of tests, and the universalization of findings (Cheetham and Chivers, 2001).

²⁹ Single-loop learning implies making some adjustments that do not challenge predominant theory-in-use (i.e. generally accepted basic assumptions about something), while double-loop does produce changes at the roots of the agents' mind-set (see also Torbert, 1994). In the same fashion, other authors use the equivalent terms of lower- and higher-level learning (Fiol and Lyles, 1985, Hedberg, 1981, Lei *et al.*, 1996, Stein and Zwass, 1995). Carroll (1998) talks about seeking root errors instead of just administering band-aids.

³⁰ "An entity learns if, through its processing of information [input/stimulus], the range of its potential behaviours [output/response] is changed. [...] An organization learns if any of its units acquires knowledge that it recognizes as potentially useful to the organization [holistic view]." (Huber, 1991, p. 89)

approaches. In addition, there are overlaps between the three approaches: social psychology and constructivism overlap in Vygotsky, pragmatism and constructivism in Rorty, social psychology and pragmatism in Dewey. Only Polanyi remains a “pure” epistemologist (i.e. philosopher of knowledge). We will take into account this intermingling in our explanation. We will briefly describe the three streams and then describe what they understand by *rationalism* and the objections they make to it.

As for **pragmatism**, Dewey is cited as the main reference in many cases. Cook and Brown (1999), for example, borrow from him the idea of practice as a form of production of something that contains in itself actual *knowing*.³¹ Practice implies also “productive inquiry”, i.e. “seeking what we need, in order to do what we want to do” (p.388). With this, Cook and Brown propose an “epistemology of practice,”³² which is complementary to what they call “epistemology of possession,” i.e. that which envisages knowledge as something that can be acquired, possessed, transferred or transformed (see also Brown and Duguid, 1991, Brown and Duguid, 2001, Cook and Yanow, 1993, Duguid, 2006, Lave and Wenger, 1991, Wenger, 1998). This distinction is not trivial, because in this dissertation we will try to include both views of knowledge, understanding that the way of acquiring, possessing or transferring *practical* knowledge is mainly through *practice*, especially work practice (King and Ranft, 2001, Lave and Wenger, 1991, Raelin, 1997, Sandberg and Pinnington, 2009).

According to Marshall (2008), practice-based perspectives show the shortcoming of often ignoring cognitive processes. Cognitive approaches are considered too functionalistic, mechanistic and individualistic. This, Marshall argues, is an illegitimate generalization. Moreover, “individual and cognitive frameworks or schemata play a central and dynamic role” (p. 414) in the reproduction and transformation of practice.

Social psychology makes its contribution mainly through Bandura, whose social cognitive theory “sees learning as a continuous, dynamic and reciprocal interaction between individuals affecting, in particular, their *attributes, values and behaviours*. It also recognises the importance of the learning environment.” (Cheetham and Chivers,

³¹ In fact, several authors propose shifting the focus from “knowledge” to “knowing” (Blackler, 1995, Lave and Wenger, 1991, Tsoukas, 1996, Wenger, 1998).

³² They mention Ortega y Gasset’s notion of circumstances, i.e. social and physical context with all its determinations as a framework of meaning.

2001, p. 253, emphasis in original) Wood and Bandura (1989) talk about a triadic reciprocal causation between behaviour, personal attributes and the environment. Wenger (1998) adds that Bandura's main contribution is on the line of imitation or modelling processes. This is related, on the one hand, to vicarious learning processes— i.e. learning from other organizations' experience (Cohen and Levinthal, 1990, Herriott et al., 1985, Huber, 1991, Lei et al., 1996, March, 1991, Morris and Moore, 2000, Wood and Bandura, 1989)—and, on the other hand, the stream regarding the learning organization (Davenport and Prusak, 1998, De Geus, 1988, Dixon, 1999, Hedberg, 1981, Pedler, Boydell and Burgoyne, 1989, Senge, 1990, Simonin, 1997, Torbert, 1994). In general, the understanding of social interaction as the means par excellence for learning has spread across all the literature related to learning and KM (Argyris and Schön, 1978, Blackler, 1995, Brown and Duguid, 1991, 2001, Cook and Yanow, 1993, Cook and Brown, 1999, Daft and Lengel, 1986, Foster and Rosenzweig, 1995, Inkpen and Crossan, 1995, Kolb and Kolb, 2005, Lave and Wenger, 1991, Macdonald, 1995, Nonaka, 1994, Nonaka *et al.*, 2006, Tsoukas, 1996, Wenger, 1998).

The social perspective can radicalize to the point of picturing individuals' judgement as a function of the social background, i.e. it is the organization that which learns and the individual learns through it (Tsoukas, 1996, Weick and Roberts, 1993). But social deterministic positions disregard the relevance of individual human agency: the simple example of a key member leaving the organization and taking his or her knowledge with himself or herself is enough to evidence this mistake (Dodgson, 1993).

Finally, we have **constructivism**, which envisages knowledge as an individual process by which each one builds their own way of making sense of the world (Cheetham and Chivers, 2001). In social constructivism, sense-making is performed collectively. According to Easterby-Smith and Lyles (2003), it has roots Dewey, and Spender (2008) also mentions Marx's praxis influence in that we do not react to environment but we create it; we do not act according to sense but we make sense by acting. Rorty is cited by Tsoukas (1996) and Vygotsky is cited by Spender (1996). Vygotsky introduced the idea of "collaborative learning", which is not learning from others but individually acquiring knowledge while collaborating in some task. It is not really knowledge transfer because each one constructs their own knowledge taking occasion of the interaction (Inkpen and Crossan, 1995, Macdonald, 1995, Yew and Schmidt, 2009). All the scholars who highlight organizational creativity over

knowledge acquisition, adaptation or imitation (Brown and Duguid, 1991, Cook and Brown, 1999, Kolb and Kolb, 2005, Marshall, 2008, Nicolini and Meznar, 1995, Nonaka, 1994, Nonaka *et al.*, 2006, Spender, 2008, Spender and Scherer, 2007, Tsoukas, 1996, Wenger, 1998) follow to some extent the postulates of constructivism.

Brown and Duguid (1991), Cook and Brown (1999) and Wenger (1998) view work practice as a place in which narrative and collaboration contribute to the professional identity construction. For Marshall (2008), all situations are provisional and agents choose their meaning frameworks every time anew, “a norm is always applied for ‘another first time’” (p. 421). Nicolini and Meznar (1995) propose a model in which socially shared cognition is built through a self-reflection process controlled by top management. This reference to control is quite unique among social constructivist proposals, who usually avoid any reference to organizational hierarchy. But the authors who have gone further in following the philosophical postulates of constructivism are Spender (2008) and Tsoukas (1996). The former rejects any kind of “realism”, understood as the belief of the existence of some kind of truth, be it in the physical external world—positivism—, the individuals’ minds—cognitive psychology—or social relationships—Deweyan pragmatism—, and holds that knowledge cannot be separated from “the practice of living in the world” (Spender, 2008, p. 171). Tsoukas (1996) also denies any kind of “nature” or “essence” in social practice, which “depends on how human agents interpret it to be” (p. 19).

As above said, what all these authors have in common is their opposition towards what they call “rationalism”, which sometimes is directly identified with Cartesian view (Cook and Brown, 1999, Gueldenberg and Helting, 2007, Miller, 2008, Nonaka, 1994, Spender, 2008, Spender and Scherer, 2007), sometimes with Western mindset in general (Gueldenberg and Helting, 2007, Inkpen and Crossan, 1995, Marshall, 2008, Nicolini and Meznar, 1995, Nonaka, 1994, Nonaka *et al.*, 2006, Spender, 2008). Rational, behavioural and cognitive models are qualified as “mechanistic” or “computational,” something devoid of life, abstract, rigid constructs. This is related to the insistence on information systems, especially characteristic of the 1980s (Davenport *et al.*, 1998, Gallupe, 2001, Nonaka *et al.*, 2006, Ruggles, 1998), and the characterisation of knowledge as an asset or commodity. Pragmatist and social models aim to capture the dynamism of real life.

This polemic involved the discovery of the work by the philosopher and chemist Michael Polanyi, especially regarding his distinction between tacit and explicit knowledge (Polanyi, 1966). Nonaka (1994, p. 16) summarizes it as follows:

“Explicit” or codified knowledge refers to knowledge that is transmittable in formal, systematic language. On the other hand, “tacit” knowledge has a personal quality, which makes it hard to formalize and communicate. Tacit knowledge is deeply rooted in action, commitment and involvement in a specific context.

The distinction tacit/explicit appears in many of the authors above cited. Rationalism typically has privileged explicit knowledge over tacit knowledge, which offers a world of possibilities, as it is embedded in practices—either individual or collective—, it remains unconscious (Spender, 1996), and is related to imagination. But Polanyi’s position is as far from dogmatic rationalism as from post-modern anti-foundationalism (Miller, 2008),³³ thus, he can be considered a realist, but in the classical sense, not with the meaning Spender (2008) attaches to this word.

Once more, what the authors of the three streams commented in this subsection—pragmatism, social psychology and constructivism—have in common is their reaction against rationalism. But the notion of “reason”, “rationality” and “knowledge” that these authors hold—especially constructivism—is, precisely, their main weakness. To make it clearer, we can review Gueldenberg and Helting’s (2007) criticism towards Nonaka’s position with respect to Western knowledge theory. In his various works, Nonaka (1994, Nonaka *et al.*, 2006) defines knowledge as “justified true belief”, and “truth” as absolute certainty, and sustains that these notions can be traced back from Plato and Aristotle, to Descartes and, in general, all Western philosophical tradition. This, according to Nonaka has derived into rationalism and positivism. In opposition, Nonaka proposes an Eastern or oriental approach, which can be considered as holistic, and introduces a series of Japanese concepts—such as *ba* (Nonaka and Konno, 1998)—under the assumption that they do not have an equivalent in Western thought. The

³³ As Amartya Sen points out in the foreword of the 2009 edition of Polanyi’s *The Tacit Dimension*, Polanyi’s originality may be due to his evolving into philosophy from a different background, which enabled him to develop a view free of prejudice (Polanyi and Sen, 2009).

underlying assumption—not only in Nonaka but in the other authors—is that any reference to “reason” or “truth” is rationalist by definition *and* typically Western.

Well then, Gueldenberg and Helting’s (2007) answer is: 1) Nonaka cites Western authors such as Heidegger and Habermas to support his own proposal;³⁴ 2) it is not true that Plato or Aristotle would support the definitions of knowledge and truth attributed to them by Nonaka: Plato rejects the notion of “justified true belief”, and his and Aristotle’s notions of truth are far richer than the rigid, univocal concept Nonaka uses; 3) what Nonaka considers traditional notions are, actually, Cartesian in their origins, therefore, not representative of all Western tradition;³⁵ and, finally 4) it is questionable that there is no equivalent in Western philosophy to the Japanese notions brought up by Nonaka.³⁶

We suggest that this criticism may be made extensive, *mutatis mutandis*, to the authors we have grouped as following pragmatism, social approaches and constructivism. On the other hand, their main contribution is the re-introduction of elements such as *practice, social interactions, imagination and creativity*, and so on, in the OL and KM fields. Constructivist authors (Spender, 2008, Tsoukas, 1996) are simply taking this line of reasoning to the extreme, but the constructivist attempt to avoid physical, psychological and social constraints risks to lose touch with the reality organizations face every day. Their own writing risks becoming as abstract and abstruse as the rationalistic constructs they criticise.³⁷ In consequence, a new review of the history of Western thought in search of different definitions of rationality would be as advisable as out of our scope.

³⁴ They even doubt that Nonaka has directly read Heidegger’s works.

³⁵ However, we do acknowledge that they have been predominant in part of this tradition for the last three centuries

³⁶ Interestingly enough, in the latest revision of their theory, Nonaka and von Krogh (2009) do not make any reference to Gueldenberg and Helting’s piece.

³⁷ In fact, it is quite surprising that both Spender (2008) and Tsoukas’s (1996) papers have a final section of implications for practitioners. Reading them, it is legitimate to doubt that any manager may draw any feasible conclusions for his or her organisation.

1.2.2.4. A NOTE ON THE COMBINATION OF DIVERSE EPISTEMOLOGIES

Some of the authors above cited signal that the main handicap of previous theories is their unidimensionality or one-sidedness. Therefore, most of them engage in a combination of perspectives (Cook and Brown, 1999, Daft and Weick, 1984, Fiol and Lyles, 1985, Inkpen and Crossan, 1995, Nonaka, 1994, Nonaka et al., 2006, Raelin, 1997, Spender, 1996, Weick and Roberts, 1993, Wood and Bandura, 1989). This is understood as pluralistic epistemologies. Nonaka (1994), for example, proposes his SECI cycle of knowledge conversion in which collective and individual knowledge is combined with tacit and explicit knowledge. This is, at the same time, envisaged as a cycle or spiral of knowledge creation. In SECI, socialization—tacit knowledge is transformed into tacit knowledge in a one-to-one relationship—is successively followed by externalization—tacit knowledge is transformed into explicit knowledge—, combination—explicit knowledge becomes more explicit knowledge—, and internalization—explicit knowledge becomes tacit organizational knowledge. Both three last processes (ECI) are simultaneously individual and collective. Cook and Yanow (1993) argue that there is no “knowledge conversion” but “knowledge emergence.”³⁸ But Cook and Brown (1999) use a similar matrix tacit-explicit and collective-individual to characterise the “epistemology of possession” and “bridge” it with the “epistemology of practice.” Spender (1996), before evolving to a more constructivist approach, proposes a rather complex integration of objectivism, pragmatism, cognitive theory, social constructivism and Polanyi’s notion of tacit knowledge.

The main question here is whether it is possible to take a higher point of view from which to assess, accept or discard elements of each proposal. This *meta-epistemology* is deemed impossible by Spender and Scherer (2007), who argue that the combination of different epistemologies takes place in actual practice. Our impression is that it is not possible to evaluate and accept or reject the different positions if it is not from a philosophical point of view. This is the task of philosophy of science. Perhaps a more rigorous study of the foundations of each stream, and the comparison with a genuinely *realistic*—i.e. *in touch with reality*—philosophical grounds might help clarify the

³⁸ Using Socratic terminology, they portrait the master-apprentice relationship not as a knowledge transfer but as a sort of maieutic art in which social and physical interaction makes knowledge emerge (see Plato, *Theaetetus*, 148d-151d).

current situation of OL and KM theories. Once again, this is not the place to undertake this task.

After all this review, it is not our purpose to choose between one and another position. It seems to us that each approach illuminates one facet of the reality. Thus, here we wanted 1) to expose the different epistemological roots and their limitations, showing the polemics among them and 2) at the same time, seek relevant elements that would help our empirical research, especially in the design and codification phases. As our focus will be the transfer of operational knowledge, we are principally interested in the pragmatic, social and constructivist approaches. This is the reason why we have devoted a section (1.2.4.) to “Learning in Practice.”

At the end of the current subsection, it is necessary to make a brief recapitulation. Many different economic, psychological and philosophical trends underlay the different proposals about OL and KM. Thus, the first impression is that of a lack of unity within both fields. Some theories are designed to correct others and each does contribute to better understand different aspects in both fields. This is what will entitle us to draw from each the elements we need for the proposal, analysis and interpretation of our research. We also have seen some authors attempting to conciliate some approaches that were originally antagonistic. The final conclusion has been that a further epistemological effort is needed in order to make a good synthesis that avoids eclecticism as well as dogmatism.

Next three subsections will be devoted to describe the characteristics of OL (1.2.3.), the approaches to practical learning or learning in practice (1.2.4), and KM (1.2.5.). In all of them, we will pay attention, mainly, to the categories we will use in the empirical chapter.

1.2.3. THE OL LITERATURE

Our main interest regarding the OL literature is to draw ideas in what it means for an organization and the individuals working in it to acquire new knowledge in different ways. However, we have to choose among the different possible ways of envisaging OL, and this requires a justification. Therefore, the first task is to clarify a definition of OL and its characteristics (1.2.3.1.). Next, we will examine the relationship between OL and the performance of the organization (1.2.3.2.). The following subsection will address if organizations really can learn and what are the implications of individuals' learning for OL (1.2.3.3.). If we talk about OL, we must inquire where this learning comes from (1.2.3.4.) and where are the possible obstacles to learning (1.2.3.5.). We will end with a mention to the characteristics of the learning organization (1.2.3.6.).

1.2.3.1. *THE DEFINITION AND CHARACTERISTICS OF OL*

There have been roughly two big groups of definitions: OL as an outcome and OL as a set of internal processes (Dodgson, 1993, Fiol and Lyles, 1985, Morris and Moore, 2000). According to Fiol and Lyles (1985), this division comes from Simon as far as 1969, when he gave a definition in which “learning consists of the development of insights on the one hand and structural and other action outcomes on the other” (p. 803). Following the first definition—OL as an outcome—are, for example, Cyert and March (1963), Cangelosi and Dill (1965), Levitt and March (1988), and Cohen and Bacdayan (1994). All of them focus on organizational routines. For Spender (2008), behavioural change over time is the main characteristic of the whole OL field versus KM. Following the second approach—OL as a set of internal processes—we find, for example, Argyris (1976, Argyris and Schön, 1978), Weick and Roberts (1993), and Inkpen and Crossan (1995), who focus on learning levels, organizational mind as a network of shared meanings, and increased shared understanding, respectively.

In our search for a definition encompassing both outcomes and processes, we found one that Huber (1991) proposed in a polemic with other authors (Argyris and Schön, 1978, Fiol and Lyles, 1985) who identified learning just with improved effectiveness:

An entity learns if, through its processing of information, the range of its potential behaviors is changed. [...] An organization learns if any of its units acquires knowledge that it recognizes as potentially useful to the organization.
(Huber, 1991, p.89, emphasis in original, see also Stein and Zwass, 1995)

Therefore, Huber's definition 1) refers to action ("potential behaviours", "potentially useful"), and 2) internal processes ("through its processing of information", "acquires knowledge", "it recognizes as potentially useful"), 3) it considers OL as a collective issue ("an organization"), and 4) it includes a judgement of what is and is not learning ("acquires knowledge [...] potentially useful").

Despite there is a general lack of agreement and synthesis work inside the OL field (Dixon, 1999, Dodgson, 1993, Fiol and Lyles, 1985, Huber, 1991, Nicolini and Mezner, 1995, Shrivastava, 1983), it is possible to give an account of its general traits, at least in what refers to common areas of interest. We will base on Fiol and Lyles's (1985) view, but enriching it with the contributions of other authors. According to Fiol and Lyles, these areas of interest are:

- (1) Environmental alignment, i.e. adaptation in order to keep competitive and survive. "The firm must have the potential to learn, unlearn, or relearn based on its past behaviors" (p. 804), i.e. the ability to change and readjust.
- (2) Individual and organizational learning are distinct. OL is not an aggregation of individuals' knowledge but something collectively produced, shared and preserved over time and changes.
- (3) Contextual factors that affect learning:
 - Culture, understood as prevailing ideologies and patterns of behaviour. OL in turn affects culture.
 - Strategy, which delimitates the boundaries to decision making.
 - Structure, with a contrast between hierarchical and organic organizations. The degree of internal flexibility influences learning.

- Environments.³⁹ Their degree of complexity is especially influential. Both extremes are equally detrimental.

It is noteworthy that Fiol and Lyles propose these characteristics as “areas of consensus,” but, according to Nicolini and Mezner (1995) they should be considered “focuses of current debate” instead: the consensus is on the themes, but not on the solutions. In fact, all of them have been contended. In (1), for example, not all authors accept the equivalence learning-adaptation: “enacting organizations” are able to proactively modify the environmental conditions (Brown and Duguid, 1991). On the other hand, “alignment” can also refer to mutual alignment of internal cognitive instances (Nicolini and Mezner, 1995). Regarding (2), and as we will see in following subsections, the problematic relationship individual-organizational learning is far from solved. As for (3), each item is a discussion topic: for example, there are many different definitions of culture, and strategy may be considered a conditioning factor or an outcome of learning. Even identifying items in (3) as “contextual factors” affecting learning may be discussed: they could all of them be considered factors affected by learning or even essential components of learning (Shrivastava, 1983).

Taking into account these issues and also Dixon’s (1999, pp. 229-230) contribution—she also lists the main discrepancies and common traits in the OL literature—as well as Shrivastava (1983) and Nicolini and Mezner’s (1995), we have made a variation of Fiol and Lyle’s (1985) proposal:

- (1) Learning (i.e. the acquisition of knowledge), under certain conditions, is beneficial for the organization.
- (2) Focus on alignment, either of the organization and the external environment or among internal cognitive instances. From here, two dichotomies appear: the one between behavioural and cognitive approaches and the one between adaptation and proactiveness. In general, behavioural perspectives are adaptive, so there may be overlaps between these two opposing pairs. On the basis, there is the common assumption that organisations are able to adjust, realign or change themselves.

³⁹ The word is in plural because it includes not only the market—including clients, providers and competitors—, but the technological context and the society in which the organization operates

- (3) Individual and organizational learning are distinct but their mutual relationship is still contended.
- (4) Factors that affect and/or are affected by learning:
- Culture, understood as prevailing ideologies and patterns of behaviour.
 - Strategy, which delimitates the boundaries to decision making
 - Structure, with a contrast between hierarchical and organic organizations. There is an interest on detecting changes in structure and intra-organizational boundaries and roles.
 - Environments. Their degree of complexity is especially influential. Both extremes are equally detrimental. OL affects the environment, either because the environment is considered a mental construct or as a result of the organization's proactivity.⁴⁰

In the empirical part of the dissertation we will use some of these concepts, and some of them will also be reviewed in the following subsections, starting by number (1), which will be the subject of 1.2.3.2.

1.2.3.2. OL AND PERFORMANCE

The first characteristic of the OL field we have listed above is the assumption that increased knowledge leads to performance improvement (Dixon, 1999, Fiol and Lyles, 1985). This may mean enhancing competitiveness, productivity and innovativeness, especially under uncertain circumstances (Dodgson, 1993), through the development of core competences (Lei, Hitt and Bettis, 1996, Levinthal and March, 1993, Pisano, 1994). Differences appear in how direct the link learning-performance is, and, moreover, how scholars understand *performance* itself.

In general, rational economic and behavioural approaches make this link more direct. In fact, actual learning only can be measured through outcomes, be them

⁴⁰ This distinction comes from Dixon (1999), who remarks that OL theories may focus on taking action or on changes in underlying assumptions

behavioural changes, be them (economic) performance improvements. For the first, any change is learning (Levitt and March, 1988), so changes for the worst show what authors call incorrect learning and learning that which is incorrect (Huber, 1991), and myopia of learning (Levinthal and March, 1993). For the second, only improvement is learning, which can find pitfalls, such as anti-learning (Argyris, 2003, Hackman and Wageman, 1995), learning inhibitors and anti-double-loop learning (Argyris, 2003, Argyris and Schön, 1978).

Inkpen and Crossan's (1995, p. 603) "position is that organizations that learn more effectively will in the long term perform better than their competitors," but observing this improvement is difficult due to time-lags and risk of biased interpretations of experience. Learning increases reliability but also impermeability to information that is contradictory to organizational routines (March, 1991). In the empirical part of their paper—on Japanese-American joint ventures—, Inkpen and Crossan (1995) note that American managers only took profitability as the measure for learning. Instead, Japanese partners included the acquisition of skills related to customer satisfaction or quality manager, skills that only pay off on the long term. Measuring the latter is much more difficult, but it is also true learning.

The distinction Simonin (1997) makes between the tangible—financial and strategic—and intangible—skills and competences—outcomes of joint ventures is quite illustrative. He uses a wider concept of *performance*, which embraces both *tangible* and *intangible* outcomes. This allows for a broader notion of learning that moves away from typical economic measurements. However, this concept still leaves unresolved 1) the problem of the link between the achievement of economic benefits and learning, and 2) whether there is OL beyond performance improvement. Cognitive approaches answer affirmatively to this question: there may be development of shared assumptions, meanings, criteria or values.

Thus, we have seen that the concept of OL becomes progressively broadened as one adds the contributions of the different streams, but, at the same time, that shows that the chain learning-performance improvement-profitability is more complex than is commonly assumed. And this is not a trivial issue, because profits may not be the only end of a company (Nonaka, von Krogh and Voelpel, 2006) but they are a *sine qua non*

of its survival. If there are some results in our research that may contribute to this area, they will be noted in due time.

1.2.3.3. OL AND INDIVIDUAL LEARNING

The problematic relationship between individual learning and organizational learning should start being investigated through the question: In what degree is OL *organizational*?⁴¹ There have been diverse attempts to answer: from the ones who state that “[a]ll learning takes place inside individual human heads” (Simon, 1991, p. 125) and that “we must be careful about reifying the organization and talking about it as ‘knowing’ something or ‘learning’ something” (*ibid.*, p. 126), to scholars who take the organization as the subject of learning and even envisage individuals learning through organizational collective processes (Brown and Duguid, 1991, Marshall, 2008, Tsoukas, 1996). To put order in this diversity, we will use a distinction introduced by Cook and Yanow (1993). They explain that a first group would be authors that either “have examined how individuals learn in organizational contexts or have explored ways that theories of individual learning can be applied to organizations or both” (p. 374). Insightful as these approaches are,⁴² Cook and Yanow argue that there is a third perspective—learning *by* organizations, as opposed to learning *in* organizations.

Following this view, we will examine the following three different approaches: learning *in* organizations, learning *by* organizations and the attribution of characteristics of individual learning to the organization. It is noteworthy that the third possibility may be found in any of the other two.⁴³

⁴¹ In addition to its obvious relevance for the field, it is also relevant for our research: should our approach be collective or individual?

⁴² Cook and Yanow call all of them “cognitive perspective”, but not all the authors they cite would fit in what we have called “cognitive approaches” in section 1.2.2.2.

⁴³ In this, we disagree with Cook and Yanow, who attribute this approach to the first group.

LEARNING IN ORGANIZATIONS. INDIVIDUAL-CENTRED PERSPECTIVE

Individuals are the primary learning entity in firms, and it is individuals which create organizational forms that enable learning in ways which facilitate organizational transformation. (Dodgson, 1993, pp. 377-378)

That would be a statement typical of this first group of authors. All learning starts by individuals and then it spirals into the organization (Macdonald, 1995, Nonaka, 1994). Who are those individuals? Cook and Yanow (1993) note that, in many cases, they are top managers, who then instil their knowledge in the organization and guide the other knowledge processes in a typical top-down management (De Geus, 1988, Senge, 1990, Torbert, 1994). However, sometimes it is individuals who learn in and from the organizational context: Wood and Bandura (1989) and Raelin (1997) describe respectively a series of experiments and a model where this happens. Also contrary to the hierarchical top-down view, Nonaka (1994, Nonaka *et al.*, 2006) underlines the exclusive role each organizational level—middle management, top management, first line employees—plays in the organization. At the same time, he acknowledges the need for some key individuals, such as experts (1994) and “knowledge activists” (Nonaka *et al.*, 2006). Other authors talk about “gatekeepers” (Davenport and Prusak, 1998).⁴⁴

Not all scholars in this cluster are equally individualists. We should distinguish, at least, two big groups: one of what we could call “hard-core individualists” and another more integrative perspective.

For Cyert and March (1963), the organization is a collection of individual agents competing to each other in pursue of their self-interest, who only can be taken to collaboration (common goals) by managers (other individuals) by means of a complex, costly bargaining process. This view is typical of models that draw from neoclassic economic theory, and is also shared by Simon (1991), who states that organizations learn when their members do or when they hire the people with knowledge, and this knowledge is diffused and stored in documents, files or data banks (organizational

⁴⁴ Even in more social perspectives they are considered important (Cohen and Levinthal, 1990).

memory).⁴⁵ Given that this is what remains when knowledgeable individuals leave the organization, for these authors, key personnel turnover becomes *the* problem.

Among the shortcomings of this approach, we may find the absence of collective factors such as culture (Cook and Yanow, 1993), social interactions (Brown and Duguid, 1991, 2001, Nonaka, 1994, Nonaka *et al.*, 2006, Weick and Roberts, 1993, Wenger, 1998), and shared beliefs and assumptions (Argyris and Schön, 1978, Cook and Brown, 1999, Daft and Weick, 1984, Marshall, 2008).⁴⁶

According to Dyck *et al.* (2005), there is a more holistic, integrative perspective that suggests that OL “begins with the cognitive processes of *individuals* and is enhanced and preserved by *organizational* processes. [...] OL is an extension of individual learning that facilitates organizational goals and is shared among organizational members” (p. 388, emphasis in original).⁴⁷ Argyris and Schön (1978) share this view: OL is not individual learning; sometimes organizations do not learn what individuals do, and neither does OL identify with top management’s learning. They call *theories-in-use* the underlying assumptions (theories) that guide action, and there is an interplay between individual and organizational theories-in-use. In other words, learning occurs in the heads of individuals, but sharing affects the organization, and this is OL (Inkpen and Crossan, 1995, Nonaka, 1994).

Cohen and colleagues (Cohen and Levinthal, 1990, Cohen and Bacdayan, 1994) seem in transition between the latter group of authors and the organization-centred perspective, which will be explored next. Cohen and Levinthal (1990) state that “absorptive capacity”—the ability of an organization to grasp and exploit knowledge from external resources—depends on inter-units knowledge transfer and on previous collective knowledge base, but it also depends on activities of individuals who are key to communication and the degree of diversity and expertise of other members. Cohen and Bacdayan (1994) explain “procedural memory” in organizations in these terms:

⁴⁵ In Simon’s concept of organizational memory there is no reference to routines, shared values, shared norms or common practices as knowledge repositories

⁴⁶ Dyck *et al.* (2005) include Argyris and Schön’s (1978) work in this group of individual-centred perspectives, but in our opinion they fit better in the following one.

⁴⁷ Argyris and Schön (1978) describe how a collection of individuals becomes an organization—understood as “political entity”—when collective decisions, an authority and boundaries appear.

The properties of organizational routines arise from the way individuals store and enact their parts on those routines. As individuals become skilled in their portions of a routine the actions become stored as procedural memories and can later be triggered as substantial chunks of behavior. (Cohen and Bacdayan, 1994, p. 557)

For them, even “organizational unconscious,” at the very end, consists of the parts of routines that are held by individuals in an inarticulate way.

LEARNING BY ORGANIZATIONS. ORGANIZATION-CENTRED PERSPECTIVES

Do all authors in this group see the organization as a cognitive entity? Once again, here we will find different positions.

Cook and Yanow (1993) avoid answering to the question, but they argue that there are some abilities that can only be performed by an organization as such—for example, a basketball team in a game or an orchestra playing a symphony. Organizations do not learn as individuals do because OL is not a cognitive activity but a cultural one. Later, Cook and Brown (1999) resume the same argument from the point of view of practices in the context of training in organizations and work dynamics in professions and occupations. They describe learning as emerging in a “generative dance” from the interaction with the social and physical world, and distinguish between the epistemic work of individuals and organizations: the latter are the only ones that wholly possess the common body of knowledge, which is only partially held by individuals.

Another interesting perspective in which work practice is seen as a social phenomenon is that of “communities of practice”, i.e. communities of practitioners who share the same practices (Lave and Wenger, 1991, Wenger, 1998). Inside these communities, meaning and identity are constantly originated: “practice,” “community,” “identity” and “meaning” are the components of social participation as a learning process. For individuals, this process is a gradual identity and meaning acquisition: it starts at the periphery of the organization, when newcomers are granted “legitimate peripheral participation” (Lave and Wenger, 1991), and progresses to the core, where

experts stay. Brown and Duguid (1991, 2001) develop their theory around communities of practice, too.

Also for Daft and Weick (1984) OL is a socially constructed process. In it, the interpretation of the current situation depends on previous shared assumptions. Later, Weick and Roberts (1993) introduce the concept of “collective mind” as a collectively held disposition to act with heed with respect to the requirements of the social activity system. Reciprocated patterns of heedful interrelation are what produce OL. Weick and colleagues do attribute cognitive capacities to the organization. Tsoukas (1996) draws in part from them: OL becomes the learning of sets of shared practices, “of background distinctions tied to a particular field of expertise” (p.20). Tsoukas pushes further the importance of social constructs in which the individual virtually dissolves: individual judgement becomes a function of the social background.

In consequence, the more theory moves⁴⁸ from organizational goals (Cyert and March, 1963) to memory repositories (Simon, 1991) to organizational routines (Cohen and Bacdayan, 1994) to organizational practices (Levitt and March, 1988) to culture—understood as shared beliefs and interpretations (Cook and Yanow, 1993)—to social interaction (Tsoukas, 1996, Weick and Roberts, 1993), individuals gradually disappear from the OL landscape and the organization gains ontological consistency. The latter extreme positions overlook the relevance of individual human agency. Indeed, routines emerge from individuals, who may choose to engage in them or resist socialization, and there are key individuals whose remaining or leaving the organization makes a great difference. At the same time, there are certain formal and informal shared beliefs, norms, practices and so on that may survive members’ turnover (Cook and Brown, 1999, Cook and Yanow, 1993). Therefore, there is need to integrate the different perspectives without falling in polarizations that disregard the other half of reality.

Our personal position would be more similar to the one of the authors who have been commented as taking an individual perspective but, at the same time, taking into account organizational and environmental factors, i.e., the ones that have been qualified as “in transition” between individualism and extreme collectivist approaches. This does not preclude us from acknowledging the contributions of all approaches, something that

⁴⁸ Note that this “movement” is conceptual, not chronological.

we expect has become clear through the explanation. It will have consequences in the empirical part of the dissertation, in which we will make quite a free use of what has been described here.

THE ATTRIBUTION OF INDIVIDUAL LEARNING CHARACTERISTICS TO OL

In this dialectic individual-organization, we could not finish without mentioning the attribution of individual learning characteristics to OL. This attribution may be found in many authors already discussed. Most of the concepts are originally from individual psychology, being then transferred to the organizational theory, for example, Cohen and Levinthal's (1990) "absorptive capacity" and Cohen and Bacdayan's (1994) concepts of "procedural memory" and "organizational unconscious." Wood and Bandura (1989) combine the constructs of "mastery modelling"—imitating perceived positive behaviours—, "perceived self-efficacy" and "personal goal systems," initially from social cognitive theory, with environmental events to explain organizational behaviour. Actually, what they explain is how managers acquire learning skills in the context of the organization.

Argyris's (1976) distinction between single-loop and double-loop learning was initially applied to individuals and then extended to the organization in his famous book with Schön (1978). Likewise, Dodgson (1993) takes individually learned capabilities—such as verbal/declarative knowledge, intellectual skills, cognitive strategies, attitude, and motor skills—and applies all of them to organizations, with the exception of motor skills, whose similarity to learning-by-doing processes, however, he notes. Later on he attributes cognitive systems and memory to organizations. As a last example, Lave and Wenger's (1991, Wenger, 1998) "legitimate peripheral participation" is a transposition of the learning relationship apprentice-master to organizational communities of practice.

As Cook and Yanow (1993) state, these exercises are useful as far as one reminds their metaphoric nature: grasping organizational behaviour is more complex than human nature, and we need comparisons.⁴⁹ These authors highlight other problems yet to be

⁴⁹ See also Cook and Yanow's (1993) endnote 8.

solved: 1) the ontological status of organizations as cognitive entities; 2) in most cases, the borrowed theories are still controversial; and 3) they often associate learning to change, which is not always the case. These issues have a philosophical and epistemological basis, as it has been noted in section 1.2.2.

1.2.3.4. SOURCES OF OL

The next question is “Where do organizations learn from?” In their seminal work, Cyert and March (1963) propose that there is learning between individuals and organizational subunits (intra-organizational learning), of the organization as a whole (OL), and inter-organizational learning. But, according to Argote and Greve (2007, p. 341), the problem is that “similar learning mechanisms may be found at multiple levels of analysis”, and also “a single learning process can have consequences at multiple levels of the organization” (ibid.).

Therefore, we have looked elsewhere and we will rather freely follow Huber’s schema of constructs and processes associated with OL. We will take *learning from experience, learning from experiments* and *grafting*.⁵⁰

LEARNING FROM EXPERIENCE

A first approach to the terms “learning by experience” leads us to the literature on “learning curves” and “learning-by-doing.” This notion was reductive to trial-error processes and the analysis of several input-output economic parameters, and it was successively enriched with other insights about what experience is for organizations

⁵⁰ We have left aside “congenital learning”—the learning brought by the organization’s founders—, because we consider that, rather than learning, this is the initial knowledge base which the organization starts learning from. He then mentions distribution and interpretation processes and organizational memory, but, although they are connected with OL, we considered them, strictly speaking, KM processes different from knowledge acquisition, so they have been dismissed, as well.

(Baum and Dahlin, 2007, Epple, Argote and Devadas, 1991, Herriott, Levinthal and March, 1985, Levinthal and March, 1993, Levitt and March, 1988, Wood and Bandura, 1989). Thus, some scholars prefer to talk about “experiential learning”, opening it to other theories (Herriott *et al.*, 1985, Huber, 1991, Kolb and Kolb, 2005). This general acceptance is that which we will use here.

It is, first of all, a dynamic notion: experience is enriched over time in a continuous cycle. “The effectiveness of imitating, grafting, and searching forms of learning can all be enhanced with prior experience, and even the ability to tap into congenital knowledge may be enhanced through experience.” (Simonin, 1997, p. 1158)

Given that by experience we understand both the own organization’s and others’ experience, there we have included organizational routines, vicarious learning, collaborative experiences, learning from errors and quasi-errors, and organizational appraisal and other internal learning processes.

One of the main contributions by Cyert and March (1963) was the introduction of **organizational routines** in the form of standard operating procedures (Argote and Greve, 2007). However, this formal notion was soon broadened with the addition of informal routines (Cangelosi and Dill, 1965, Cohen and Bacdayan, 1994, Herriott *et al.*, 1985). Cohen and Bacdayan (1994, p. 555) define organizational routines as “patterned sequences of learned behavior involving multiple actors who are linked by relations of communication and/or authority.” Routines are 1) multi-actor, and therefore difficult to observe; 2) of emergent or contingent quality; and 3) their underlying knowledge is partially inarticulate and difficult to be made explicit.⁵¹

Experience, understood as the crystallization of routines is tricky (Levinthal and March, 1993), especially when previous history is meagre (March, Sproull and Tamuz, 1991). The reliability they produce may lead the organization to self-complacency and falling into “competence traps” (Levitt and March, 1988). Other authors who recognize the existence of organizational patterns in the form of shared beliefs, shared practices and norms avoid using “routines” and replace it by “culture” (Cook and Brown, 1999), “organizational mind” (Weick and Roberts, 1993), “mental maps”(Argyris and Schön,

⁵¹ “Routines reside partially in an ‘organizational unconscious’.” (Cohen and Bacdayan, 1994, p. 556)

1978, Hedberg, 1981, Marshall, 2008) and other equivalent terms. For them, “routines” are too linked to mechanistic behavioural models.

Organizations also learn from other organizations’ experience (Argote, 2005, Baum, Li and Usher, 2000, Baum and Dahlin, 2007, Cheetham and Chivers, 2001, Hedberg, 1981, Huber, 1991, Lei *et al.*, 1996, Levitt and March, 1988, Morris and Moore, 2000, Shrivastava, 1983, Stein and Zwass, 1995, Wood and Bandura, 1989). This is known as **vicarious learning**, which adopts both formal (Cyert and March, 1963, Inkpen and Crossan, 1995, Huber, 1991, Nonaka, 1994) and informal (Brown and Duguid, 2001, Macdonald, 1995) modalities. When it happens informally, for example, through communities of practice, it may originate unintended knowledge ‘leaks’ (Szulanski, 1996, Brown and Duguid, 2001) into other organizations.⁵² Likewise, it is possible to learn from other organization’s knowledge ‘spillovers’ (Argote and Ingram, 2000, Cohen and Levinthal, 1990, Foster and Rosenzweig, 1995). In any case, the more tacit knowledge is, the more ‘sticky’ it becomes, which, on the other hand, is a problem for internal learning (Argote, 2005, Barney, 1991, Brown and Duguid, 1991, Brown and Duguid, 2001, Coff, Coff and Eastvold, 2006, Lei *et al.*, 1996, Sapsed *et al.*, 2002, Szulanski, 1996).

The same as controlling boundaries to avoid leaks is vital (Brown and Duguid, 2001, Coopey, 1995), organizations must pay a special attention to key individuals who have more external contacts (Brown and Duguid, 1991, Brown and Duguid, 2001).⁵³ These are known as “gatekeepers” (Allen, 1977, Cohen and Levinthal, 1990, Davenport and Prusak, 1998, Dodgson, 1993, Macdonald, 1995), “environmental scanners” (Snell and Chak, 1998) or “boundary spanners” (Reiche, 2011). The task of capturing external, potentially useful knowledge may be done in an informal way or in a focused way, and it requires special competences (Huber, 1991).⁵⁴

⁵² “Indeed, it’s often harder to stop ideas spreading than to spread them.” (Brown and Duguid, 1998, p. 102) These authors (2001) describe how trans-organizational communities of practice are responsible of knowledge flows between organizations.

⁵³ See the preceding note.

⁵⁴ “Whether focused search is largely reactive or proactive is related to the issue of determinism versus voluntarism in organizational change.” (Huber, 1991, p. 99)

For this external knowledge to be useful for the recipient organization there must concur some conditions: “The more comparable the organizations, the more similar the situations they face, and the greater the potential relevance of their experience.” (Baum and Dahlin, 2007, p. 370) On the contrary, the more firm-specific certain traits are, the more difficult to be imitated (Beamish and Armistead, 2001, Lei *et al.*, 1996, Levitt and March, 1988, Zander and Kogut, 1995). Wood and Bandura (1989) talk about modelling, stating that imitation is not mere mimicry: it brings with itself the need to change and improvise to adapt to the new knowledge and/or adapt it to the recipient organization (see also Allen, 1977, Foster and Rosenzweig, 1995, Hong and Nguyen, 2009, Williams, 2007).

The diffusion of technologies is a way of acquiring external knowledge (Allen, 1977, Davenport and Prusak, 1998, Levitt and March, 1988); however, not all the knowledge is embedded in technology: some interaction is needed between source and recipient (Epple *et al.*, 1991).⁵⁵ On the other hand, new technologies are not necessary superior to old ones: experience shows that the former render fewer benefits at first and they become profitable only after progressive adjustments (Young, 1993). Moreover, organizations with expert practitioners are more successful in the implementation of new technologies (Foster and Rosenzweig, 1995), and, in general, in the absorption of new knowledge (Cohen and Levinthal, 1990), although too much human capital may lead to stagnation (competency traps) (Jovanovic and Nyarko, 1996).

Organizational resources are scarce, and sometimes organizations must choose between allocating them in doing what they already do well or adventuring in new territories. This is the famous exploration vs. exploitation dilemma (Baum and Dahlin, 2007, Brown and Duguid, 2001, Cohen and Levinthal, 1990, Dodgson, 1993, Dyck *et al.*, 2005, Hedberg, 1981, Levinthal and March, 1993, Macdonald, 1995, March, 1991, Nonaka, 1994, Spender, 2008, Weick and Roberts, 1993), which has its origin in Cyert and March’s (1963) view of the organization as a system of competition for resources. Organizations must seek a balance: excessive exploration may lead to chaos; excessive

⁵⁵ Epple and colleagues study intra-plant, inter-shifts knowledge transfer, but they conclude that the difficulties found by the team that received the technology without previous training may be amplified in the case of inter-plant transfer. It may not be too adventurous to conclude that inter-organization transfer may be even more difficult.

exploitation leads to paralysis.⁵⁶ Some authors attempt to avoid this trade-off by proposing a flatter view of the organization, i.e. as a “community of negotiation” (Brown and Duguid, 2001), or by focusing on knowledge creation (Spender, 2008).

Another source of learning is **collaborative learning**. In the case of organizations, it happens through initiatives that are set up to collaborate with others in various forms: “joint ventures, consortia, equity participation, contractual agreements, and informal cooperations” (Simonin, 1997, p. 1157). Collaborative learning differs from vicarious learning in that 1) the primary purpose of the collaboration may not be learning, and 2) knowledge arises from the interaction that collaborative work involves, but it does not mean that the organizations learn from one another. The model has been taken from individual learning (Berends *et al.*, 2006, Cheetham and Chivers, 2001, Salas and Cannon-Bowers, 2001, Yew and Schmidt, 2009) to organizations (Inkpen and Crossan, 1995), and it has its roots in constructivism. But the cited works are examples of the impossibility of “pure” construction or creation of knowledge: the same way the students described by Yew and Schmidt (2009) cannot progress without the presence of a professor who guides the concluding meetings,⁵⁷ management teams who engage in a joint venture without the follow-up or real interest of their parent organization are most likely to end up frustrated (Inkpen and Crossan, 1995).⁵⁸ In summary, a certain knowledge base is required—at least, of “collaborative know-how” (Inkpen and Crossan, 1995, Simonin, 1997)—and the presence of someone—or a team—who guides and coordinates the activity so that some consistent knowledge may be extracted.

Adaptive models and, in general, models of learning from experience consider **previous errors** as the spur of learning (Argyris, 1976, Cangelosi and Dill, 1965,

⁵⁶ Experimentation is another form of exploration, thus, the same problem appears with respect to learning by experiments.

⁵⁷ Yew and Schmidt analyse an experiment in which some students attempt to learn some notions of biology after a successive series of individual study plus meetings. The ones who count on a professor’s help ended up learning. The transcriptions of the meetings and interchanges of the students without the professor being present are full of conjectures, and, sometimes, agreements on wrong assumptions. Similarly, Bonner and Walker (1994) show how practice without feedback results in no knowledge acquisition or even in knowledge decrease.

⁵⁸ In their description of several Japanese-American joint ventures, Inkpen and Crossan attributed the failure of some American partners not only to their different expectations towards learning but also to the lack of involvement of their headquarters.

Spender, 2008). For example, Cangelosi and Dill (1965) mention the stress caused by the maladjustment between expectations and outcomes (“failure stress”), while Weick and Roberts (1993) study some accidents to illustrate heedless behaviour. Therefore, negative feedback or the presence of problems are triggers for learning (Cangelosi and Dill, 1965, Hedberg, 1981). But there are some obstacles to this learning: a culture that punishes the disclosure of errors, lack of trust, unwillingness to face complex problems and resistance to change are some of them (Cannon and Edmondson, 2005, Carroll, 1998, Davenport, De Long and Beers, 1998, Levinthal and March, 1993, Wood and Bandura, 1989). “Psychological safety”—i.e. feeling free to disclose and discuss mistakes—, time availability and adequate communication and follow-up structures have been described as facilitators by Edmondson and colleagues (Cannon and Edmondson, 2005, Edmondson, 1999, Edmondson, Bohmer and Pisano, 2001, Lee *et al.*, 2004, Tucker and Edmondson, 2003).

In other occasions, the source may be the others’ errors (Baum and Dahlin, 2007), and this happens and this happens especially in the case of learning from fatal incidents, which together with **quasi-errors** or “close calls” (Carroll, 1998, March *et al.*, 1991, Morris and Moore, 2000) are a relevant source of learning in high hazard or high reliability organizations, such as airlines, railroads, nuclear plants or space shuttles. Accidents in these settings are rare, and learning from short samples becomes difficult. In these cases, March *et al.* (1991) suggest: 1) a richer analysis of actual history, in order to draw as many consequences as possible; 2) create near-histories—imagining “what might have been”—; and 3) constructing hypothetical histories and analysing the potential consequences. All three paths are contemplated in Carroll’s (1998) study on nuclear plants, who remarks that richer analysis may not imply more data but looking for “root errors.” Following 1) in a research on U.S. railroads, Baum and Dahlin (2007) conclude that learning from mistakes may be fundamentally different from learning from success (Levitt and March, 1988).⁵⁹ Morris and Moore explore 2) and 3) about close calls in aviation, emphasizing the importance of imagination and “counterfactual thinking” in order to create hypothetical situations. Simulation tools such as computer

⁵⁹ Given the amount of research supporting the importance of errors for learning, it is striking that most managerial and business literature addressed to practitioners focuses almost exclusively on personal and organizational success.

programs may be of help. Of course, these insights can be valid for other, not so extreme situations.

Finally, we have the authors who focus **on self-appraisal and other internal learning processes**. These are “a number of overlapping approaches that tend to focus on member interaction and participation as critical to learning, and on improving the organizational members’ mental health and relationships as important goals for learning.” (Huber, 1991, p. 92) Their interest is on internal interactions and the production of new knowledge. We can find here Nonaka’s (1994, Nonaka *et al.*, 2006) SECI cycle of knowledge conversion; Levitt and March’s (1988) concept of “ecology of learning;” Cook and Yanow (1993) and Cook and Brown (1999), with their description of social and physical interactions; and Wenger, Lave (Lave and Wenger, 1991, Wenger, 1998) and Brown and Duguid (1991, 2001), with communities of practice and the notion of legitimate peripheral participation.

Legitimate peripheral participation is related to *socialization processes*, i.e. the ones by which newcomers acquire the shared insights and learn the practices of the organization (Argyris and Schön, 1978, Dodgson, 1993, Dyck *et al.*, 2005, Levinthal and March, 1993, Levitt and March, 1988, March, 1991, Nonaka, 1994, Simon, 1991, Tsoukas, 1996), processes which also happen in the opposite direction: “When experienced insiders answer the questions of inexperienced newcomers, the insiders themselves are often resocialized.” (Weick and Roberts, 1993, p. 367) Socialization processes may be harmful if they become endogamous (Levinthal and March, 1993, Nonaka, 1994).

Some authors focus on the *organizational slack*, i.e. redundancy of resources that constitutes the humus from which new ideas emerge (Cyert and March, 1963). These resources in Cyert and March were mainly economic, but later other authors admitted other kinds of resources in terms of social interactions, and other kinds of resources in terms of social interactions (Coleman, 1988, Dodgson, 1993, Nahapiet and Ghoshal, 1998, Nonaka, 1994), and other *organizational core competences* (Argyris, 1976, Argyris and Schön, 1978, Barney, 1991, Fiol and Lyles, 1985, Lei *et al.*, 1996, March, 1991, Stein and Zwass, 1995, Wood and Bandura, 1989).

LEARNING FROM EXPERIMENTS

If learning from experience could be called “learning-by-doing”, learning from experiments is “learning-before-doing” (De Geus, 1988, Pisano, 1994). Experiments take place in a controlled, reversible setting “to anticipate and correct as many problems as possible before starting production” (Pisano, 1994, p. 87, emphasis in original). Once again, Cyert and March’s “theory of slack search and innovation is an account of why organizations sometimes develop new products, technologies, or practices even when they are not solving specific problems, which complement the theory of problemistic search.” (Argote and Greve, 2007, p. 339, see also Lei *et al.*, 1996)

Organizations often devote specific divisions—R&D—to experimentation (Dodgson, 1993, Pisano, 1994), and this is typical of proactive organizations, which even risk the danger of spillovers because they search not only for immediate results but to increase their own absorptive capacity, and in order to innovate or, at least, to become a fast second (Cohen and Levinthal, 1990). Senge (1990) discusses experimentation when he advises the creation of “microworlds”—simplified versions of reality—by different means, such as team-building activities, role-playing, computer-based simulations and so on. Likewise, De Geus (1988) suggests changing organizational rules, either by introducing a new one out of the blue, or hypothetically suspending one or playing games by means of consultants or computer models. Hedberg (1981) proposes more conventional solutions, such as hiring personnel with the right traits for experimentation, playing with reward systems, and institutionalizing organizational revisions.⁶⁰

According to Senge (1990), for “microworlds” to work, they must comply with some requirements: integration to real world, a correct compression of time and space, the isolation of variables, an experimental orientation, pauses for reflection, a theory-based strategy, and institutional memory to record the results.⁶¹ But, previous to this, the

⁶⁰ It seems that there are organizations with an experimenting mind set (Hedberg, 1981, Huber, 1991). Concretely, it is something distinctive of Japanese companies (Dodgson, 1993, Inkpen and Crossan, 1995, Nonaka, 1994).

⁶¹ De Geus (1988) sustains a different opinion: simulation models must be not so similar to the world as they are to learners’ mental models, because the goal is to introduce change in their minds so they can better understand the world.

dilemma exploration (here, experimentation) vs. exploitation must be solved. Pisano (1994), in his account of how bio-technology-based and chemical-based pharmaceuticals work, suggests that a more learning-by-doing-like model—i.e. in-plant tests—should be followed by companies that have a weak knowledge-base; instead, a learning-before-doing model—i.e. laboratory tests—is advisable when the previous knowledge-base is strong and a simplified version of reality is enough.

GRAFTING

The last, and perhaps the most simple, way of acquiring knowledge is by acquiring new members who possess it. This may be done by either hiring individuals or acquiring complete companies (Davenport and Prusak, 1998, Huber, 1991, Simon, 1991). Given the potential drawbacks of massive turnover,⁶² the most ordinary choice will be hiring individuals who become socialized and in turn modify the knowledge base of the organization, thus starting a new cycle (Weick and Roberts, 1993), but a totally new context may demand a more drastic solution. “It is often cheaper and quicker to import the new experience and dismiss the old than to engage in a massive reeducation.” (Simon, 1991, p. 133) Allen (1979) is more cautious and argues that, if ascertaining what the right level of turnover is becomes too difficult, then it is better to retain personnel. In any case, he believes that innovation makes up for the costs of hiring.

⁶² Davenport and Prusak (1998, p. 56) talk about the importance of avoiding to disrupt “the ecology of the knowledge-creating environment.” Similarly, Allen (1979, p. 44) notes that the limits stay “where turnover becomes disruptive to the morale and functioning of the organization.”

1.2.3.5. SOURCES OF UN-LEARNING AND ANTI-LEARNING

Organizations do learn but they also go through other processes that may be considered, in diverse senses, contrary to learning. First, we have unlearning processes, i.e. “forgetting past behaviour which is redundant or unsuccessful” (Dodgson, 1993, p. 385) and inadvertent forgetting of useful knowledge. The former is part of learning processes. The latter is related with organizational memory and knowledge repositories: organizational memory understood as routines has already been addressed; knowledge repositories will be examined later. Second, we have anti-learning processes (Argyris, 1976, Hackman and Wageman, 1995): those that hinder organizations from learning, which are to be detected and combated.

UNLEARNING

“Understanding involves both learning new knowledge and *discarding obsolete and misleading knowledge.*” (Hedberg, 1981, p. 3, emphasis added) Thus, we are talking about a sort of intentional “forgetting,” which has some effects: 1) a temporary paralysis (the organization remains without an element it used previously), 2) a focused search for an alternative, and 3) new learning (Huber, 1991, see also Spender, 2008). Unlearning is a sine qua non for organizations to reach double-loop—or higher-level—learning (Fiol and Lyles, 1985), and resistance to do so leads to the loss of competitive advantage and internal dysfunctions (Hedberg, 1981, Inkpen and Crossan, 1995, Nicolini and Mezner, 1995).

The founding text “How Organizations Learn and Unlearn,” by Hedberg (1981), provides a more detailed description by borrowing from individual unlearning and applying it to organizations. When organizations abruptly and simultaneously unlearn and learn, Hedberg attributes it to the emergence of new “myths” (i.e. theories of action), and when the process is gradual, “organizations must first establish new world views, new action programs, or new amendments before they can begin to recover” (p.19). Therefore, the latter is a dangerous process in which organizations risk to consume all the slack available or get disoriented. If unlearning remains incomplete,

new learning may become partially unsuccessful. There is another danger: “Socialization sometimes causes new members to unlearn. A consequence can be that the knowledge that the new members possessed upon entry becomes unavailable to the organization.” (Huber, 1991, p. 105) Similarly,

The counter-effects of removing top managers in order to unlearn range from introducing fear and rigidity on those that remain, to demoralization, to hiring new managers that get trapped into the same processes that produced the failure of their predecessors. (Nicolini and Meznar, 1995, p. 732)

According to Hedberg, dangers existing for learning are the same for unlearning processes. These pitfalls will be discussed in short. Now we just note that organizational unlearning processes, albeit necessary, must be carefully undertaken.

ANTI-LEARNING AND OBSTACLES TO LEARNING

“Entities can *incorrectly learn*, and they can correctly learn *that which is incorrect*.” (Huber, 1991, p. 89, emphases added) Whether this can really be considered *learning* or not, depends on the definition of learning that is being used.⁶³ Those who would answer negatively would use expressions such as “anti-learning,” “learning-inhibiting behaviours,” “obstacles to learning” and so on. The ones that, as Huber, consider this is learning, however, need to add some qualifier to the term, such as “incorrect learning,” “learning disability,” “negative learning” or “learning what is wrong.” But all of them agree in that there are some dysfunctional processes that deserve a particular attention.

We will first consider the difficulties posed by the *environment*; secondly, we will discuss the *internal difficulties* the organization may encounter.

Regarding the **environment**, there is a general agreement that both an excessively turbulent and peaceful environment are not good for organizational learning. As above explained (1.2.3.1.), a turbulent environment triggers discomfort stress—caused by uncertainty—(Cangelosi and Dill, 1965), and inhibits the possibility of orientation or

⁶³ This issue has already been discussed in the subsection 1.2.3.2. (“OL and Performance”).

mapping because it overloads the system (Hedberg, 1981, Levinthal and March, 1993, March, 1991). In these conditions, very small changes may cause great disruption. “‘Chaos’ only triggers creative forces in firms with the capacity for meta-learning” (Lei *et al.*, 1996, p. 562), hence the distinction between “creative chaos” and “destructive chaos” (Nonaka, 1994): the level of turbulence tolerated by the organization—the thin line between a great opportunity and destruction—depends on its capacity to reflect. If we take a motivational perspective, we can say that challenging goals enhance performance under a low complexity, and they have no effect in a highly complex environment (Wood and Bandura, 1989).

On the contrary, “there is little inducement to learn if established and successful behaviors almost never grow obsolete” (Hedberg, 1981, p. 5). Outcomes become predictable, the organization concentrates in exploiting already possessed knowledge and gives up innovation, it becomes little by little more dependent on already beaten paths, it loses flexibility and mutual learning within members of the organization declines (Cohen and Levinthal, 1990, Inkpen and Crossan, 1995, Lei *et al.*, 1996, March, 1991).⁶⁴ It seems that the ideal situation is that of a moderate level of turbulence (Fiol and Lyles, 1985, Inkpen and Crossan, 1995).⁶⁵

But external environmental conditions are not sufficient: **internal cognitive conditions** must pose certain problems, which we will discuss next.⁶⁶ Basically, we can find two kinds of issues: those related to *experience* and those related to *self-limiting properties of learning*.⁶⁷

Although the own experience is considered the most important source of learning, there are some problems associated with it: 1) those related to history interpretation, 2) those referring to the concept of “success”, 3) superstitious learning, and 4) problems in organizational memory.

⁶⁴ Darr, Argote, and Epple (1995) talk about “knowledge depreciation” over time.

⁶⁵ Fiol and Lyles come to this conclusion by observing the curve resulting from the possible combinations between high and low learning with high and low behavioural change. Inkpen and Crossan, in turn, using the same model, add a detailed description of the transitions from one cell to another of the matrix.

⁶⁶ Here we have focused only on environmental turbulence vs. calm, but there are other ways of analysing the environment, for example, as complex or simple or as benevolent or hostile (Hedberg, 1981).

⁶⁷ For this part, we will follow an outline inspired in the papers by Levinthal and March (1993) and Levitt and March (1988), who are the most cited authors in the OL literature with regard to obstacles to learning.

History is subject to interpretation (Brown and Duguid, 1991, Daft and Weick, 1984, Huber, 1991, Marshall, 2008, Nicolini and Mezner, 1995, Spender, 1996, Tsoukas, 1996). “What is learned appears to be influenced less by history than by the frames applied to history.” (Levitt and March, 1988, p. 324) Basic myths may be resistant to experience, even in the presence of strong disconfirmation. In addition, interpretation frameworks are vulnerable to politics: “advocates of a particular policy [...] are likely to interpret failure less as a symptom that the policy is incorrect than as an indication that it has not been pursued vigorously enough” (Levitt and March, 1988, p. 324). Finally, there are the tricks of hindsight: “its view of the past, with the uncertainty excised, provides the illusion of a certain present and a predictable future” (Macdonald, 1995, p. 558). This “learning disability” is called by Senge (1990) “delusion of learning from experience.”

“Success” is ambiguous. Trial-and-error learning and incremental search depend on the evaluation of outcomes, but indicators of success and levels of aspiration may change over time⁶⁸ and, on the other hand, they are diverse depending on the person (Hedberg, 1981, Levitt and March, 1988); different subcultures in the organization may view success differently: for example, executives focus on figures and prevision, engineers on planning, control systems and error avoidance, whereas operators hold a hands-on view (Carroll, 1998, see also Brown and Duguid, 2001).

Superstitious learning consists in an erroneous causal attribution of certain outcomes to certain behaviours. Routines mistakenly associated to success will be consistently followed, and the ones associated to failure consistently changed. “In both cases, the subjective feeling of learning is powerful, but misleading.” (Levitt and March, 1988, p. 326) This danger is remarked by many authors (Fiol and Lyles, 1985, Hedberg, 1981, Huber, 1991, March *et al.*, 1991, Morris and Moore, 2000, Shrivastava, 1983, Simonin, 1997) and it is quite difficult to identify and overcome, because it resides in the sphere of basic assumptions and beliefs.⁶⁹

⁶⁸ Moreover, what is a success in the short run may become a failure in the long run.

⁶⁹ According to Fiol and Lyles (1985, p. 808):

Sometimes the results of higher-level learning become dysfunctional if it creates the development of superstitions, associations, or norms that support dysfunctional behaviors. Superstitions or organizational ‘success’ stories can create the inability or unwillingness to

Finally, there are some issues related to organizational memory, which are the processes of recording, conservation and retrieval of past experience (Levitt and March, 1988). Although we considered conservation and retrieval as processes different from learning or knowledge acquisition in itself, the way in which they are conducted may compromise future learning.⁷⁰ Recording may be incomplete, relevant information may be left aside while irrelevant information is kept, tacit and explicit knowledge require to be handled diversely, and there may be inconsistencies in recording. Conservation and maintenance of knowledge is also problematic.⁷¹ Retrieval of recorded knowledge may also be difficult. In all these processes, information systems may be of great help (Huber, 1991, Levitt and March, 1988, Stein and Zwass, 1995).

As for the *self-limiting properties of learning*, they are congenital traits of learning that are described by Levinthal and March (1993) as “myopia”, because they have some relation to view: 1) the tendency to ignore the long run—overlooking distant times—, 2) the tendency to ignore the larger picture—overlooking distant places—, and 3) the tendency to overlook failures.⁷² We will briefly discuss all three.

Survival in the short run may compromise survival in the long run, but the latter cannot be without the former. Ignoring the long run—another of Senge’s (1990) “learning disabilities”—is a danger with different manifestations, such as power traps— a powerful organization may impose itself to the environment and, at the same time, become unable to respond to changes in it—and competence traps—focusing on the activities in which the organization has already achieved competence and ignoring the rest (Cohen and Levinthal, 1990, Inkpen and Crossan, 1995, Jovanovic and Nyarko,

change (March & Olsen, 1975; Pfeffer, 1981). The learning can focus on identifying ways of not changing, not experimenting, game-playing, maintaining the status quo, and avoiding problems (Cyert & March, 1963; Lyles & Mitroff, 1980; Nystrom & Starbuck, 1984). This may become very engrained and require shocks, jolts, or crises for unlearning, new higher-level learning, and readaptation to take place (Lawrence & Dyer, 1983; Meyer, 1982; Nystrom & Starbuck, 1984).

⁷⁰ For other explicit references to organizational memory, see Lei *et al.* (1996), Cohen and Bacdayan (1994), Cyert and March (1963), Huber (1991), Marshall (2008), and Simon (1991).

⁷¹ Cangelosi and Dill (1965), for example, describe how very often new managers seem more interested in competing with their predecessors—even when they have been successful—than with competitors in the market.

⁷² Levinthal and March attribute this threefold myopia to the way organizations attempt to learn: through the combination of simplification and specialization. This is quite a reductive notion of experience.

1996, Levitt and March, 1988, Macdonald, 1995). Competence traps are related to success traps—the excessive exploitation of activities that are successful—and failure traps—responding to persistent failure with excessive exploration and changes instead of analysis, to get out of trouble as soon as possible (Levinthal and March, 1993). An excess in path dependency leads to a sort of “lockout,” or confinement in a certain activity (Lei *et al.*, 1996, Cohen and Levinthal, 1990). The development of hard-to-imitate expertise, thus, may lead, on the long run to a loss of flexibility and competitive advantage. This situation can become a vicious cycle of “skilled incompetence” and “skilled unawareness” (Argyris and Schön, 1978), because the cycle low aspirations-low investment in exploration is self-reinforcing (Cohen and Levinthal, 1990).⁷³

Related to this first myopia is the second, overlooking distant places, which has some symptoms. One of them is what Hedberg (1981) calls “audience learning,” i.e. a weak coupling between the individuals’ and the organization’s behaviour. As a result, part of the system is learning apart from the rest, and, in turn, the rest piggybacks onto those making the effort. This process leads to a gradual, generalised underinvestment in exploration or creativity (Levinthal and March, 1993). Other consequences have been individuated by Brown and Duguid (1998) as the dark side of communities of practice: rigidity, knowledge “stickiness,” blindness and self-deluding attitudes, that make it necessary to properly manage relationships among communities. Also parochial and self-defensive attitudes lie at the root of the NIH syndrome, an ailment that consists in refusing to accept any contribution coming from external sources (Cohen and Levinthal, 1990, Dodgson, 1993, Huber, 1991, Macdonald, 1995, Simon, 1991). Ignoring the larger picture is a feature typical of control or hierarchical regimes in organizations (Argyris and Schön, 1978, Morris and Moore, 2000, Senge, 1990).

The third and last problem is overlooking failure. It may appear when the self-efficacy produced by previous success becomes over-confidence, i.e. as a result of falling in a success trap. Under-confidence may appear in the same way, but “since organizations promote successful people to positions of power and authority, rather than unsuccessful ones, it is the biases of success that are particularly relevant to decision

⁷³ It is in view of these dynamics that Senge (1990) refers to the “myth of teamwork” as a learning disability: teamwork does not always result in improvement; sometimes a group’s behaviour exhibits an IQ far lower than each member’s.

making.” (Levinthal and March, 1993, p. 105) This myopia is also likely in human groups with policies or structures that penalize failure,⁷⁴ its disclosure or its amendment, e.g. by lack of psychological safety or time to investigate root causes (Baum and Dahlin, 2007, Cannon and Edmondson, 2005, Carroll, 1998, Edmondson *et al.*, 2001, Morris and Moore, 2000, Tucker and Edmondson, 2003).⁷⁵

Lack of attention—or heed (Weick and Roberts, 1993)—and time, and political factors that distort information are the main obstacles to detect these myopias (Argyris, 1976, Senge, 1990, Tucker, Edmondson and Spear, 2002). The impatience of managers and inadequate incentives are, according to Cangelosi and Dill (1965), responsible for irrational and disorderly patterns of action.

It is noteworthy that OL perspectives that focus on knowledge creation rather than learning by experience do not reach this level of detail. However, they also signal excessively bureaucratic, control-centred and hierarchical systems—i.e. those stemming from a rationalistic mind set—as the less fit for an adequate knowledge flow (Brown and Duguid, 1991, Brown and Duguid, 2001, Cook and Brown, 1999, Cook and Yanow, 1993, Nonaka, 1994, Spender, 2008). In general, the more constructivist is the focus, the less it dwells on incorrect learning, errors or mistakes. In general, the constructivist authors we have reviewed seem to be more interested in epistemology than in actual practice, but this may also be a sample effect.

We have briefly reviewed two different groups of phenomena that are contrary to learning in different aspects. The first one—unlearning—is required to acquire new knowledge that is incompatible with what has been previously learned. But it must be carefully managed to avoid the loss of knowledge that is needed. The second group of phenomena are to be directly considered negative for correct OL: some emerge from the

⁷⁴ Hierarchical organizations which penalize failure produce a chain reaction described by Argyris (2003, p. 1184): “Self-deception is denied by cover-up. In order to for the cover-up to work, it must too be covered up. The strategy used to cover up the cover-up is to make both undiscussable. Undiscussability is protected by making the undiscussability undiscussable.” Note that this mechanism, which happens at the individual level, may easily become collective routine.

⁷⁵ Fear or aversion to failure produces “performance stress” (Cangelosi and Dill, 1965), which may also be harmful.

external environment of the organization, some are related to experiential processes, and some have been qualified as different types of myopias.

The most remarkable thing is that, even from an organizational perspective, at the root of all those pitfalls there is a combination of organizational and environmental factors as well as individual factors: behaviours and attitudes such as power abuse, information hiding, errors in appraisal of the past, motivational issues, and the like. In the next subsection we will say something else about organizational factors, examining what literature says about the characteristics an organization should have in order to foster learning.

1.2.3.6. THE LEARNING ORGANIZATION

Literature on the learning organization stemmed from the field of OL (Easterby-Smith and Lyles, 2003), mainly thanks to the founding works by Pedler, Boydell and Burgoyne (1989), De Geus (1988) and Senge (1990), and then spread mainly by Senge's book itself and other authors like Dixon (1999) or Torbert (1994). Then, literature on the learning organization became a field in itself, with the peculiarity of a more practical—even normative—focus: how an organization with “the capacity to learn effectively and hence to prosper” (Easterby-Smith and Lyles, 2003, p. 2) should be.

CHARACTERISTICS OF THE LEARNING ORGANIZATION

“A Learning Company is an organisation which facilitates the learning of all its members *and* continuously transforms itself.” (Pedler *et al.*, 1989, p. 2, emphasis in original) These authors remark that their focus is not on training—a notion from the 1960s and already obsolete—, not even on self-development—very popular in the 1980s—but about simultaneously learning and working, evolving from “human

resources” to “resourceful humans.” The learning organization has nine distinctive traits:

- 1) an organizational policy and strategy structured as a learning process;
- 2) a shared debate between its members about the organizational policy and strategy;
- 3) management control systems that are designed to produce learning;
- 4) information systems that are widely used by individuals to seek for information and also to challenge current operating assumptions;
- 5) an internal information flow;
- 6) some individuals who scan the external environment—“environmental scanners”—and provide the organization with external knowledge;
- 7) an exchange of information with other organizations;
- 8) the culture encourages experimentation and learning from success and failure; and
- 9) resources for development are available for all.

Before commenting these items, it seems to us that the connection between OL and KM becomes very obvious in the learning organization literature: these traits are akin to those of the organization that manages effectively knowledge, as we will see later. This is not strange, because, as we have seen before, the epistemological effort has been undertaken mainly by the OL literature, and KM has built most of times upon these foundations. Numbers 5), 6) and 7) are especially connected with knowledge transfer or sharing, which will be our main focus.

All these items are interrelated, and we will comment on them clustering them in groups.

Points 1), 2) and 3) refer to the **organization’s policy, structure and management control systems**, and the interactions of the members of the organization with them. First of all, there is a very common conviction that loose ties, organizational slack, fluid communication, and flat structures—as opposed to rigid, routine, hierarchical organizations—are learning facilitators. Scholars refer to these organizations with different terms: “close systems” and autocratic organizations—versus “open systems”—(De Geus, 1988), oligarchic forms (Snell and Chak, 1998), mechanistic structures (Fiol

and Lyles, 1985), organizations with ossifying tendencies (Brown and Duguid, 1991),⁷⁶ bureaucratic learning systems (Shrivastava, 1983), or hierarchical organizations (Nonaka, 1994, Nonaka *et al.*, 2006, Senge, 1990). To these, they oppose an organization in which there is a multifaceted dialogue and freedom of speech, where negation for the sake of negation is forbidden, and there is temporal continuity (Nonaka, 1994).⁷⁷

In the case of Nonaka, he and colleagues do not show preference between hierarchical or “heterarchical” organizations—characterised by a flat structure and diffuse internal boundaries—: their proposal is the “hypertext organization”, which has “the ability to switch between the various ‘contexts’ of knowledge creation to accommodate changing requirements from situations both inside and outside the organization” (Nonaka, 1994, p. 32). And not only this: the hypertext organization is capable to use simultaneously both structures, so S and E are performed by self-organizing teams, and C and I are carried out by the hierarchical formal organization. Nonaka’s (1994) “middle-top-management”, where middle management is the bridge between the vision—top management—and reality—low management—is also a sample of this search for new organizational structures and governance systems (see also Hedlund, 1994). Middle managers are responsible for keeping *bas*—shared spaces for emerging relationships (Nonaka and Konno, 1998, Nonaka *et al.*, 2006) —focused and in function. Nonaka and colleague’s proposal is more participative than the ones proposed by De Geus (1988), Pedler *et al.* (1989), Torbert (1994) or Spender (1996), who rather focus on senior management, and, at the same time, it is more detailed than the ones proposed by Brown and Duguid (1991, 2001), Cook and colleagues (Cook and Yanow, 1993, Cook and Brown, 1999) or Weick and Roberts (1993). The latter authors advocate some models of social interaction, but do not specify anything about who is ultimately accounting for keeping all the system functioning and decision-making.

To end the discussion of points 1)-3), there is still contention about what is better for the organization, either tight coupling—i.e. strong interdependence among members

⁷⁶ These tendencies are understood in opposition to the internal dynamism of organizations which cultivate diversity through their communities of practice. Here the word “cultivate” is especially fitting, because this dynamism cannot be supported by means of intrusive practices.

⁷⁷ This view is challenged by Hansen (1999), who sustains that weak ties are facilitators for transferring explicit knowledge, but strong ties are needed when the knowledge being transferred is complex and tacit.

or subunits—or loose coupling. It seems that loose coupling facilitates creativity, but in high hazard organizations, tight coupling is perceptive (Carroll, 1998, Weick and Roberts, 1993). This is because tight coupling makes problems and errors observable (Lei et al., 1996).

Point 4) refers to the **use of information systems**. The classical distinction between “data (‘points of reality’), information (‘organized data’) and knowledge (‘information, context and experience’)” (Beamish and Armistead, 2001, p. 108, see also Davenport and Prusak, 1998) shows that they are facilitators, but do not substitute for learning and KM processes (Hansen, Nohria and Tierney, 1999, Huber, 1991, Levitt and March, 1988, Stein and Zwass, 1995). Nonaka *et al.* (2006) refer to the wave of exaggerated enthusiasm about the possibilities of IT in organizations that spread in the late 1970s and 1980s, which was based on the identification of knowledge with information, or even data. Stein and Zwass (1995), addressing organizational memory systems, describe some of the limitations these tools have, which are not due to lack of development of these systems but their own nature and their interaction with a human environment. For some kinds of learning, face-to-face interactions are necessary (Cook and Yanow, 1993, Daft and Lengel, 1986, Davenport *et al.*, 1998, Hansen *et al.*, 1999). We will come back to this issue later, in the “Learning in Practice” subsection (1.2.4.).

Regarding points 5)-8), we have already discussed learning from internal and external sources (5 and 7), the function of gatekeepers (6) and experimentation and exploration as a means to learn (8).⁷⁸ These are the items that are more related to knowledge sharing and knowledge transfer.

Finally, although number 9) reads that, in the learning organization, **resources** for self-development are **available for all**, the truth is that the main authors, as above said, pay more attention to managers.⁷⁹ De Geus (1988) addresses planning as a learning tool for managers; Torbert (1994) remarks that OL cannot occur without managerial learning

⁷⁸ Regarding the latter, Levinthal and March (1993) advise to manage incentives, design a structure that facilitates communication and avoids an excess of socialization, and know and manage the influence of beliefs on risk preferences and perceived risk, as well as avoid a selection exclusively based on past success.

⁷⁹ Torbert (1994) talks about the non-elitist elite.

at the triple-loop level,⁸⁰ which transforms the organization; and Spender (1996) and Senge (1990) encourage holistic vision or thinking in managers. For Snell and Chack, empowerment means the participation of grass-roots members in some kind of double-loop and triple-loop activity, but the sine qua non is that managers also do: organizations with more democratic and participative structures engage in higher-level learning and more widely in the hierarchical scale.

Differently from the other authors, Spender (1996) seeks to provide managers with an heuristic method that may help managers meet the need for: 1) a holistic approach and interpretive flexibility; 2) a consideration and management of organizational boundaries; 3) identifying the main actors and influencing entities (individuals, groups, market elements, or society in general); 4) distinguishing between the system and its components, because it is the system's activity what holds competences and where the components' meaning emerges from. As it can be seen Spender's approach could be judged by any ordinary manager as being more 'conceptual' and less 'practical' than other proposals.

VOICES AGAINST THE “LEARNING ORGANIZATION”

The notion of the learning organization has encountered criticism. In the case of taking “learning organization” as more than a metaphor, there is the danger of assuming forms of dominance and control over employees to “force” them to learn (Macdonald, 1995). With darker tones, “these trappings of a learning organization can come across as an Orwellian regime of surveillance” (Morris and Moore, 2000, p. 762).

The hardest opposition comes from Coopey (1995), who addresses his arguments mainly against Senge and Pedler. According to Coopey, the learning organization is a dangerous utopia, which promises a flat, democratic, all-participating, double-loop-thinking, politics-free⁸¹ new kind of organization. But, on the contrary, such an

⁸⁰ Triple-loop learning is here the capacity of seeing which action is suited for this particular developmental time and place. On the other hand, triple-loop learning and what Argyris and Schön (1978) call “deutero-learning” are not the same. The latter means learning how to perform single-loop and double-loop learning.

⁸¹ “Politics” here understood as “politicking.”

organization may be a subtle form of perpetuating control, domination and power exertion: experts and top management may use, respectively, their expertise and power to entrench in their positions by using deception—the mirage of participation in decision-making and a façade of equality—over lower management and front-line employees.⁸² In addition, these loose, flat organizations are not practicable, because they would become chaotic: there is always someone who must take control. Their ambiguous structure and norms only would reinforce the arbitrariness of those in power. “Those who propagate the principles of a learning organization risk opening the latest phase of a long history of metaphors which have been used manipulatively (Giddens, 1979) by managers with a long pedigree of instrumental interest.” (Coopey, 1995, p. 212)

Without denying that this critique has many interesting points and it constitutes a warning against the dangers of some implementations of the learning organization dictates, Coopey’s discussion is based on a power-biased perspective that envisages the organization as the battlefield of a continuous fight for power in which individuals seek to impose their self-interest, and in which mechanisms of control are unavoidable. These mechanisms are proposed by Coopey and Burgoyne (2000), who advocate the institution of formal mechanisms that guarantee specific rights and duties of the organization’s members and some means of control of top management. In short, it seems a transposition of Hobbes’s view of civil society.

Before concluding and to take distance from other utopian views, we suggest Hedberg’s (1981) proposal. He comments on the properties of what he calls the “good and orderly organization:” consensus, contentment, affluence, faith, consistency, and rationality. His argument is that organizations should have “minimal amounts—that is, just a little bit more than not enough—”(p. 22) of these properties. We guess that the reason for this restriction may be threefold: 1) a “pure” “good and orderly organization” is a sort of utopic ideal, 2) in the hypothetical case that it existed, it would risk dying of success, and 3) “this would provide for enough triggering, reasonably easy unlearning, sufficiently low trust in previous successes, and enough slack resources to implement new strategies” (Hedberg, 1981, p. 22). Hedberg’s prescriptions for organizations—

⁸² Managers may encourage innovation and critical spirit, he argues, but always in a way that does not compromise the status quo.

promoting experimentation, regulating awareness, and redesigning environments—are aimed to reach this desired balance between opulence and scarcity of resources.

We have made a brief review of the OL literature, which contains the main discussions about the definition of OL, how authors see performance linked to OL, to what extent OL is “organizational”, what paths organizations follow to learn and what obstacles they find, to end with the characteristics of a learning organization. Now our perspective will shift to practice and what learning in practice is.

1.2.4. LEARNING IN PRACTICE

In the previous subsection we have engaged in an extensive description of the OL field. Without leaving the managerial perspective, and also related to the notion of learning, we would like to pay special attention to the notion of “learning in practice,” especially when the practice is that of the occupation or profession. Under a particular point of view, this perspective overlaps with those of OL and KM and illuminates KT processes,⁸³ particularly those that will be investigated in this dissertation, i.e. the transfer of operational knowledge. This is so, because by *learning*, we understand knowledge acquisition and by *practical learning* or *learning in practice* we mean the *acquisition of practical knowledge*, i.e., the knowledge that is intrinsic to action and is acquired (learned) through practice. Operational knowledge is practical knowledge.

First of all we would like to note that if the perspective we adopted in the OL subsection was more “organizational”, in this case, we will take a more “individual” perspective: we will focus on *how individuals learn in practice*, but without forgetting the organizational and social factors, because the context will always be the

⁸³ We decided to place this subsection here to keep the continuity with the “learning” theme and because some of the subjects addressed here will have many coincidences with subjects we have included in the OL subsection.

organization.⁸⁴ Secondly, if there we took an “epistemological” perspective, here our focus is more “practical.” This becomes clear even in terminology: we will talk about “learning in practice,” “practical learning,” “on-the-job learning,” “work-based learning” and similar. Even “learning-by-doing,” if it could be divested from its original connotations,⁸⁵ could fit in here.

As we are talking about learning and knowledge, what has been said in the epistemological subsection (1.2.2.) is perfectly valid here.⁸⁶

In this subsection we will study the notion of practical learning (1.2.4.1.), the requirements and obstacles to learning (1.2.4.2. and 1.2.4.3.), and finally, the diverse approaches to learning we may find in literature.

1.2.4.1. THE NOTION OF PRACTICAL LEARNING

PRACTICAL LEARNING, PROFESSIONS, OCCUPATIONS AND BUSINESS

Organizations, occupations and professions usually devote considerable effort to training and other forms of purposive hands-on processes, so that their members learn the practices that belong to their job. In addition, practitioners continue to learn—or unlearn what they learned—during their practice. This view is particularly apt in the business world. On the one hand, business management is, above all, a *practice*, and literature concerning the business world has historically followed a clearly practical—even pragmatic—approach.⁸⁷ On the other hand, businesses—either manufacturing companies, management companies or service firms—encompass a wide range of

⁸⁴ Going back to the distinction we made in section 1.2.3.3., our approach here would be rather that of “Learning *in* Organizations.”

⁸⁵ See 1.2.3.4.

⁸⁶ Concretely, it is not difficult to see the connections of our subject with other disciplines such as education and sociology, but the epistemological roots (rational approaches, cognitive and behavioural psychology, pragmatism, social psychology and constructivism) are still the same.

⁸⁷ Even formal instruction applied to this subject, such as MBA courses and similar, must have a practical orientation, otherwise it would not have any acceptance.

professions and occupations whose practice is performed within the organization and aligned with its ends. Thus, firms are settings where professional expertise is developed through practice, and this development is what we understand by *practical learning*, as opposed to *theoretical learning*, which usually takes place in academic settings and is conveyed by lectures, publications and similar means.⁸⁸

Obviously, “practical learning” leads to “practical knowledge,” which is a tricky notion. Alvesson (1993) warns that—the same as understanding “knowledge” only in its formal, science-based, theoretical acceptance is too reductive—using instead a broader notion that encompasses skills as well as systematic knowledge runs the risk of meaning everything and nothing. We will run this risk, distinguishing between theoretical and practical knowledge, with different ways of being acquired, because there is a clear “knowledge” component in habits and skills.

Note that we will not distinguish between “manual” and “intellectual” professions and occupations. In our opinion, what the concept “manual” adds to a practice is the need to develop and put into action a series of bodily skills required by the actual practice, that are not operating in “intellectual” jobs. In fact, many examples provided by leading theorists regarding the practice of professions and occupations within organizations and businesses refer to jobs with a manual aspect, such as midwives or tailors (Lave and Wenger, 1991), flute makers (Cook and Yanow, 1993, Cook and Brown, 1999), surgical teams and nurses (Edmondson, 1999, King and Ranft, 2001, Pisano, Bohmer and Edmondson, 2001, Tucker and Edmondson, 2002, Tucker, Nembhard and Edmondson, 2007).

PRACTICAL LEARNING AND TACIT KNOWLEDGE

We have already addressed the distinction between OL and individual learning, and between practical and theoretical learning. Tacit knowledge has also been mentioned. Here we will add something else regarding the latter, because it is closely related to practical learning.

⁸⁸ We will address the role of formal instruction in practical learning later (1.2.4.4.).

As we saw in the epistemological subsection (1.2.2.), the notion of tacit knowledge appears in Polanyi's *The Tacit Dimension* (1966), introduced by his famous statement that "we know more than we can tell" (p.4), and it is understood as the unidentifiable or inexpressible dimension that underlies all human knowing (see also Spender, 1996). Polanyi characterizes this dimension as the one that enables the integration of different components of experience. He expressly links tacit knowledge both to creativity and expert practice: in its highest manifestation, to scientists and artistic geniuses; in a lower form, to "the expert diagnostician," and, he adds, "we may put in the same class the performance of skills, whether artistic, athletic, or technical" (Polanyi, 1966, p. 6). This concept has been opposed to explicit knowledge, i.e. that which can be easily codified and transferred and is often associated to abstract, objectified knowledge (Nonaka, 1994, Nonaka, von Krogh and Voelpel, 2006).

We also saw how this concept has been taken up in both the OL and KM literature, and this is the reason why it has been described in many different ways: as a social preconscious collective knowledge at the grounds of all knowledge (Spender, 1996), as the unspeakable facet of knowledge (Cook and Brown, 1999), as which that must be taught indirectly (Baumard, 2002), as a characteristic of higher levels of learning (Akbar, 2003), or as rooted in action (Alavi and Leidner, 2001, Raelin, 1997). The latter notion seems "to leave explicit knowledge in the positively defined domain of abstraction from action" (Spender, 1996, p. 54). We do not share this view: there is practical knowledge that can be explained—e.g. the instructions of a device, a cooking recipe, a process diagram, or a firm's code of conduct—and also theoretical knowledge which is tacit—e.g. that of a mathematics genius. Polanyi himself envisages a tacit dimension in both theoretical and practical knowledge. Similarly, Nonaka (1994) relates tacit knowledge to both cognitive—mental models, i.e. paradigms or beliefs—and technical items—"know-how, crafts and skills that apply to specific contexts" (p.16).

If not all tacit knowledge is practical, changing the perspective, we can say that what is learned in practice is mostly tacit, which means that it is acquired within the individual's *action* and his or her *interaction* with other individuals and certain objects, and not easily by verbal communication (Baumard, 2002, Blackler, 1995, Cook and Brown, 1999, Cook and Yanow, 1993, Lave and Wenger, 1991, Wenger, 1998). All this has interesting implications for learners of a practice, which will be addressed below: 1) The high level of tacitness in practical knowledge makes it especially difficult to

manage using IT systems, which always require some kind of codification (Alavi and Leidner, 2001, Hansen, Nohria and Tierney, 1999, Stein and Zwass, 1995). Related to this, 2) learning in practice requires face-to-face—or, rather, side-by-side—interaction (Brown and Duguid, 1998, Coff, Coff and Eastvold, 2006, Davenport, De Long and Beers, 1998). Furthermore, 3) it is difficult to replicate and spread tacit knowledge without making it imitable—and, hence, without losing competitive advantage (Coff *et al.*, 2006)—, and this has significant consequences for, say, the replication and diffusion of best practices across the organization. Finally, 4) given that formal instruction seems more appropriate for theoretical learning, it will be interesting to address its role—if any—in practical learning.

In the following subsections, we will address these and other issues. First, we will examine the requirements for practical learning (1.2.4.2.); secondly, we will explain some of the obstacles that may appear against practical learning (1.2.4.3.); and, finally, we will review the different approaches we may find to the subject of practical learning (1.2.4.4.).

1.2.4.2 *REQUIREMENTS FOR LEARNING IN PRACTICE*

Van der Sluis and colleagues (van der Sluis, Williams and Hoeksema, 2002) characterize (managers') on-the-job learning as a combination of learning opportunities and learning behaviour. Here we will focus on the first.

In our search for an outline to put order in the diverse proposals, Salas and Cannon-Bower's (2001) literature review on training proved to be very useful. He have taken their schema of training antecedent conditions and applied it to practical learning in general. They divide them into individual characteristics—including cognitive ability, self-efficacy, and goal orientation—, training motivation, and training induction and pre-training environment. Thus, we will examine the *characteristics of the learner*, *environmental conditions* and *motivational aspects* required for learning. Although Salas and Cannon-Bowers talk about prior conditions, it is implicit that they must remain over the whole learning process.

CHARACTERISTICS OF THE LEARNER

Paraphrasing Salas and Cannon-Bowers's cited work (2001, p. 477), they could be defined as “what learners bring to the learning setting”. We have divided them into four: *cognitive ability, goal orientations and expectations, self-efficacy* and, finally, *other personal characteristics*. They are closely interrelated and mutually dependent.

Cognitive ability may be understood in different ways. For example, it can be seen as “absorptive capacity”. Cohen and Levinthal (1990) acknowledge the origin of this concept—which they apply to organizations—in cognitive and behavioural sciences at the individual level, where “accumulated prior knowledge increases both the ability to put new knowledge into memory, what we would refer to as the acquisition of knowledge, and the ability to recall and use it” (129). Absorptive capacity is at the root of both learning and innovation: in the first case, “learning performance is greatest when the object of learning is related to what is already known” (p. 131); in the second, diversity may encourage “the individual to make novel associations and linkages” (ibid.). Another similarly borrowed term is “procedural memory” (Cohen and Bacdayan, 1994). “It is memory for how things are done that is relatively automatic and inarticulate, and it encompasses cognitive as well as motor activities” (p. 554). It is related to skills and habits, so we are not talking about something innate but developed over time.⁸⁹

Other important cognitive requirements are “receptivity to corrective feedback of the decision-making unit—that is, individual, group or organization” (Argyris, 1976, p. 365). And, related to it are the concepts of “attention band” (Eisenstein and Hutchinson, 2006)—determined by goals and environmental conditions—and “heed” (Weick and Roberts, 1993), which have been developed in very different streams but both point at the same: make the right choice. In addition, some scholars move the focus to “learning styles”, which are due to a combination of genetics, life experiences, previous education and work and environmental demands (Armstrong, Allinson and Hayes, 2002, Kolb and Kolb, 2005, Sims, 1983). Literature dealing with core competences, knowledge base or expertise models is pointing at the same idea: learners acquire certain competences that make them capable to learn more and more (Argyris, 1976, Bonner and Lewis, 1990,

⁸⁹ This kind of memory has a low decay rate and it accounts for say, “the commonplace claim that ‘you never forget how to ride a bicycle’” (Cohen and Bacdayan, 1994, p. 557).

Coff *et al.*, 2006, Fiol and Lyles, 1985, Inkpen and Crossan, 1995, King and Ranft, 2001, Lei, Hitt and Bettis, 1996, Libby and Tan, 1994, Pisano, 1994, Senge, 1990, Simonin, 1997, Tan and Libby, 1997, Torbert, 1994) .

Goal orientations and expectations are the second group of characteristics we will examine. Goals and expectations are central to rational models, like those by Arrow (1962) and Cyert and March (1963). Although these authors refer to the organization, they understand it as a coalition of individuals, each with their goals and expectations, according to which they make decisions. Following a similar model and combining it with a behavioural approach, Eisenstein and Hutchinson (2006) warn that relying on experiential learning alone may be tricky because goals may divert the attention from informative stimuli, and therefore, “managers and consumers should increase their use of objective analyses and decrease reliance on experience or intuition” (p. 256). Likewise, Argyris and Schön (1978) note that if feedback from experience indicates success, what “success” is depends highly on social or individual expectations (Alvesson, 1993, Levitt and March, 1988). In turn, goals and expectations adapt to outcomes: they become higher if outcomes are positive and vice versa (Herriott, Levinthal and March, 1985, Levinthal and March, 1993). Moreover, “an actor’s goals adapt to the mean performance of other actors as well as to her own performance” (Herriott *et al.*, 1985, p. 300) .

Challenging goals have a beneficial influence by fostering creativity, provided that they are accessible (Wood and Bandura, 1989) and agents have developed a reflective capacity (Nonaka, 1994).⁹⁰ On the contrary, leaving goals undefined opens the door to improvisation and arbitrariness (Brown and Duguid, 1998, Coopey, 1995).

Salas and Cannon-Bowers (2001) mention **self-efficacy** as an important prior condition to learning. It is the belief that one can perform specific tasks and behaviours. It leads to better learning and performance, and it is related to motivation. It mediates other factors such as job satisfaction, organizational commitment, adjustment and the use of technologies. Wood and Bandura (1989) cite mastery experiences, modelling, social persuasion, and physiological and emotional states among sources of self-efficacy beliefs. Related to self-efficacy is *empowerment*, which adds to the former the notion of

⁹⁰ Having this capacity is what distinguishes “creative chaos” from “destructive chaos” (see also Davenport and Prusak, 1998, Fiol and Lyles, 1985)

power. It is “a process of *enhancing feelings of self-efficacy among organizational members through the identification of conditions that foster powerlessness and through their removal*” (Conger and Kanungo, 1988, p. 474, emphasis in original). Snell and Chack (1998) link empowerment to the participation in double-loop and triple-loop learning activities by grass-roots employees. On the other hand, an excess of self-efficacy may lead to overconfidence (Conger and Kanungo, 1988) and excessive empowerment to misalignment (Senge, 1990).

There are, in addition to these three, **other characteristics of the learner** that count. First, we have found demographic characteristics (age, gender, race, level of formal education, economic situation and so on) in some papers on training (Knoke and Kalleberg, 1994, Mincer, 1962, Salas and Cannon-Bowers, 2001) and mentoring (Armstrong *et al.*, 2002, Hunt and Michael, 1983). To these, personality traits (Salas and Cannon-Bowers, 2001) and the position inside the organization (Coopey, 1995, Fiol and Lyles, 1985, Nonaka, 1994, Nonaka *et al.*, 2006, Snell and Chak, 1998) can be added.

ENVIRONMENTAL CONDITIONS

The internal and external environmental conditions that have an influence over learning in practice have already been addressed above, concretely in the epistemological subsection (1.2.2.), with regard to the “Sources or Unlearning and Anti-Learning” (1.2.3.5.) and about “The Learning Organization” (1.2.3.6.). In fact, all that has been said there can be applied to individuals learning in practice, because this practice always happens in a context, which needs to be favourable. As we saw in these different places, a placid environment is not always desirable. For example, Cangelosi and Dill (1965) consider that different types of environmental stress work as learning stimulators, because the trigger to learn is the perceived imbalance between outcomes and expectations. These are discomfort stress—caused by environmental uncertainty—, performance stress—uncertainty about the outcome—, and disjunctive stress—tension between individuals and sub-groups. Moreover, different individuals have different thresholds of stress.

Competitors are also an important source of learning, especially through knowledge spillovers (Argote, 2005, Cohen and Levinthal, 1990, Foster and Rosenzweig, 1995) or through other ways such as contacts with members of other organizations who belong to the same community of practice (Brown and Duguid, 2001).

The political and social context also plays an important role, as well as the general knowledge, which includes the degree of technological development in the society that learners indwell (Brown and Duguid, 2001, Foster and Rosenzweig, 1995, Herriott *et al.*, 1985, Lave and Wenger, 1991, Levinthal and March, 1993, Miller, 2008, Pisano, 1994, Soo *et al.*, 2002).

MOTIVATIONAL ASPECTS

Paraphrasing Salas and Cannon-Bowers (2001), we could define learning motivation as “the direction, effort, intensity, and persistence that individuals or groups apply to learning-oriented activities.” Thus, motivation emerges from the learner, but it is influenced both by individual and environmental factors. The concepts above discussed, such as “empowerment,” “self-efficacy,” “levels of stress,” an encouraging “organizational culture,” “environmental turbulence,” or “psychological safety” are clear examples of motivation-enhancing mechanisms.

It is commonly accepted that motivation is a strong learning facilitator (Alavi and Leidner, 2001, Cyert and March, 1963, Davenport *et al.*, 1998, Lave and Wenger, 1991, Salas and Cannon-Bowers, 2001, Stein and Zwass, 1995, Wood and Bandura, 1989).⁹¹ In their review on total quality management (TQM), Hackman and Wageman (1995) distinguish three kinds of motivation: intrinsic motivation—for the sake of growing or self-developing—, task motivation—for the feeling of achievement in a task—, and social motivation—incentives intrinsic to cooperating with others and being recognized by others. Some authors support intrinsic motivation: for example, Wood and Bandura (1989) describe how self-satisfaction, self-reaction, and self-evaluation work along with self-efficacy and together constitute the self-motivation mechanisms. On the contrary,

⁹¹ As we saw in the epistemological subsection (1.2.2.2.), behaviourist and biological or cognitive models often ignore the motivational aspect of learning (Cheetham and Chivers, 2001, Penrose, 1959, Weick and Roberts, 1993, Wood and Bandura, 1989).

others advocate for extrinsic motivation, i.e. motivation based on benefits granted by a source external to the agent. Hackman and Wageman (1995) propose a combination of extrinsic and intrinsic motivation.⁹²

This is linked to the controversy concerning the impact of incentives and compensation systems on human agents (Alavi and Leidner, 2001, Cangelosi and Dill, 1965, Cohen and Bacdayan, 1994, Cohen and Levinthal, 1990, Conger and Kanungo, 1988, Coopey, 1995, Davenport *et al.*, 1998, Gattiker, 1995, Hackman and Wageman, 1995, Hedberg, 1981, Levinthal and March, 1993, Pedler, Boydell and Burgoyne, 1989, Snell and Chak, 1998, Stein and Zwass, 1995, Wood and Bandura, 1989, Young, 1993). Under the economic perspective, some scholars understand these incentives as economic investments (Gattiker, 1995, Young, 1993), while others acknowledge the existence of non-financial benefits, such as social rewards or incentives (Coff *et al.*, 2006). Other authors advocate for incentives and compensations for those who use IT or other systems of knowledge sharing to foster a learning attitude (Davenport *et al.*, 1998, Gallupe, 2001, Soo *et al.*, 2002, Stein and Zwass, 1995). Against external incentives are, for example, Wood and Bandura (1989, see also Levinthal and March, 1993)—who warn that they may divert the attention of the agent to the consequences of failure—and Spender and Scherer (2007)—who view them as a way of subordinating imagination to reason, thus limiting creativity.

In any case, motivational practices must be appropriate to the organization, they “should be long term and should tie in with the general evaluation and compensation structure” (Davenport *et al.*, 1998, p. 54) of the organization.

1.2.4.3. OBSTACLES TO LEARNING IN PRACTICE

All that has been said about anti-learning (1.2.3.5.) is perfectly valid here. There we had what we could call “structural” issues, all at the organization level, so, if we now

⁹² An interesting attempt to break this dichotomy is that of Pérez López (1991), who introduced “transcendent motives,” which can be summarized as seeking the learning and growth of those with whom the agent interacts.

consider them under the point of view of the individual's practice, they become part of the **organizational and extra-organizational environment** in which the practitioner performs his or her activity. In other words, they constitute what is external to the agent. At the same time, those which have been qualified as learning shortcomings have their roots in individual behaviours whose effect becomes multiplied when they become embedded as routines, i.e. they emerge from the individual agent. Something similar happens if we consider the characteristics of the learning organization and the consequences of their absence.

For example, individuals often engage in competition for power and power abuse (Akbar, 2003, Alvesson, 1993, Argyris, 1976, Blackler, 1995, Coff *et al.*, 2006, Coopey, 1995, Davenport *et al.*, 1998, Morris and Moore, 2000, Penrose, 1959, Wenger, 1998); they sometimes feel powerless (Conger and Kanungo, 1988, Snell and Chak, 1998); they may impede others to access participation in key practices (Lave and Wenger, 1991) or transmit or receive information that is incomplete, biased or censored (Argyris, 1976, Argyris and Schön, 1978); they may feel unsafe (Cannon and Edmondson, 2005, Edmondson, 1999, Lee *et al.*, 2004, Morris and Moore, 2000, Tucker and Edmondson, 2003) and engage in face-saving or double-faced behaviours (Argyris, 2003, Hedberg, 1981, Morris and Moore, 2000); or they may perceive tension between their own interests or belief systems and those of other individuals, sub-groups or the organization (Cangelosi and Dill, 1965, Hedberg, 1981, Inkpen and Crossan, 1995).

This is for what concerns to environmental factors. If we look at the other requirements for learning that we have addressed in the preceding subsection—characteristics in the learner and motivational factors—, we can examine what happens if they are missing. First, and regarding **cognitive and other abilities**, for example, lack of heed (Weick and Roberts, 1993), attention (Eisenstein and Hutchinson, 2006), absorptive capacity (Cohen and Levinthal, 1990) or receptivity to corrective feedback (Argyris, 1976), or displaying a crystallised single-loop learning style (Argyris and Schön, 1978) are clear inhibitors for initiating a learning process. Maritan and Brush (2003) report a flawed best-practices transfer process due to differences in management's willingness to implement the process and their respective ability in terms of absorptive capacity. Social competences have also been highlighted as relevant learning facilitators (Edmondson, Bohmer and Pisano, 2001, King and Ranft, 2001,

Simonin, 1997): many problems in learning processes come from troubled interpersonal relationships (Armstrong *et al.*, 2002, Hunt and Michael, 1983, Maritan and Brush, 2003, Nahapiet and Ghoshal, 1998).

If we turn to **goals and expectations**, the most important problem is that agents may experiment conflicting goals and expectations. Two examples are: conflict between their own goals and expectations as members of a community of practice and as members of an organization (Brown and Duguid, 2001), and conflict between the goals and expectations of partners in joint ventures or other forms of collaboration (Inkpen and Crossan, 1995). The level of expectation may lower in the face of failure and, thus, lead to a downward spiral of lower expectations-lower performance (Baum and Dahlin, 2007, Cohen and Levinthal, 1990). The latter problem is related to **self-efficacy**: its lack—or feeling powerless (Conger and Kanungo, 1988)—or its excess may lead to bad appreciations of outcomes and, therefore, to changes in expectations and behaviour (Levinthal and March, 1993). This leads us to **motivational aspects** related to empowerment and self-efficacy, especially those related to the perceived support or involvement by senior managers or its default, which can show itself in very subtle forms. “While receptivity may exist at the individual level, its absence at the organization level may indicate that senior managers are not receptive to the JV stimuli, perhaps because they are not directly involved in JV management.” (Inkpen and Crossan, 1995, p. 614)

1.2.4.4. APPROACHES TO LEARNING IN PRACTICE

Cheetham and Chivers (2001), in their literature review on how professionals learn in practice, divide this literature in three: 1) general theories of development, 2) theories of adult development, and 3) some practical techniques and supporting concepts of professional development. Inside number 1), we find all the theories we have explained in the epistemological section. We will now integrate numbers 2) and 3). In particular, we will address *models of work-based learning* (hands-on approaches); secondly, we will examine models focusing on *learning from others and imitation*; finally, we will

explore other proposals that stress *professional development* towards expertise. This subsection will conclude with some considerations about the function of different *support tools such as instruction, coaching and ITC systems*. It is possible that there are overlaps among the different subsections, but we have tried to reflect the predominant focal point in each proposal.

LEARNING IN PRACTICE OR WORK-BASED LEARNING: HANDS-ON APPROACHES

Here we will review proposals regarding learning that takes place in the actual job practice. Depending on the aspect that is considered pivotal, approaches receive different names: “learning in practice” (Cheetham and Chivers, 2001), “work-based learning” (Raelin, 1997), “on-the-job training” (Mincer, 1962), “learning-by-doing” (Killingsworth, 1982), “legitimate peripheral participation” (Lave and Wenger, 1991) and so on. Here we will not make distinction between those who use formal and informal mechanisms: it seems that the best alternative is a combination of both (Nonaka, 1994). Even authors strongly supporting informal knowledge-sharing acknowledge the need for organizations to coordinate it through negotiation, and to seek ways to counteract its potential negative effects (Brown and Duguid, 2001, Macdonald, 1995).

We will examine basically three groups of scholars: 1) those focusing on the concept of *practice* itself, 2) those exploring the notion of *experience*,⁹³ and 3) scholars who directly address *on-the-job-training*.

The first group of authors devote their efforts to **work practice itself as a learning activity**. The sources of their approaches trace back to pragmatism, social psychology and constructivism, combined in different ways, but they have in common 1) an eminently proactive conception of learning, 2) the idea that learning is the adoption of certain skills and/or mental models or beliefs, 3) the notion that practical learning is, at the same time, shaping the agent’s identity, 4) all this envisaged as a dynamic process 5) that occurs within social interaction.

⁹³ We have already addressed learning by experience (1.2.3.4.), but here we will highlight the aspects referring more directly to practice.

The notion of *communities of practice* has been, perhaps, one of the most successful. For Lave and Wenger (1991, Wenger, 1998). They are the communities whose members share the same practice and organise and interact within themselves. One relevant point of interest is how one becomes member of such a community by being allowed legitimate peripheral participation. Weick and Roberts (1993) describe how *collective mind* is constantly shaped in the interactions between newcomers and seniors. Brown and Duguid (1991) describe the dynamics of these communities or networks when they happen inside an organization and work as a sort of parallel ambits for knowledge-sharing—what Nonaka calls *ba*. Knowledge emerges through social interaction and physical interaction—i.e. with the objects proper to the practice—in what Cook and Brown (1999) call a *generative dance*.⁹⁴ Related to this, King and Ranft (2001) focus on knowing through action and improvisation based in research on the U.S. surgery certification process. Nonaka (1994) draws from the concept of communities of practice to explain self-organizing teams, which have the function of fostering creativity within the organization. Later on Brown and Duguid (2001) extend the notion to trans-organizational communities of practice, which means that members of the same community share knowledge regardless of the organization they belong to. To these contributions we should add Cohen and colleagues' concepts of *absorptive capacity* (Cohen and Levinthal, 1990) and *procedural memory* (Cohen and Bacdayan, 1994) as requirements for learning in practice both for individuals and organizations.

In a more epistemological vein, Miller's (2008) interpretation of Polanyi's works on tacit knowledge also points at the pragmatic foundation of some of Polanyi's proposals. Miller highlights that skilful performance that involves physical or bodily activity is the proof that a wholly explicit knowledge is impossible. In other words, "practices always have performative aspects that go beyond what is codified in organizations" (p. 945).

We can mention other authors who follow a more radical constructivist stream in which practitioners are constantly re-creating meaning, context and their own identities

⁹⁴ For example, they describe flute makers, and how they learn and improve their trade by feeling the instruments and adding small adjustments to their shape. Similarly, they cite kneading machines design and dealing with paper paths in printing machines. Flute makers and their art are again taken as the main illustration for Cook and Yanow's (1993) paper. These learning mechanisms have been describe with detail in the epistemological subsection (1.2.2.3.).

through practice (Blackler, 1995, Lave and Wenger, 1991, Nicolini and Meznar, 1995, Spender, 1996, Spender and Scherer, 2007, Tsoukas, 1996).

Although the stress in this first group of authors is on practice, some of them acknowledge the need for a balance to this perspective. For example, in his model of *work-based learning*, Raelin (1997) combines many of the previous but enriching them with the incorporation of the roles played by reflection and theoretical knowledge (in the form of applied science).⁹⁵

Notwithstanding the obvious connection between “practice” and “experience” in ordinary language, in managerial and organizational literature these two concepts draw from different streams and traditions. As we saw in the subsection regarding “Sources of Learning” (1.2.3.4.), in the case of **learning from experience**, the roots are clearly behaviourism, and economic theory (e.g. learning-by-doing models) plays also an important role. We also saw that this basic schema evokes repetition, automatism and gradualness, which has prompted successive enrichments.

In any case, learning from experience is a dynamic notion in which 1) learning is understood as the result of problem-solving attempts, 2)—positive or negative—feedback from the outcomes leads to learning (adaptation), therefore 3) experience is enriched over time in a continuous cycle: learning by experience is cumulative (learning-by-doing). Hence, the connection of this approach with practice is obvious.

A successful model has been that of Argyris (1976, Argyris and Schön, 1978), who understands learning as the “detection and correction of errors, and error as any feature of knowledge or knowing that makes action ineffective” (Argyris, 1976, p. 365), and coins the expressions “single-loop learning,” “double loop learning” and “deutero-learning.” As before said (see note 29), the first loop includes corrective actions to solve immediate problems within accepted routines; the second is linked to corrective actions involving modification of underlying norms, policies and objectives (i.e., “theories of action”); the third means learning how to carry out single-loop and double-loop learning (i.e. learning to learn or meta-learning). This schema is valid for both individual

⁹⁵ When we discussed learning from mistakes we saw that time availability to reflect and analyse facts is essential to be able to improve and avoid repeatedly falling in the same errors (Tucker and Edmondson, 2003). At the same time, theoretical knowledge is part of the knowledge base needed to acquire and absorb new knowledge better (Cohen and Levinthal, 1990).

(Argyris, 1976) and organizational (Argyris and Schön, 1978) levels and it has been adopted by many scholars, sometimes changing the terminology (Fiol and Lyles, 1985, Hedberg, 1981, Torbert, 1994, Stein and Zwass, 1995), and it has become very popular in management literature because of its obvious practical implications: it is by far more difficult to achieve double-loop than single-loop learning, but it is the only way to solve complex problems or simple problems that may have serious consequences if they become chronic (Carroll, 1998, Tucker, Edmondson and Spear, 2002).

Also typical of the experiential approach is the idea of learning as adaptation: the agent's behaviour adapts to what previous feed-back indicates. Here, the perception of the environment and also the adjustment between expectations and outcomes is what triggers learning (Argyris, 1976, Cangelosi and Dill, 1965, Cyert and March, 1963, Herriott *et al.*, 1985, Levinthal and March, 1993, Levitt and March, 1988, March, 1991, Simon, 1991). As it has been commented before (1.2.2.2.), how passive or reactive the agent's behaviour is depicted depends on the different authors. For example, Kolb and Kolb (2005) combine the classical behavioural cycle with pragmatist (learning is knowledge creation), cognitive (reflection and abstraction play a role) and other insights (legitimate peripheral participation, *bas*, ecology of learning, etc.). Experience, reflective observation, abstract conceptualization and active experience are the stages of the learning cycle, which are preferred by different learners in different combinations, which make nine different learning styles. This model, although too simplistic for some (Cheetham and Chivers, 2001), it has been applied in managerial literature (Raelin, 1997, Sims, 1983).

As a result of accumulation of experience, routines emerge. Cohen and Bacdayan (1994) prefer to talk about *habits* and *skills* for individuals and routines as their equivalent for organizations. Habits and skills are to be seen mainly as capabilities, rather than automatism, custom or consuetude, if we wish to avoid the already cited problems of competence traps, blindness versus mistakes and inability to adapt to changes.⁹⁶

Experience may be positive or negative. All that has been said about *learning from errors and quasi-errors* (1.2.3.4.) and the obstacles to it (1.2.3.5.), referred to organizations (March, Sproull and Tamuz, 1991, Morris and Moore, 2000), applies

⁹⁶ We will address later scholars who focus on expertise and capabilities development.

here, as well as with regard to *collaborative learning* (Cheetham and Chivers, 2001, Salas and Cannon-Bowers, 2001) and *experimentation* (1.2.3.4.). Concretely, an experimenting mind set is related by Nonaka (1994) to a more hands-on approach to work by agents—“on-the-spot-ism”—along with a holistic view of the interaction with the world in general. As it has been above explained, experimentation may also be carried out by *simulation*, using IT systems, machines, laboratories and also *games* and *role-playing* (Cangelosi and Dill, 1965, De Geus, 1988, Salas and Cannon-Bowers, 2001, Senge, 1990, Wood and Bandura, 1989), in which schematic rules and the impersonation of fake roles have the purpose of imitating real life. Their usefulness makes them to be adopted—perhaps too often (Akbar, 2003, Argote and Greve, 2007, Hedberg, 1981, Wood and Bandura, 1989)—also by academic research.

Finally, learning may emerge from experience or it may be reinforced by means of some systematic processes (Huber, 1991). Among the latter, we have **training**.⁹⁷ It seems commonly accepted that nobody can learn a practice with some kind of training.⁹⁸ There has been discussion about whether training must be on-the-job or off-the-job, formal or informal, previous or contemporary to practice. Since our approach is learning in practice, we will focus on both formal and informal on-the-job training.

We already mentioned (1.2.4.2.) Salas and Cannon-Bowers’s (2001) good summary of the literature on training. One of their most relevant conclusions is that training cannot be isolated from the organizational context: ignoring this is at the root of more than one failure of a well-designed training plan.⁹⁹ In addition, Salas and Cannon-Bowers show interest in the possibilities of new ICTs. Knoke and Kalleberg (1994), in their analysis of the state of job training practices in U.S. organizations, conclude that large organizations with formalized structures, internal labour markets and operating in competitive, complex, resource-rich environments provide more training. Unionization and workforce demographic composition appear not to be significant. However, it

⁹⁷ An interesting distinction between experience and training comes from Killingsworth, who states that, since “at least some learning is unavoidable whenever one works”, in a hypothetical world of “pure” experience, training—costly as it is—would be avoidable.

⁹⁸ The exceptions are, as usual, some constructivist approaches, both in education and in artistic avant-gardes (Menger, 1999).

⁹⁹ Knoke and Kalleberg (1994) also argue that, in designing their training plans, firms may adopt prevalent models that do not match their training needs.

seems that both gender and position in the organization do have an influence on how training is perceived, being this perception more positive by males in upper echelons (Burke, 1995).¹⁰⁰

We could basically distinguish two approaches to training. One is the *economic* one: the calculation of benefits and costs of investment in training. One example is Mincer's (1962) early work, which defines training as the "investment in acquisition of skill or in improvement of worker productivity" and who individuates women and African people as the most disfavoured groups. Another is Killingsworth's (1982) attempt to merge the economic models of investment in training and learning-by-doing, in which he takes potential wage as the proxy to human capital. A last one is Gattiker's (1995) comparison of public investment in general skills training vs. firm-specific training, concluding that general skills training yields a higher return on investment, and that governments willing to improve the neediest employees' opportunities should invest in vocational high schools and colleges.

The other approach to training views it as a *means for acquiring expertise* or developing capabilities. For example, Bonner and Walker (1994) study the effects of instruction and experience on the acquisition of procedural knowledge—i.e. knowledge intrinsic to practice—by auditors, and they describe experience as a training process, in which practice and feedback by a trainer are combined. The feedback may be only about the outcomes or about why the outcome is as it is (task-properties feedback), which is the one really producing learning. Epple *et al.* (1991) and Tan and Libby (1997) remark that earlier training has effects on gaining tacit knowledge from subsequent experience. This is also confirmed by Maritan and Brush (2003), in whose case study "only managers who were trained were able to understand how to incorporate flow techniques [the best practices being transferred in the case] into their areas" (p. 952).

We could not finish this group of authors without talking about the *transfer of knowledge problem*. This is an issue in simulation (Cheetham and Chivers, 2001) and also in training (Salas and Cannon-Bowers, 2001): how the knowledge that has been

¹⁰⁰ This perception is relevant because it correlates with employees' perception of the firm's support and commitment to quality, and, thus, their job satisfaction and intention to quit.

acquired in a controlled, monitored, and safe environment starts being applied in day-to-day practices.¹⁰¹

LEARNING AND IMITATION

Psychological theories traditionally have emphasized learning through the effects of one's actions. If knowledge and skills could be acquired only through direct experience, the process of human development would be greatly retarded, not to mention exceedingly tedious, costly, and hazardous. (Wood and Bandura, 1989, p. 362)¹⁰²

There is imitation in both OL processes and at the individual level. Vicarious learning, which is included in the former, has been addressed. We will see now the latter.

The imitation process could be simplified as it follows: 1) observation of the others' behaviour, 2) observation of the outcomes of this behaviour, 3) adoption/avoidance of this behaviour in the hope of obtaining/precluding the same outcomes. As it can easily be derived, imitation makes sense in the context of practical knowledge. Theoretical knowledge cannot be acquired by imitation but by other ways such as instruction and written materials. On the other hand, widespread as it is in literature regarding learning from competitors and internal best practices transfer (Barney, 1991, Coff *et al.*, 2006, Hedberg, 1981, Herriott *et al.*, 1985, Lei *et al.*, 1996, Levitt and March, 1988, Macdonald, 1995, March, 1991, Maritan and Brush, 2003), "imitation" should be not be understood as a synonym to "mimicry" (Barney, 1991, Foster and Rosenzweig, 1995, Herriott *et al.*, 1985, Maritan and Brush, 2003, Senge, 1990, Wood and Bandura, 1989). Finally, we could add that sometimes imitation does not look for learning but "dislodging a firm from its current set of practices" (Csaszar and Siggelkow, p.674).

¹⁰¹ Note that here "transfer" does not exactly have the same meaning as it will have in the section 1.3., when we talk about knowledge transfer. There we will address how knowledge about practices is transferred from one unit of the organization to another

¹⁰² In fact, it could be said that most of the knowledge we possess—either practical or theoretical—has emerged from our contact with external sources, i.e. we basically learn from others. Otherwise, we would be still literally re-inventing the wheel.

There are some approaches that refer expressly to imitation. The first one is what Wood and Bandura (1989) call *observational learning* or **modelling**,¹⁰³ or, according to Cheetham and Chivers (2001), *mastery modelling*. Wood and Bandura envisage it as a complex process governed by attentional, representational, behavioural and motivational mechanisms that happens in a social environment. The process is cognitively described as follows: learners adopt others' rules and practices, but in an abstract form that allows for their being applied to new and diverse situations, and models facilitate learning when they verbalize their thought processes and action strategies (Blackler, 1995). The example Cook and Yanow (1993) describe (flute makers) does not require a verbalization but an interaction with objects ("sensing"). Likewise, Lave and Wenger's (1991) Yucatan midwives do not even have a physical interaction but they are granted full observation of the masters' work as well as peripheral tasks.¹⁰⁴

Modelling has a typical manifestation in **mentoring**. "For centuries wise men have offered counsel to the young. [...] Mentorship is the development process in many occupations: master-apprentice; physician-intern; and teacher-student" (Hunt and Michael, 1983, p. 475). The model par excellence is the master, the senior practitioner, the expert. "Skills and knowledge are passed on from successful mentors to organizations' future managers" (p. 484). The dyad mentor-protégé may be seen at one extreme of the continuum of dyadic learning relationships—"most intense or emotionally charged, hierarchical, parental, exclusionary, and elitist"—, with peer pals at the other extreme (Hunt and Michael, 1983, p. 477, see also Cheetham and Chivers, 2001).¹⁰⁵ The relationship between them may be either formally or informally incepted (Armstrong *et al.*, 2002, Cheetham and Chivers, 2001, Hunt and Michael, 1983), but

¹⁰³ Here we will not include simulations, although they could be considered imitations of real life—rules, procedures or roles, functioning of machines and materials and so on—because we are more interested here in how people learn from other practitioners.

¹⁰⁴ As it can be observed, modelling and training are very much related: we have preferred to describe them in different groups because training does not always include mentoring, and because scholars focusing on mentoring would rather centre in mentor-protégé relationships

¹⁰⁵ *Coaching* could be placed somewhere within this continuum. We will address it later, because it has been commonly compared to a scaffold (Cheetham and Chivers, 2001, Hunt and Michael, 1983) and this conveys the idea of something that is removed when not needed. Therefore, we have included it with other supports in the technologies (ITCs) and knowledge (instruction) spheres.

apparently the latter case is more fruitful (Armstrong et al., 2002, Cheetham and Chivers, 2001). This relationship goes through different stages: initiation, protégé, breakup and lasting friendship (Hunt and Michael, 1983).

What transpires from the descriptions above is that the mentor is not only a counsellor but a role-model with a protective function (Armstrong *et al.*, 2002, Barr *et al.*, 1993, Hunt and Michael, 1983). Thus, making a good mentor-protégé match becomes essential and this requires paying attention some circumstances. Among them, we can find the harmonization of mentor and protégé's cognitive styles (Armstrong et al., 2002). Another is the gender composition of the dyads: there is evidence that male and female protégés make different use of mentoring and, in addition, it seems that homophile (i.e. same-gender) dyads are more fruitful than cross-gender pairs, which can be problematic in both possibilities (Cheetham and Chivers, 2001, Hunt and Michael, 1983).¹⁰⁶ A last example is age differential, which has effects on mentor and protégé's perceived ideas generation, perceived similarity and mutual liking (Armstrong et al., 2002).

But in a similar way as newcomers or junior members of the organization learn in dyadic interactions with senior members, experts or mentors, they also do it as subjects of **socialization processes**. They have already been addressed in the “Sources of Learning” subsection (1.2.3.4). Socialization is, simultaneously, integration in an organization, learning by imitation, and an identity-shaping process. This is not merely passive (Cook and Yanow, 1993): there is mutual interaction between individuals and organizational culture, and newcomers may also modify prevailing beliefs and norms. That means that socialization is not the “phagocytising” process it would seem at first sight. “Routines are responses chosen by individuals” (Dodgson, 1993, p. 384), and then those individuals still can choose whether to engage in them or resist socialization.

The dark side of socialization has different manifestations. It may produce an excessive homogeneity or specialization that may hinder learning and innovation and facilitate the crystallization of errors (Levinthal and March, 1993, Nonaka, 1994, Weick and Roberts, 1993). In addition, we also saw that a newcomer that is not correctly

¹⁰⁶ This is even more relevant for practice since there are remarkably few female mentors availing in certain “male-dominated careers such as business, academia, and the professions” (Hunt and Michael, 1983, p. 477)

socialized may unlearn precisely those idiosyncrasies that made him or her valuable for the organization (Huber, 1991).

MODELS OF PROFESSIONAL EXPERTISE

The practical approach to learning includes the development of the learner into a competent or expert practitioner. Thus, our focus here is **the expert**, and how to become one.

First, although they are obviously related, it is necessary to *distinguish experience from expertise*. Experience is a sine qua non for the attainment of knowledge and, therefore, for becoming an expert, but it is not a sufficient measure for expertise. An example is a paper on audit managers' expertise by Bonner and Lewis (1990, p. 2): "using experience to indicate expertise allows no conceptual basis for differentiating among auditors with the same level of experience, although it is likely, for example, that some audit managers may be more expert than others at specific audit tasks." Here, experience means having performed a certain number and kind of tasks for a certain period of time, whilst expertise means "task-specific superior performance" (ibid.). Therefore, according to Bonner and Lewis, it is not the accumulation of experience—i.e. number of years in the practice—but its quality in terms of knowledge combined with innate ability and instruction.¹⁰⁷ Libby and Tan (1994) use a similar knowledge-experience-ability interrelation and also show how performance affects subsequent experiences. They later (Tan and Libby, 1997) broaden the concept of the expert's knowledge described by Bonner and Lewis (1990) by including forms of tacit knowledge such as communication and interpretation skills, which become more and more important as one ascends the ladder of expertise, since technical knowledge is taken for granted at that point.

In the subsection about "OL and Individual Learning" (1.2.3.3.), we saw how some authors focus mainly on managers. This translates into the need that managers develop certain capabilities, such as triple-loop learning, which means the capacity of discerning the right action for the current situation (Torbert, 1994). Hence, expertise can be

¹⁰⁷ Once more, a basically behavioural scheme of action-feed-back-knowledge-action is enriched with other insights

detected through this particular judgment capability that is described as a sort of overview: the “holistic thinking” (Senge, 1990, Spender, 1996). In particular, Senge proposes a development model for managers in which they need to gradually master five disciplines¹⁰⁸ and commit to a series of practices, to become knowledge stewards and learning inducers; a sixth added, ultimate discipline is, precisely, holistic thinking. That this is the same Nonaka and colleagues (Nonaka and Takeuchi, 2011, Nonaka and Toyama, 2007), rediscovering Aristotelian theory of action, call “practical wisdom,”¹⁰⁹ with the difference that they see it as distributed across the organization, and not privy to a particular hierarchical rank.

Another group of authors identify the expert with *the professional*. In fact, the research field of professional service firms (PSFs) has developed an extensive production about expertise and professionalism (Boh *et al.*, 2007, Chang and Birkett, 2004, Empson, 2008, Hitt *et al.*, 2001, Løwendahl, Revang and Fosstenløyken, 2001, Maister, 1997, Nanda, 2004, Prats and Agulles, 2011, Rogers and Tierney, 2004, Snook and Khurana, 2004, Teece, 2003). In PSFs, the one possessing the know-how that is key for the organization, the dynamiser, the knowledge activist, the one at the core of the community of practice is considered the *expert* (Boh *et al.*, 2007, Brown and Duguid, 1991, Cohen and Levinthal, 1990, Groysberg, Lee and Nanda, 2008, Lave and Wenger, 1991, Nonaka, 1994, Nonaka *et al.*, 2006, Rogers and Tierney, 2004, Teece, 2003).

How does one become an expert? The path from novice to expert is not simple and requires a process. The notion of expertise is not theoretical, but practical: it refers to the excellence in the performance of a particular practice, task, profession or occupation. The qualities of the expert—knowledge and skills altogether—enable him or her to perform a task properly, thus, they are called **competences**.

¹⁰⁸ They are: 1) systems thinking; 2) personal mastery, which enhances commitment; 3) mental models challenging old models and hierarchical structures; 4) building shared vision by gaining not only members’ compliance or enrolment but their commitment; and 5) team learning, which requires first alignment, then empowerment and dialoguing capabilities

¹⁰⁹ However, it seems to us that, although talking expressly about “practical wisdom” and *phrónesis*, Nonaka and colleagues are describing *techné*, because at the very end, they are not referring as much to “good” in its ethical meaning as to how to choose and act rightly to get a certain outcome. For more clarification, see Aristotle (1941, VI).

According to Sandberg and Pinnington (2009), professional competences have been approached in three different ways: as a prerequisite for a practice, as an outcome of a practice, and as a capability exercised during the practice itself. Sandberg and Pinnington also distinguish between entity-based views—which portrait competences as applied scientific knowledge or certain skills or characteristics—and relational perspectives—competence is not something incorporated but relational.¹¹⁰ This distinction is similar to those between epistemology of possession and epistemology of practice (Cook and Brown, 1999, King and Ranft, 2001), and between knowledge as embodied, embedded, embrained, encultured, and encoded vs. knowing as a process (Blackler, 1995, see also Lave and Wenger, 1991, Spender, 1996, Tsoukas, 1996, Wenger, 1998). Regarding this discussion, we argue that both points of view—static and dynamic—are necessary and mutually complementary. On the one side, knowledge, skills and attitudes (KSAs) are all three included in practical knowledge: knowing to do something—being competent at it—requires certain theoretical knowledge, the adoption of the right attitude towards action and having the appropriate skills.¹¹¹ Once acquired, these competences remain in the practitioner as procedural memory (Cohen and Bacdayan, 1994). On the other side, competence is only proven in actual practice.

Among the *competences required* for practical learning we may find dialectical thinking (Brown and Duguid, 1998), Senge’s (1990) five disciplines, collaborative know-how (Simonin, 1997), absorptive capacity (Cohen and Levinthal, 1990), the ability of double-loop or higher-level learning (Argyris, 1976, Torbert, 1994) and so on. Other authors focus on the *requirements for competence development*. They have been mentioned before (1.2.4.2.), because they are requirements for practical learning, for example, the importance of assessing learners’ learning styles (Kolb and Kolb, 2005, Sims, 1983), motivational aspects such as self-efficacy and goal systems (Cyert and March, 1963, Wood and Bandura, 1989), empowerment (Conger and Kanungo, 1988, Snell and Chak, 1998), and so on.

Competence development learning models have received some criticism. Torbert (1994) highlights the “aura of masculine elitism that initially seems to emanate from

¹¹⁰ Sandberg and Pinnington finally label those streams as incomplete and, using Heideggerian insights, propose professional competences as ways of being

¹¹¹ Salas and Cannon-Bowers (2001) view training as a KSAs development mechanism. See also Stevens and Campion (1994).

developmental theory” (p. 67),¹¹² and proposes a non-elitist leadership. Whether we identify the expert with the manager or with the professional, his or hers is, no doubt, a power position (Alvesson, 1993, Coopey, 1995, Dodgson, 1993, Rogers and Tierney, 2004, Teece, 2003), and the challenge is getting the expert to bring his or her expertise to the benefit of the organization. In general, authors who receive the influence of the neoclassical economic view of human organizations, have a difficult time describing the mechanisms that may help experts’ alignment (Coopey, 1995, Cyert and March, 1963, Rogers and Tierney, 2004). This issue has important consequences also for practice: organizations and business schools not always design development plans that meet the expectations and demands of senior managers-to-be (Prats and Agulles, 2011). On the other hand, becoming competent at something does not mean achieving success in the long run. We have already described (1.2.3.5.) the competence-traps phenomenon, which happens, first, at the individual level and, then, at the organizational level.

THE ROLE OF INSTRUCTION, COACHING AND ICTS IN PRACTICAL LEARNING

Practical learning can be either the necessary but serendipitous by-product of interaction—be it social, within-market or with products and technologies—(Young, 1993) or sought and enhanced via diverse learning mechanisms, such as expert teams, knowledge-sharing meetings, training and development plans, R&D departments, documents, knowledge activists and so on. In the second case, and to make those mechanisms work, organizations, and especially companies, have made extensive use of certain support tools. Among them, we will select those that we consider to be particularly relevant: *instruction*—a kind of formal transmission of explicit knowledge—, *coaching*, and new *information and communication technologies* (ICTs).

Is **instruction** relevant for practical learning? If we understand it as the teaching of theoretical principles, it may seem that the response is negative. Cheetham and Chivers (2001, p. 257) define instruction as “the inculcation of specific knowledge or skill-related principles to one or more individuals at the same time.” That means that

¹¹² Torbert’s proposal—transformational managerial learning—seeks turning managers into later-stage managers as the means to ultimately transform organizations.

instruction may contain from conceptual knowledge related to practice to explicit rules of thumb (e.g., instructions for using a machine or standard procedures). In any case, it is explicit knowledge what is conveyed.¹¹³ For example, Raelin (1997) views instruction as the teaching of theoretical work-related knowledge to which he opposes work-based learning. But he does open a door for instruction, to be introduced as a complement after experience, because “theory makes sense only through practice, but practice makes sense only through reflection as enhanced by theory” (p. 564). This contribution is relevant because practice-oriented literature often assumes constructivist and pragmatist principles and dismisses theory or any kind of instruction to learn a practice (Cook and Yanow, 1993, Lave and Wenger, 1991, Spender, 1996, Tsoukas, 1996).¹¹⁴

A deeper contribution is made by Bonner and Walker (1994), who describe two types of explicit knowledge we may find regarding practice: procedural knowledge—rules for performing a practice, of the type “if A→B”—and declarative knowledge—of facts and definitions. Bonner and Walker admit the teaching of explicit knowledge both before and after performance. The first is called instruction, the second feedback. In their model, “experience” is practice or action, and “instruction” can be of “how-to rules”—lists of steps or procedures, such as the ones to be found in a flowchart—or “understanding rules”—explanations about the steps. In turn, “feedback” may be “outcome feedback”—information about the outcome—or “explanatory feedback”—why the outcome happened. Their conclusion is: 1) experience is necessary for the acquisition of explicit practical knowledge; 2) experience alone is not sufficient; 3) understanding rules are more effective than know-to rules, 4) but feedback is always necessary; and 5) only explanatory feedback is sufficient for learning, in combination to experience.¹¹⁵

Therefore, we see that instruction is important for the acquisition of practical knowledge, at least of the explicit type. But what about the relationship between

¹¹³ In this, not all authors keep a consistent terminology. For example, Farnham-Diggory (1994) includes apprenticeship among instructional models.

¹¹⁴ For example, Lave and Wenger (1991) explicitly reject “educational” or “schooling” approaches to learning a practice.

¹¹⁵ The authors add that possessing a general problem-solving ability is also positively related to the acquisition of procedural knowledge. This is perfectly consistent with what we know about absorptive capacity

instruction and tacit practical knowledge? Mincer (1962), in his early paper on training, states that formal school instruction is not sufficient and that graduation is “the end of a more general and preparatory stage, at the beginning of a more specialized and often prolonged process of acquisition of occupational skill” (p. 50). Managerial literature has also seen instruction as a relevant kind of preparation or basis upon which experience and practice can be better consolidated (King and Ranft, 2001, Nokes and Ohlson, 2005, Tan and Libby, 1997).

Cheetham and Chivers (2001, p. 257) define **coaching** as “one-to-one learning support tailored to the needs of an individual.” We already mentioned the difference between coaching and mentoring when addressing the latter. Regarding this, Armstrong *et al.* (2002) consider that coaching is a part of the mentor’s functions in the career aspect, being psychosocial functions the other aspect of the mentor’s role. Thus, the coach’s specific function is to support career development; work issues are his or her subject. “Like real scaffolding, the support can be adjusted as necessary, according to the learner’s needs. It can also be dismantled when it is no longer required.” (Cheetham and Chivers, 2001, p. 257, see also Hunt and Michael, 1983) It is common to the literature on the learning organization to attach coaching functions to successful managers (Hackman and Wageman, 1995, Hunt and Michael, 1983), but this is not necessarily a senior colleague or a peer’s role: a coach is often an external consultant and the relationship with the coachee is mediated by a contract. This relationship starts in midcareer, unlike mentoring, which is typical of early stages (Feldman and Lankau, 2005). In any case, counting on coaching structures is a sine qua non for learning in organizations (Hackman and Wageman, 1995).

Professional coaches are proliferating and there is some controversy concerning who should claim to be a coach and whether a certification is needed. According to Feldman and Lankau (2005), some authors sustain that only psychologists are qualified to be coaches, because they can detect the root of some behavioural and social problems, instead of simply modifying the coachees’ behaviour at work, while for others it is essential that coaches know the business context. To date, the field remains generally unregulated and academic research on coaching is at an early stage (see also Berglas, 2002).

The final aspect we are going to examine briefly is the use of **information and communication technologies**—ICTs—to support learning in practice.

Information technologies have revolutionized work and organizations, to the point of unleashing a wave of exaggerated enthusiasm and optimism regarding their possibilities in the late 1970s and 1980s (Dreyfus, 1992, Nonaka *et al.*, 2006, Stein and Zwass, 1995). An excessively mechanistic view of human individual and social behaviour was on the basis of these approaches and it was subsequently criticised. In fact, human routines involve a high contingency factor and are resistant to codification (Cohen and Bacdayan, 1994).¹¹⁶

Although not exempt of problems, the aforementioned distinction between “data”—discrete, objective facts—, “information”—data with a meaning added—and “knowledge”—(Beamish and Armistead, 2001, Davenport and Prusak, 1998, Gallupe, 2001, Huber, 1991) information inside a context and an experience—is pointing at this: IT works with data and information.¹¹⁷ In turn, others add that “as soon as it [knowledge] becomes codified and transmittable it ceases to be knowledge and it becomes data”(Soo *et al.*, 2002, p. 131) , and, again, “knowledge becomes information once it is articulated and presented in the form of texts, graphics, words, or other symbolic forms” (Alavi and Leidner, 2001, p. 109). This is particularly valid for practical knowledge, which shows a high degree of tacitness.

The challenges posed by IT systems are varied: 1) size and quantity of information is not always directly correlated with learning; 2) re-use, updating and trust regarding these technologies are problematic; 3) there are usability and system quality issues; and 4) as said, not all kinds of knowledge are equally codifiable. Concretely, practices are high in tacit knowledge, and face-to-face—even physical—interactions are necessary for acquiring tacit practical knowledge (Coff *et al.*, 2006, Cook and Yanow, 1993, Davenport and Prusak, 1998, Hansen *et al.*, 1999, Hitt *et al.*, 2001, Lave and Wenger, 1991). To these challenges, we could add issues such as data interpretation and cultural, structural and behavioural aspects that belong to the human component of KM.

¹¹⁶ See also the more fundamental and famous critique by Dreyfus (1992), which is not addressed—as some believe—to IT in general, but to certain AI projects and the assumptions supporting them (see also Dreyfus and Dreyfus, 1986).

¹¹⁷ We will see that the case of CTs is different in more than one aspect.

IT systems work, as said, with data and information, which always requires some sort of codification, and tacit knowledge, by definition, is the most difficult to codify: the social interaction needed to acquire or diffuse this knowledge is resistant to virtual channels, and, in addition, many occupations include a great deal of bodily skills in their practice, which can only be acquired through physical interaction with physical objects (e.g. working tools, bodies, products).

All this said, given their properties of compressing space and time, once taken as tools and not as the “organ” of learning,¹¹⁸ the possibilities open by these technologies are immense. One of the main traits of the learning organization is the widespread use of information systems (Pedler *et al.*, 1989), which must be matched to the organization’s needs (Brown and Duguid, 1998, Hansen *et al.*, 1999). Hansen *et al.* suggest that organizations providing personalized services require systems that facilitate internal communication and tracing people who possess the sought knowledge; on the contrary, companies providing standardized services must invest in codification, archives, libraries and search engines.¹¹⁹ This advised universal access to IT systems must allow for exceptions: high-security demanding organizations require the fragmentation of knowledge and strict filtering of those who access the information (Brown and Duguid, 1998).

In order to deal with data and information with a KM and learning finality, organizations design knowledge management systems (KMSs) and organizational memory systems (OMSs), which include the use of IT.¹²⁰ Storage is the constitutive aspect of memory, and IT can expand the possibilities of individual human memory (Gallupe, 2001, Huber, 1991), which is poor in itself, not only regarding the quantity of data and information that it can store but also in terms of availability. This is one of the

¹¹⁸ “A transistor is not a fruit fly [...]. Obviously humans are the critical variable.” (Dutton and Starbuck, 1979) These authors explain that humans interact with these tools and in this interaction a mutual modification ensues.

¹¹⁹ This dual approach corresponds also to the two main paradigms of KM—computational and organic—described by Hazlett, McAdam and Gallagher (2005), and which are cited also by Argote (2005). They will be addressed in the next subsection (1.2.5.).

¹²⁰ We do not share the view that “system” only refers to information technology. For example, Alavi and Leidner (2001) state that KM does not reduce to IT, but then they identify KMSs with information systems.

ways¹²¹ individual knowledge may become collective¹²² and, thus, the problem of personnel turnover can be solved. But the main issue is the storage of “soft” information, which resides in experts, especially when it comes to practical knowledge (Huber, 1991). Stein and Zwass (1995) argue that information systems must be considered in combination with human expertise. Although they focus on memory systems, Alavi and Leidner (2001) expand their work to the other KM practices—knowledge creation, storage and retrieval, transfer and application—, showing the services IT can render to organizations.

In addition to data processing, new technologies are also used for simulation. In some settings, real practice may be, for example, dangerous or costly. Therefore, designs are tested and practices rehearsed with the help of electronic equipment. This issue was already explained in the subsection on the “Sources of Organizational Learning,” but now we see it under a practice perspective: according to Salas and Cannon-Bowers (2001), simulations’ fidelity to detail is not as important as their ability to capture the KSAs to be learned. In addition, they note that simulation is often applied to practice with little regard for what research about learning and training says.

Finally, we must say something about the use of *communication technologies*. Their possibilities are well known: for example, learners can connect with distant practitioners who have the knowledge they need, teams can meet virtually, and forums for best-practice sharing can be designed. As we have above said, citing Hansen *et al.* (1999), it seems that these uses are most appropriate for the transfer of tacit knowledge (Coff *et al.*, 2006). Therefore, we will go back to them in the corresponding subsection (1.3.3.). However, the consequences of the introduction of CTs are ambivalent: they do save time and money and make knowledge available to more people but, on the other hand, members of the organizations have to work under more pressure, which may result in taking harsh decisions, and abuse of virtual contacts may lead to a gradual impoverishment of the much needed social capital. Thus, what seems to facilitate learning and development, at the same time seems to hinder it (Prats and Agulles, 2011). Moreover, the dissemination of information networks does not necessarily result in the dissemination of knowledge networks, which require a social context: reciprocity

¹²¹ The other, as we have seen (1.2.3.4.), is the adoption of organizational routines.

¹²² This is the combination stage in Nonaka’s SECI model.

must be guaranteed for this to happen (Brown and Duguid, 1998). “Explicit design strategies for exchanging information are repeatedly subverted by users who press for a social network” (p. 107). As above mentioned, this social interaction is so much needed for learning some practices that no virtual tool can replace it. Once again, for tacit knowledge sharing, a considerable degree of face-to-face interaction is necessary.

In this subsection, we have reviewed the contribution of OL, KM and management literature to the issue of learning in practice, with a special regard to the individual practitioner in the organization. Thus, the relation of the notion of practical learning with those of expertise and profession has been examined. How tacit practical knowledge is acquired has been addressed in different parts of this subsection, especially with comparison to explicit, codified knowledge. The main requirements for and obstacles against this way of learning have been also reviewed. Finally, we have showed that the aforementioned literature has approached learning in practice in many diverse ways. Most of the insights found in this review will be very useful for the empirical part of this research.

1.2.5. THE KM LITERATURE

In the first subsection (1.2.1.), we saw how OL and KM interrelate both conceptually and in the literature. Concretely, we viewed OL as the fruit of the knowledge creation and acquisition processes that happen in an organization, i.e., all those organizational processes in which *new* knowledge emerges. These processes, along with those of retention and transfer of knowledge may be managed by organizations. And this is the management studied by the KM theory. Here, we will address KM in general and in section 1.3., we will deal with knowledge transfer (KT) or knowledge-sharing¹²³ more in-depth.

As above mentioned, KM literature emerged in the 1990s and flourished until the first half of the 2000s. There was a debate about reasons of the increasing popularity of knowledge and KM during these years. For example, Beamish and Armistead (2001) summarize them in one: the rise of the knowledge-based economy that brought along a shift towards a “weightless economy”. In their own words, it was the “shift towards high-skill product manufacturing and, especially, *high-skill service functions*” (p.102, emphasis added). That, in turn, was accelerated by IT developments and produced an increased interest on knowledge work and the knowledge worker (Drucker, 1999). This is also described as the move from capital intensiveness to knowledge intensiveness (Spender and Scherer, 2007), or, more in general, as the shift of society to the “knowledge society” (Nonaka, 1994). Spender and Scherer (2007) add other common arguments and dismiss them one by one: 1) there is not so much—either historical or other—evidence of the shift to knowledge intensity;¹²⁴ 2) “learning curves” have existed since humans discovered technology; 3) talking about a move from manual work to intellectual work (Drucker, 1999) introduces an unnecessary distinction between manual and intellectual work;¹²⁵ 4) again, there is in history no rupture that leads to an

¹²³ We will explain more in detail what we understand by “knowledge transfer” in the corresponding section (1.3.).

¹²⁴ Alvesson (1993) argues that the concept of “knowledge-intensive” is ambiguous and rather seems a device for earning legitimacy and status designed by some occupations.

¹²⁵ “Even smokestack firms had line managers and staff aides doing mental work [...] Doing surely requires thinking.” (Spender and Scherer, p.6)

increasing collaboration and relevance of social networks; 5) as for the current emphasis on tacit knowledge, apparently it was even higher before the post-WW II advances in analysis; finally 5) it is still to be historically proved that new firms with more internal heterogeneity and two-way knowledge flows are appearing, opposite to old hierarchical, top-down structures.¹²⁶ The fact is that Spender and Scherer (2007) renounce to explain the success of KM proposals, but they do acknowledge that there is a shift that revolves around three main anxieties: the one created by IT irruption and the ensuing issue of information management,¹²⁷ the one regarding who really owns means of production,¹²⁸ and the one concerning the organization as an entity with internal socio-economic dynamism. These three points of interest are the ones we will follow to explain the different approaches to KM (1.2.5.3.).

The KM field experienced an **evolution**. Spender (2008, p. 159) simplifies it as follows: “earlier analyses provided only indicators of knowledge, for it was the organization that was managed. [...] Now the organization’s knowledge is to be managed, as something distinct from the organization itself.” But, if we want a more complete account, we may, for example, use the one provided by Ma and Yu (2010) in their citation, co-citation and social networks analysis of the field between 1998 and 2008, which was mentioned at the very beginning of this research (1.1.). They divide their analysis in two chronological periods: 1998-2002 and 2003-2008.

The period between 1998 and 2002 saw the first attempts to define the emerging KM field. “Knowledge management is defined as a systematic process of gathering, organizing, sharing, and analysing knowledge in terms of resources, documents, and people skills within and across an organization” (p. 183). Here also the main division in two approaches—computational and organic—appeared, and also the possibility of using either at convenience (Hansen, Nohria and Tierney, 1999). We will explain these

¹²⁶ Alvesson (1993) uses similar arguments in his polemic paper about knowledge-intensive firms (KIFs).

¹²⁷ Easterby-Smith and Lyles (2003) describe KM as, in general, a more technical field than OL, and explain that it evolved from an initial quasi-identification with IT and neo-economic approaches to realizing the importance of social interaction. Hazlett, McAdam and Gallagher (2005) also highlight the need to go beyond simply functionalist outcomes and move to a less mechanistic notion of KM.

¹²⁸ Brown and Duguid (1998) tie the two first anxieties to each other when they note that the effect of communication technologies has been of disaggregation and power dispersion, but also of centralization and concentration in other instances.

issues later (1.2.5.3.). Setting the bases for the KM field was the main research theme in the period, and some influential authors were Zack (1999), Nonaka (1994), Alavi and Leidner (2001), Polanyi (1966), and Senge (1990).

In the same lapse, another cluster of authors stemmed from the resource-based view of the firm and presented knowledge as the most valuable asset of an organization, as a source of competitive advantage and of innovation. This view was permeated of an economic approach. Some relevant scholar following this thread are Kogut and Zander (1992), Cohen and Levinthal (1990), Spender (1996), Grant (1996a, 1996b) and Teece (1997).

Finally, and parallel to these two groups, the OL field went on, and it is described developing a dual perspective: OL as knowledge acquisition or as value acquisition. Some of the most cited authors here were Argyris and Schön (1978), Lave and Wenger (1991), Huber (1991), and Wenger (1998).

During the period between 2003 and 2008, according to Ma and Yu (2010), the most cultivated research thread was that of the KM strategy (Davenport and Prusak, 1998, Earl, 2001, Hansen *et al.*, 1999, Zack, 1999), i.e., the focus moved to KM activities¹²⁹ and, especially, on knowledge-sharing as the key element for process and product innovation (Alavi and Leidner, 2001). The OL field was second in importance. The thread of OL as knowledge acquisition was still cultivated, but two other insights gained strength: the first was the emphasis on participation in communities of practice, which is closely related to the second, i.e., the understanding of organizational knowledge as inseparable from professional practice (Brown and Duguid, 1998, Lave and Wenger, 1991, Polanyi, 1966, Tsoukas, 1996, Tsoukas and Vladimirou, 2001). Finally, research on the knowledge-based organization and innovation remained relatively steady and experienced some loss of popularity. Authors cited were the same as in the previous period, with some new addition, such as Nahapiet and Ghoshal (1998).

Ma and Yu (2010) conclude that, over those ten years, the theoretical paradigm was slowly emerging and constituting, but they do not describe the main traits of this paradigm, which, otherwise, is still in formation (Argote, 2005). Spender (2008) does

¹²⁹ They will be explored in 1.2.5.2.

attempt to summarize this characterization in three assumptions: 1) the organization's knowledge can be managed, modified, transferred and so on, like any tangible asset, which leads to an overlapping of KM with the HC and SC theories; 2) knowledge is generated by OL processes, understood as knowledge acquisition and creation;¹³⁰ and 3) finally, there is a general agreement on OL as a set of internal adaptation processes triggered by some kind of unease.¹³¹ We find this description problematic for different reasons. The first is that point 3) could be considered superfluous, since it does not refer to KM. The second is that the description only takes notice of a part of KM literature, that which follows behavioural and economic postulates, with disregard to social, constructivist and pragmatic contributions.¹³²

In fact, according to Nonaka and colleagues (Nonaka, 1994, Nonaka and Konno, 1998, Nonaka, von Krogh and Voelpel, 2006), knowledge can only be managed by creating the structure and environment in the organization that propitiate the relationships that originate and move knowledge across the organization. Something similar could be said about the proposals of Cohen and Bacdayan (1994) or Cook and colleagues (Cook and Yanow, 1993, Cook and Brown, 1999). All this discussion connects with the question of where knowledge resides and, ultimately, what knowledge is and what kind of knowledge we are talking about. These issues will be addressed in the next subsection (1.2.5.1.). Next, we will review properly what KM is (1.2.5.2.), and we will conclude with the different ways authors have approached KM (1.2.5.3.).

The same as we will not dedicate any subsection to philosophical and other foundations or background for the KM theories, because they were explained in 1.2.2., we must say that, with regard to conditions and obstacles for KM, there is a fair coincidence with those for learning, either OL—acquisition of knowledge in the organization and by the organization (1.2.3.4., 1.2.3.5, 1.2.3.6.)—or practical learning—acquisition of practical knowledge (1.2.4.2., 1.2.4.3.). This is not surprising, because managing knowledge requires somehow previously having created or acquired it, and

¹³⁰ The relationship between OL and KM is here described as we did in 1.2.1.

¹³¹ The identification OL-adaptation was discussed when we described the characteristics of OL (1.2.3.1.)

¹³² See 1.2.2. We believe that this partial portrait of the KM panorama favours Spender's (2008) subsequent proposal, which is radically constructivist.

some kind of control over knowledge flows.¹³³ Notwithstanding this, some references will be made about these issues in the corresponding subsection (1.2.5.2.).

1.2.5.1. THE DEFINITION AND CHARACTERISTICS OF KNOWLEDGE

The present subsection is closely connected with the epistemological subsection (1.2.2.), in which we explored the philosophical roots of the different trends on OL and KM. Given that in 1.2.5. we are addressing knowledge management, we need to previously focus on what is to be managed and, therefore, it seemed to us that it would be a good idea to complete all those insights with a subsection here regarding *knowledge* itself.

Most of the authors cited in this subsection belong to the KM field, although, of course, there are some references to OL scholars. We will discuss 1) the scarce *definitions* of knowledge we have found in our literature review, 2) *where* knowledge resides, and 3) the different *types* of knowledge.

THE NATURE OF KNOWLEDGE

As above said, we have not found many different definitions of knowledge. This meant a surprise, since defining the matter of research would be the expected way of introducing any research piece. Spender (2008) stated that knowledge is an elusive topic and we suspect that this is the main reason for this scarcity.

First, we have some authors who define knowledge as “justified belief” (Alavi and Leidner, 2001, Davenport and Prusak, 1998, Huber, 1991) or “justified true belief”

¹³³ In short, we already noted (1.2.1.) that both fields overlap and this is a consequence of this partial coincidence.

(Nonaka and Toyama, 2007, Nonaka *et al.*, 2006).¹³⁴ We addressed this notion when we examined Gueldenberg and Helting's (2007) critique to Nonaka (1.2.2.3). Here we will only add that this definition highlights the subject's precedence ("belief") in the act of knowledge. The "justification" implies some sort of contrast with another term, which may be understood in logical—i.e. it makes sense (rationalism)—or empirical—i.e. it agrees with senses (positivism)—terms. As we noted before, in either form, this is far from the classical understanding of knowledge as the intentional (or immaterial) apprehension of forms or nature of things by a knowing subject.¹³⁵ But perhaps this proves too deep a discussion for organizational or managerial scholars, and, thus, it is no wonder that Spender (2008) considers that conceptual discussions are useless and that it is preferable to focus on practice.¹³⁶

Alavi and Leidner (2001) mention another quite popular notion of knowledge: that of "authenticated information."¹³⁷ With this, they are pointing at the already classical distinction between *data, information and knowledge* (Beamish and Armistead, 2001, Davenport and Prusak, 1998, Davenport, De Long and Beers, 1998, Nonaka, 1994), where data are raw facts, information adds processing to data, and knowledge adds contextualization to information. We have used this distinction when talking about the function of IT in practical learning (1.2.4.4.), but some authors criticize this intuitive distinction. For example, Alavi and Leidner (2001) state that it is often oversimplified

¹³⁴ For example, "knowledge is defined as a justified belief that increases an entity's capacity for effective action" (Alavi and Leidner, 2001, p. 109). Similarly, "knowledge may be defined as information whose validity has been established through test of proof and can therefore be distinguished from opinion, speculation, beliefs, or other types of unproven information" (Murray and Peyrefitte, 2007, p.112)

¹³⁵ This is, for example, Aristotle's interpretation by Thomas Aquinas (*Comm. in De Anima* II, 22, 553, emphasis added): "And it is thus that a sense *receives form without matter*, the form having, in the sense, a different mode of being from that which it has in the object sensed. In the latter it has a material mode of being, but in the sense, a cognitional and spiritual mode."

¹³⁶ See, for example, Davenport and Prusak's (1998, p. 5) definition: "Knowledge is a fluid mix of framed experience, values, contextual information, and expert insight that provides a framework for evaluating and incorporating new experiences and information. It originates and is applied in the minds of knowers. In organizations, it often becomes embedded not only in documents or repositories but also in organizational routines, processes, practices, and norms." It is, as they say, a pragmatic definition, because they will not attempt what epistemologists have not been able to achieve (see also Grant, 1996b). Similarly, Starbuck (1992, p. 716) states: "Knowledge is a stock of expertise, not a flow of information."

¹³⁷ Here we have again the idea of "justification", here, "authentication."

by the addition of a hierarchy within the triad, with data on the basis and knowledge at the cusp. These authors even propose an inversion of terms: knowledge “is personalised information [...] related to facts, procedures, concepts, interpretations, ideas, observations, and judgments” (p. 109); information is verbalised or codified knowledge, and data appears the final stage of the process, when information is simplified and standardised.

Tsoukas and Vladimirou (2001), describe the triad somehow diversely,¹³⁸ and move it from the cognitive sphere to that of action: knowledge is understood as a skill or art of deciding which is the action more fitting for a certain situation, and according to some socially constructed rules. They also criticise the definition of knowledge given by Davenport and Prusak (1998),¹³⁹ for it runs the risk of embracing too many different concepts. Indeed, once more, knowledge is defined in terms of its contents and not as *what* it is.

Similarly to Alavi and Leidner (2001), Spender (2008) considers the distinction data-information-knowledge—to which he adds “wisdom” and “understanding”—as not applicable for KM or OL theory because the concepts are nested, rather than mutually exclusive. The only advantage he sees in it is that it evaluates knowledge in terms of utility (i.e., referring information to a context), moving the debate from *pure* epistemology¹⁴⁰ to practice. Apparently, he honours his renounce to any conceptual discussion on knowledge: he states that “knowledge management is really about managing knowledge-absences rather than knowledge-assets” (p. 165) and that “knowledge management is ultimately about managing both imagination and reason as actors confront and resolve uncertainty” (*ibid.*).

¹³⁸ According to them, data is a sequence of items, information is the contextualization of data, and knowledge is a judgment on events against a certain context or theory.

¹³⁹ See note 136. Theirs is: “*knowledge is the individual ability to draw distinctions within a collective domain of action, based on an appreciation of context or theory, or both*” (Tsoukas and Vladimirou, 2001, p. 979, emphasis in original). This definition raises the question whether all knowledge is action-oriented.

¹⁴⁰ Here he includes works by himself (1996) and by Tsoukas (1996).

That knowledge has a dynamic nature can be proved, given that it is possible to create knowledge (Nonaka, 1994) but it is also subject to depreciation (Argote, McEvily and Reagans, 2003b, Darr, Argote and Epple, 1995).¹⁴¹

To end with this subject, we can add that Alavi and Leidner (2001, p. 109) enumerate a series of perspectives from which knowledge can be studied: as “(1) a state of mind, (2) an object, (3) a process, (4) a condition of having access to information, or (5) a capability.”

THE LOCATION OF KNOWLEDGE

It is essential for KM to investigate where knowledge is to be found and, at the same time, how it gets located there. Before this, we should remember what Nonaka’s (1994, p. 17) view is:

Knowledge is created by individuals. An organization cannot create knowledge without individuals (...). Organizational knowledge creation, therefore, should be understood in terms of a process that “organizationally” amplifies the knowledge created by individuals, and crystallizes it as a part of the knowledge network of the organization.

Accordingly, Davenport and Prusak (1998) state that knowledge resides in people, routines and machinery, and that “in organizations, it often becomes embedded not only in documents or repositories but also in organizational routines, processes, practices, and norms” (p.5).¹⁴² That means that, at least, there are three kinds of knowledge repositories or places where knowledge is located and, so to say, stored: 1) people, 2)

¹⁴¹ See what has been said about unlearning processes (1.2.3.5.).

¹⁴² Another example: “Knowledge is embedded and carried through multiple entities including organization culture and identity, routines, policies, systems, and documents, as well as individual employees”. (Alavi and Leidner, 2001, p. 108, see also Levitt and March, 1988, Argote *et al.*, 2003b) Argote and Ingram (2000, p. 152) add “the physical structure of the workplace” to the list.

organizational practices of different kind, and 3) objects, such as—physical or electronic—documents, machinery, and manufactured products.¹⁴³

If we focus on individuals, we can say that, at least, they possess knowledge in terms of abstract ideas or principles and practical knowledge or know-how.¹⁴⁴ Of the two, we are obviously more interested in the latter. Knowledge in individuals will be dealt with later, when we talk about types of knowledge.

About the nature of organizational rules, practices and routines, something has already been said (1.2.2.2). As above mentioned, authors who hold an organizational perspective have devoted attention to these aspects (Cohen and Bacdayan, 1994, Levitt and March, 1988). Documents contain encoded knowledge, which will be discussed in short, and which is also linked to IT systems (1.2.4.4.).

As for machinery and manufactured products, we will not say much here, because our scope will be the service industry. According to Allen (1977, p. 2), technology “consumes information, transforms it, and produces a product in a form that can still be regarded as information bearing.” It contains it in a “physically encoded form” (*ibid.*, see also Hedlund, 1994). Therefore, accessing knowledge through manufactured products is practicable—“vistas into product technology can be obtained through strategies such as reverse engineering” (Teece *et al.*, 1997, p. 526, see also Kogut and Zander, 1992, Zander and Kogut, 1995)—but even this way of imitation has limitations. In fact, sometimes an object cannot be fully understood without knowing how it was made, which means that the missing piece—the creation process—is the crucial one (Barney, 1991, Berends *et al.*, 2006, Teece, 1977). In other cases, the function can be imitated without necessarily imitating the underlying technology (Kogut and Zander, 1992).

It is referring to these three possibilities—people, processes and products—that authors talk about knowledge repositories (Davenport *et al.*, 1998) or embedded knowledge (Argote *et al.*, 2003b, Bhagat *et al.*, 2002, Blackler, 1995, Chen and McQueen, 2010, Darr *et al.*, 1995, Hong and Nguyen, 2009, Huber, 1991). The generic ‘embedded’ used above can be further specified. Concretely, summarizing previous

¹⁴³ Technology is “knowledge applied to tools, processes and products” (Blackler, 1995, p. 1026) Technology can be transferred in a physical way, via tools, equipment and blueprints (Teece, 1977).

¹⁴⁴ This subject has already been discussed in 1.2.4.

sources, Blackler (1995) enumerates five different ways knowledge can reside in organizations: knowledge can be embrained—abstract knowledge, which “is dependent on conceptual skills and cognitive abilities” (p.1023)—, embodied—it “is action oriented and is likely to be only partly explicit” (p.1024)—, encultured—it is related to processes of socialization and acculturation, which, in turn, depend on language, are socially constructed and open to negotiation—, embedded—it “resides in systematic routines” (p.1024) and focuses on relationships and material resources—, and encoded—“information conveyed by signs and symbols” (p.1025).¹⁴⁵ But Blackler considers that this view is too static and needs to be completed by theories of knowing, or action-based theories.¹⁴⁶

This tension between a static consideration of knowledge and a dynamic one recurrently appears in the KM literature (Argote and Ingram, 2000, Cook and Brown, 1999, Grant, 1996b). It emerges from the specific nature of practical knowledge, in which knowledge and action are closely bonded, and also from the association of ‘knowledge’ with ‘theory’, ‘abstraction’ or even ‘rationalism’ that resides in the minds of some scholars.¹⁴⁷ Alvesson (1993), for example, criticizes the model of rationality that underlies the traditional conception of professions, and highlights that the supposed preponderance of KIFs becomes the more elusive as one defines knowledge “more broadly and includes also knowledge of craftsmanship and other skills” (p. 997). Alvesson also adds cultural and somatic types of knowledge as opposite to formal(ized) knowledge.¹⁴⁸ With this, he is pointing at the presence of different types of knowledge in human activity. We will address this issue next.

¹⁴⁵ These different locations of knowledge, he later explains, correspond to different kinds of organization. In short, expert-dependent organizations lean mainly on embodied knowledge, knowledge-routinized organizations are based on embedded knowledge, symbolic-analyst dependent organizations rely on embrained knowledge, and, finally, encultured knowledge is characteristic of communicative-intensive organizations. Apparently, encoded knowledge has appeared later as a disruption propitiated by new technologies. In the empirical part of this dissertation we will explore all the locations signalled by Blackler, but will not use his terminology, which we consider too idiosyncratic.

¹⁴⁶ Chen and McQueen (2010) mistakenly attribute this classification to a work from 2000.

¹⁴⁷ We already discussed this in the epistemological subsection (1.2.2.3.).

¹⁴⁸ Skills: “capacity to solve problems through creative and innovative solutions” (Alvesson, 1993, p. 1000). Cultural knowledge: “ability to master a particular symbolic and value environment” (p.1001).

ABOUT TYPES OF KNOWLEDGE

Many different characterizations of knowledge may be found in literature, remarkably enough, most of them in dyads. Here we will review the most relevant ones.

First of all, we will mention the distinction between **tacit and explicit knowledge**.

“The explicit dimension of knowledge (...) is articulated, codified, and communicated in symbolic form and/or natural language.” (Alavi and Leidner, 2001, p. 110) Thus, “the greater the shared knowledge space (...) the higher the value of explicit knowledge and the greater the value of IT applied to KM” (*idem.*, p.112) and vice versa. But we already saw that, to have a learning organization, it is not enough to establish sophisticated IT systems (1.2.3.6.), especially if the knowledge that is to be acquired or created is practical (1.2.4.4.). In other words, explicit knowledge is easy to store and transfer, especially by using information technologies, but we must be aware that it is not the only type of knowledge that emerges and flows inside an organization.

As we noted in the epistemological section (1.2.2.), Polanyi (1966) is the introducer of the concept of tacit knowledge, which gained great popularity and has been thereafter used by many authors (Akbar, 2003, Alavi and Leidner, 2001, Argote *et al.*, 2003b, Beamish and Armistead, 2001, Blackler, 1995, Brown and Duguid, 2001, Brown and Duguid, 1998, Cohen and Levinthal, 1990, Cook and Yanow, 1993, Cook and Brown, 1999, Davenport and Prusak, 1998, Hedlund, 1994, Inkpen and Dinur, 1998, Kogut and Zander, 1992, Nonaka, 1994, Nonaka *et al.*, 2006, Nonaka and von Krogh, 2009, Spender, 1996, Spender and Scherer, 2007). Let us remind here that, for Polanyi, this kind of knowledge is underlying all our other types of knowledge,¹⁴⁹ and he proposes it against the Modern quest for “unbridled lucidity” (Polanyi, 1966, p. 18), i.e., the ideal of knowledge as the attainment of complete explicitness, the effort “to establish a strictly detached, objective knowledge” (p.20). The work of tacit knowledge is integration, “the shaping of experience performed in the pursuit of knowledge” (p.6).

Somatic knowledge: “body internalized dispositions” (p.1001). Note that these concepts are not necessarily mutually exclusive.

¹⁴⁹ That there are simultaneously implicit or tacit as well as explicit dimensions in knowledge is also supported by Brown and Duguid (2001).

Polanyi describes the functioning of tacit knowledge as the establishment of a “*functional relation* between the two terms of tacit knowing: *we know the first term only by relying on our awareness* of it for attending the second” (p. 10, emphasis in original). His description is quite similar to the Aristotelian knowledge by analogy, in which an already known term helps knowing an unknown one with which it keeps a relationship of similarity. The actual grasping of this relationship remains tacit.¹⁵⁰

That means that in our understanding of our own actions and the world that surrounds us, there is always an extremely personal core that remains implicit. To some extent, tacit knowledge can be made explicit—as in an instruction manual—but there will always be a tacit remainder. Although the examples of tacit knowledge Polanyi uses—the pianist moving his or her fingers but paying attention to the score,¹⁵¹ or the difference between driving theory and practice— belong to practice, he also includes the scientific genius among the highest forms of integration and also notes the difference between the description on which an identikit is drawn and the actual knowledge of a person’s face. Alavi and Leidner (2001) suggest something similar: “The tacit dimension of knowledge (...) is comprised of both cognitive and technical elements” (p.110). The former are “mental models or maps”, while the latter is “concrete know-how, crafts, and skills that apply to a specific context” (*ibid.*).

Polanyi’s view has not been interpreted equally by all scholars who followed it. Some of them state that tacit knowledge can be *converted* into explicit by different procedures, such as dyadic and social interaction (Nonaka, 1994, Nonaka *et al.*, 2006, Nonaka and von Krogh, 2009). Nonaka’s SECI model of knowledge conversion, which has been explained before (1.2.2.4.), has been extensively cited and followed by many authors (Alavi and Leidner, 2001, Blackler, 1995, Hedlund, 1994). Others rely on

¹⁵⁰ Polanyi notes that a similar mechanism happens when we know that we do not know something, which lies at the origin of scientific quest, which holds tacitness and personal commitment at its core: “Tacit knowing is shown to account (1) for a valid knowledge of a problem, (2) for the scientist’s capacity to pursue it, guided by this sense of approaching its solution, and (3) for a valid anticipation of the yet indeterminate implications of the discovery” (p.24). The sense of commitment is the “compelling sense of responsibility for the pursuit of a hidden truth” (p.25). Polanyi thus breaks with the Illustrate model of science.

¹⁵¹ Mind that the pianist also must pay attention to the movement of his or her fingers but not as the main focus. Thus, “tacit” does not mean “unconscious.” Inkpen and Dinur (1998) state that tacit knowledge may be conscious, automatic or collective, being the first the most susceptible to codification.

codification as the sine qua non for knowledge diffusion (Davenport and Prusak, 1998, Kogut and Zander, 1992). But these views find also contestation by scholars who sustain that tacit knowledge cannot be transformed into explicit. Both tacit and explicit knowledge may help each other but they have different natures (Brown and Duguid, 2001, Spender 2008, Tsoukas and Vladimirou, 2001).¹⁵² Some even deny that tacit knowledge can be “transferred:” organizations must create the cultural conditions in which knowledge emerges through interpersonal and person-object interactions (Cook and Yanow, 1993, Cook and Brown, 1999, Lave and Wenger, 1991, Wenger, 1998).

The structure tacit/explicit knowledge is combined by many scholars with that of **collective/individual knowledge** (Beamish and Armistead, 2001, Cook and Brown, 1999, Løwendahl *et al.*, 2001, Nonaka, 1994, Nonaka *et al.*, 2006, Spender, 1996).¹⁵³ This issue has been already addressed with regard to the location of knowledge, which may be embedded in individuals, but also in organizational routines,¹⁵⁴ technology, documents and other objects such as machines and manufactured products. It is also deeply related to collective or organizational learning understood as a collective process of knowledge acquisition with opposition to individual learning (1.2.3.3.). A typical description of how collective knowledge is generated and transferred is that of Brown and Duguid’s (1991) communities of practice.¹⁵⁵ Above mentioned Blackler’s (1995) four different knowledge locations come precisely from crossing in a matrix the emphasis on collective vs. individual knowledge with the focus on routines vs. new, unfamiliar problems by organizations.

¹⁵² Spender considers that Nonaka wrongly interprets Polanyi in this point. Tsoukas and Vladimirou, curiously enough, end proposing the move from unreflective practice to reflective practice, which, in our opinion, is very similar to knowledge conversion.

¹⁵³ Inkpen and Dinur (1998) state that tacit knowledge can be conscious, automatic or collective. This is quite confusing, because explicit knowledge can be also collectively held and also because collective knowledge can be also either conscious or automatic.

¹⁵⁴ For instance, Brown and Duguid (1998) suggest that it is not tacitness what makes knowledge sticky but its collectiveness: collective knowledge is more practice-based and “trying to move the knowledge without the practice involves moving the know-what without the know-how” (p.100).

¹⁵⁵ “At the collective level, knowledge can be enhanced both through the improvement of individual knowledge and skills, through the diffusion of knowledge to more individuals and through the development of databases, routines, etc.” (Løwendahl *et al.*, p. 920)

Another dyad that is often related to the tacit/explicit one is that of **codified vs. non-codified knowledge**. Explicit knowledge is, by definition, codified in some way or other (Alavi and Leidner, 2001) but there is not an exact correspondence between the two dyads in the way they are described. Sometimes, codification is understood in terms of written documents and software, and oral communication is disregarded (Blackler, 1995, Zander and Kogut, 1995). However, if “encoded knowledge is information conveyed by signs and symbols” (Blackler, 1995, p. 1025), then human oral language should be included, and, therefore, explicit and codified knowledge are the same. This is, in our opinion, how it is understood in most of the definitions of *explicit* knowledge we have found. Authors who talk about *codification*, however, seem to ignore oral communication, and tend to focus on IT systems and documents in diverse supports. For our empirical research, we will take into account both tacit and explicit knowledge, and we will include *all* forms of codification in the latter.

We have, finally, a third dyad: that of **theoretical knowledge vs. practical knowledge**. In subsection 1.2.4. we defined learning in practice as the acquisition of knowledge by practice and, at the same time, the acquisition of practical knowledge. There we also made use of the distinction between theoretical and practical knowledge. Although then we suggested the relationship between habits and skills and practical knowledge, now we will try to refine the distinction theoretical-practical.

The use of *interrogative words* is quite extended among scholars. For example, Polanyi (1966) states that the difference between intellectual and practical knowledge is the same as that between “knowing-what” and “knowing-how.” The expression “know-how” referred to practical knowledge is of common use in ordinary language, but the distinction “how”/“what” as such enjoys a wide popularity both among scholars who sustain a practice-oriented position and others. First of all, we find those who identify know-how with practical knowledge (Alavi and Leidner, 2001). Here, know-how appears as one type of knowledge (Huber, 1991), mainly of tacit nature (Grant, 1996b, Hansen *et al.*, 1999, Nonaka and Konno, 1998), which is associated to abilities (Cook and Yanow, 1993)¹⁵⁶ or technology (Teece, 1977, Teece *et al.*, 1997).¹⁵⁷ Nonaka and

¹⁵⁶ According to Cook and Yanow, this knowledge is collective.

¹⁵⁷ According to Brown and Duguid (1998), the organizational knowledge constituting core competency is more know-how than know-what. Know-how is embedded in practice, and thus difficult to spread.

Takeuchi (2011) have gone further in their analysis of practical knowledge, identifying it with the Aristotelian *techné*, understood as skill-based technical know-how. We will see their proposal more in detail below.

Thus understood, know-how is opposed to know-what, conceived as the knowledge of “what” things are, a sort of mental description of something.¹⁵⁸ For example, Brown and Duguid (1998) state that know-what is individual and explicable, and know-how is the same as *dispositional* knowledge, i.e. the ability to put knowledge into practice, which is mainly collective, belonging to communities of practice.¹⁵⁹ The same authors later (2001) state that distinguishing between *performative* (know-how, tacit knowledge) and *declarative* knowledge (know-what, explicit knowledge) is not the best way of explaining sticky and leaky knowledge,¹⁶⁰ but they retake the terminology to explain practice: communal practice produces communal know-how and this, in turn, produces shared know-what.¹⁶¹

Other authors oppose know-how to *information* (Dinur, Hamilton III and Inkpen, 2009, Løwendahl *et al.*, 2001, Murray and Peyrefitte, 2007, Zander and Kogut, 1995).¹⁶² Following Kogut and Zander, these authors define know-how as “the accumulated practical skill or expertise that allows one to do something smoothly and efficiently” (Kogut and Zander, 1992, p.386). Likewise, Gattiker (1995) calls know-how the knowledge that is specific to do a job satisfactorily. On the contrary, “information, or *knowing what something means*, includes facts, axiomatic propositions,

Similarly, King and Ranft (2001) describe experience as a combination of adhocery, improvisation and know-how, which Nonaka (1994) identifies as the typically Japanese on-the-spot-ism.

¹⁵⁸ Grant (1996b) calls it knowledge ‘about.’

¹⁵⁹ It is not clear that these authors admit *individual* know-how. Løwendahl *et al* (2001) understand dispositional knowledge as a sort of personal, un-transferable knowledge that only can be imitated in a symbolic way.

¹⁶⁰ “The problem for this argument is that [...] exactly the same knowledge can prove both sticky and leaky” (p.199)

¹⁶¹ Thus they explain how meaning is socially constructed.

¹⁶² As we will see later (1.3.3.2.), Murray and Peyrefitte (2007) relate know-how and information to communication media richness.

and symbols” (Dinur *et al.*, 2009, p. 433, emphasis added).¹⁶³ As it can be seen, terminology changes, but the concept of know-what remains.

We also may find those who identify know-how with *procedural knowledge*, as opposed to *declarative knowledge*, concepts taken from computer science. For example, Kogut and Zander (1992) identify know-how and procedural knowledge and they use the image of a recipe. On the opposite side, there is information or declarative knowledge, exemplified by blueprints. Note here that procedural knowledge or know-how is defined in terms of the description of processes by means of normative statements. This is exactly what a recipe is. Therefore, they strip know-how from its tacit dimension.¹⁶⁴ In a later paper, Zander and Kogut (1995) seem to somehow correct this view, for they take as an example of procedural knowledge how to ride a bike,¹⁶⁵ but they later go back to the previous, more explicit notion, and they retake the recipes vs. blueprints thread. Interestingly enough, not all relevant authors who refer to procedural knowledge share Kogut and Zander’s view. For example, Gupta and Govindarajan (2000) highlight the tacit character of most of our procedural knowledge, whilst declarative knowledge is understood in terms of data. Nokes and Ohlson (2005) show that procedural knowledge is not merely ‘doing,’ understood in an automatic way. The fact that we can follow the same pattern (procedure) in different situations requires some way or other of abstraction.

Always around the practical-theoretical dyad, we may also cite Spender (1996), who distinguishes between *knowledge about*—abstract and explicit—and *knowledge of acquaintance*—tacit and experiential.

Naturally, those scholars who have taken a practice-oriented approach have focused on know-how, procedural or performative knowledge. At the same time, most of them highlight its tacit nature (Blackler, 1995, Gupta and Govindarajan, 2000, Hislop, 2008, Tsoukas and Vladimirou, 2001, Weick and Roberts, 1993).

¹⁶³ Dinur *et al.* are citing Kogut and Zander (1992, p. 386).

¹⁶⁴ What we mean is that although a particular practice can be dissected into a recipe, a process flow diagram or a list of rules-of-thumb that may constitute a guide for novices, they cannot capture know-how or practical knowledge in all its richness.

¹⁶⁵ “Procedural knowledge (e.g., riding a bike) is more slowly forgotten than declarative knowledge (e.g., facts or propositions)” (p. 78). This description is close to the performative knowledge described by Brown and Duguid (2001).

All the proposals we have seen up to now have been dyads of opposites, but, aware that dyads frequently oversimplify reality, many scholars have put forward **triadic proposals**.

For example, Inkpen and Crossan (1995), in their piece about joint ventures, when they note that Americans focused on visible information (the ‘what’) rather than the ‘how’ and ‘why’ (the know-how) or the managerial philosophy of their Japanese colleagues, they are introducing a new term, *know-why*, i.e., *causal knowledge*. Interestingly enough, these authors do not conceive know-how without a knowledge about the causes. When examining the role of instruction in practical learning (1.2.4.4.), we saw how Bonner and Walker (1994) found that understanding the rules of a practice and receiving an explanatory feedback (i.e. that which why the outcome occurred) were the two kinds of explicit knowledge that, combined with experience, are needed to acquire practical knowledge. Gallupe (2001), in turn, understands declarative knowledge as know-what, procedural knowledge as know-how, and causal knowledge as know-why. According to Akbar (2003), know-how and know-what are typical of single-loop learning processes, and know-why, instead, is typical of double-loop learning.

Nonaka and Takeuchi (2011) have related all these concepts with the Aristotelian theory of knowledge: know-why is science (*epistémé*), know-what-should-be-done is judgment (*phrónesis*) and know-how is skills (*techné*).¹⁶⁶ Back in 1994, Nonaka had already used Aristotelian concepts: besides referring to the latter, he identified the cognitive aspects of practice with *sínderesis* (the habit of the first principles of action). In a similar fashion, Hislop (2008) considers creativity, theoretical knowledge—“a body of codified concepts and principles, which have general relevance” (p.582)—, contextual knowledge—“largely tacit, and non-generalizable [knowledge], being related to specific contexts of application” (*ibid.*)—, and skills—divided into intellectual (reasoning capabilities), social (ability to motivate and manage others), and action-based skills (physical dexterity)—, as the three dimensions of knowledge work.

¹⁶⁶ Spender (1996) had already considered the possibility of using the Greek’s terms and dismissed the as too unclear. We suspect that, rather, they did not fit in his own theoretical approach.

We find all these contributions highly applicable to our research, especially the latter, and they are at the basis of our proposal for types of knowledge that we will summarize below.

PROPOSAL OF TYPES OF KNOWLEDGE

According to what has above been described, we can now provide a classification of types of knowledge.

First of all, we should say that knowledge is found in organizations on an individual and collective basis.

If we look first at the **individual level**, we can find first **theoretical or scientific knowledge**, which consists mainly of *declarative* or *descriptive* knowledge (know-what) and *causal* knowledge (know-why). This knowledge is mostly explicit. But individuals also hold **practical knowledge**, also known as **expertise** or **competence**. It consists of skills (know-how)—which can be physical (bodily, manual), social or cognitive—, and judgment, which is a combination of contextual knowledge (know-where-and-when) and prudence (know-what-should-be-done).¹⁶⁷ This knowledge is mostly tacit.

At the **collective level**, we find knowledge in different **repositories**, which contain, predominantly, theoretical or practical knowledge, depending on the repository. For example, *documents* contain explicit knowledge that may be theoretical (e.g. statements, codes of ethics, and so on) or practical (e.g. standard operating processes, manuals, and the like). *Organizational routines* contain tacit knowledge that is, predominantly, practical, but also theoretical (e.g. the underlying ethical principles, the identity of the organization). We also find here the *technology and equipment* in use in the organization as well as the *products*. They all contain, at the same time, theoretical or scientific knowledge (on materials, components and their functions) and also some part of practical knowledge (e.g. how to use or make them).

¹⁶⁷ Tsoukas and Vladimirou (2001) provide an interesting explanation about judgement and the application of analogy, in which the differences between analogous—i.e., similar and dissimilar at the same time—situations are what make judgement to be a choice: it is the agent who decides that a particular rule, and no other, applies to a particular situation.

An outline of the proposal is the following:

- Individual knowledge
 - Theoretical/scientific knowledge (mostly explicit)
 - Declarative/descriptive knowledge (know-what)
 - Causal knowledge (know-why)
 - Practical knowledge (mostly tacit)
 - Skills (know-how)
 - Manual/physical/bodily
 - Cognitive
 - Social
 - Judgment
 - Contextual judgment (know-where-and-when)
 - Prudence (know-what-should-be-done)
- Collective knowledge (in repositories)
 - Documents
 - Organizational routines
 - Technology and equipment
 - Products

1.2.5.2. WHAT IS KNOWLEDGE MANAGEMENT?

In subsection 1.2.1. we discussed the relationship between OL and KM. There we mainly followed the characterization of KM made by Gallupe (2001) and many others as the management of all the processes of acquisition, creation, retention, retrieval, transfer, use and protection of knowledge in an organization. Here we will try to understand more in depth *what* KM is. Then, we will examine what activities are included in KM and the role of IT in them. Finally, we will deal with the factors influencing KM.

THE CONCEPT OF 'KNOWLEDGE MANAGEMENT'

First of all, we should say that the simplest path could be to describe the actions included in KM without defining KM itself. This is what Hedlund (1994), for example, does. We suggest that this approach is similar to that of those who, without providing a definition of knowledge, directly proceed to describe knowledge types. It is true that the terms 'knowledge management' are self-explanatory, but we should be able to say something else about the matter.

There is a strategic view of KM, which sees it simply as the management of the acquired knowledge within an organization (Argote, 2005). There is a goal for this management: knowledge must be identified, disseminated and leveraged to enhance the organization's performance and make it competitive (Alavi and Leidner, 2001, Easterby-Smith and Lyles, 2003, Gallupe, 2001, Gray and Meister, 2006).

But this is not a simple issue. Managers attempting to implement KM practices soon find obstacles, especially if they conceive it as a list of technical rules and tools to be applied.¹⁶⁸ Ruggles (1998) sharply describes it: KM is "a term which has now come to be used to describe everything from organizational learning efforts to database management tools" (p.80). KM may look like a managerial fad, but it actually is "about creating value by more actively leveraging the know-how, experience, and judgment resident within and, in many cases, outside of an organization" (p.80). And here comes the difficulty because "although these executives understand that knowledge is highly people-based, they are stuck with an investment model that is geared primarily toward technology implementations" (p.86). Indeed, this seems the path of least resistance, given that people issues are extremely complicated. But "in fact, if the people issues do not arise, the effort underway is probably not knowledge management. If technology solves your problem, yours was not a knowledge problem" (p.88).¹⁶⁹ Earl (2001), in his

¹⁶⁸ When Brown and Duguid (2000) talk about the shift from processes engineering to KM that happened in the practice of management, they note that this "represents something more substantial than a change of fashion. It suggests a dilemma that all managers grapple with: the organizational tension between process, the way matters are formally organized, and practice, the way things actually get done" (p. 74).

¹⁶⁹ Thus, Ruggles's prescription is a proportion of 50/25/25 of total percent of effort and time devoted to, respectively, people, processes and technology. In the empirical part of the dissertation, we will see, through the managers' preferences about knowledge transfer mechanisms, how they understand this distribution in our research setting.

taxonomy of KM strategies states that “knowledge management is more than just another IT application” and that “even those schools that are very much enabled by IT also require complementary investments of a behavioural or organizational nature” (p.229).

Some authors show a more radical view. Thus, for example, for Tsoukas (1996), KM does not consist in senior managers designing mechanisms to add up more knowledge to the extant one but in them achieving a better social coordination of the lower levels. KM is a matter of social interaction and sense-making (see also Spender, 1996). As usual, the most difficult is to find a balance between the different proposals. “It is easy to cite the undeniable power of spontaneous organization as a way to damn formal organization. However, it makes no more sense to demonize institutions than it does to demonize self-organizing systems. Rather, each must be deployed to restrain the other's worst excesses.” (Brown and Duguid, 1998, p. 93)¹⁷⁰

These differences confirm something that was also mentioned in subsection 1.2.1.: there is not a single approach to KM, but different perspectives. They will be explained in 1.2.5.3. Here we only intended to show that the apparently simple definition of KM hides some other issues that emerge from what knowledge is and where it resides. Therefore, the definition of KM we are using—“the management of all the processes of acquisition, creation, retention, retrieval, transfer, use and protection of knowledge in an organization”—is valid only if we do not understand knowledge as something objectified, which is ‘out there’ and can be manipulated with more or less ease. There are different types of knowledge, and knowledge always resides somewhere: primarily, in people, but also, as we have seen, in processes and objects. With this view in mind, we will, next, describe the actions included in KM and the factors which affect KM, and, afterwards (1.2.5.3.), review the different approaches academics take on KM.

¹⁷⁰ According to Brown and Duguid, complex adaptive systems champions “overlook the importance to human behavior of deliberate social organization” (p. 92). Goal-oriented planning is needed.

ACTIONS INCLUDED IN KNOWLEDGE MANAGEMENT

When it comes to manage knowledge in the organization, there are different actions that may be undertaken. They have been previously mentioned. Now we will view them in more detail.

First of all, we find **knowledge creation** (Alavi and Leidner, 2001, Argote, McEvily and Reagans, 2003a, 2003b, Gallupe, 2001, Ghoshal and Bartlett, 1988, Grant, 1996a, Hedlund, 1994, Tsoukas, 1996, Gray and Meister, 2006) or **knowledge generation** (Davenport and Prusak, 1998, Grant, 1996b, Ruggles, 1998). Gray and Meister (2006) consider that knowledge creation as part of knowledge *acquisition* in the organization. In our opinion, they are two different types of processes: by knowledge *creation*, we understand the emergence of new knowledge inside the organization, due to some agents, and by knowledge acquisition, the obtainment of knowledge that has already been created somewhere else other than the own organization or group. Another view is that of Nonaka's (1994, Nonaka *et al.*, 2006), who considers that *all* the knowledge conversion processes that occur inside the organization (SECI model) are knowledge creation. In our opinion, the knowledge cycle described by Nonaka is a combination of knowledge creation, acquisition, storage and so on. That is, if there is not any kind of input or a knowledge creation different from the knowledge transformation phenomena, by the application of a sort of "law of conservation of knowledge," the only thing we could obtain is the same or even less knowledge, given that there is also knowledge depreciation (Darr *et al.*, 1995). And this is why the SECI cycle progresses in a spiral. But, at the same time, there is *more* than creation: there is already some kind of knowledge that is kept and converted or transformed and shared inside the organization.¹⁷¹

There is also **knowledge acquisition**. This topic has been addressed in the parts where we discussed OL (1.2.3) and learning in practice (1.2.4.). It is explicitly mentioned by some authors (Davenport and Prusak, 1998, Easterby-Smith and Lyles, 2003, Gallupe, 2001, Grant, 1996b, Huber, 1991, Nonaka *et al.*, 2006). Davenport and Prusak (1998) describe knowledge acquisition inside knowledge creation. We have above explained our position about this. Ruggles (1998) calls it 'accessing' knowledge.

¹⁷¹ The difference and relation of knowledge creation with knowledge acquisition with regards to OL has already been discussed in 1.2.1.

In other scholars, it can be traced through indirect mentions, such as that of a ‘search’ for knowledge (Brown and Duguid, 1998), or the conversion of knowledge (Hedlund, 1994, Nonaka, 1994), both suggesting that there was an external pre-existing knowledge to be (acquired and) transformed. Grant (1996a) calls it ‘external integration,’ to distinguish it from internal integration processes. Williams (2007) studies knowledge replication and adaptation. Finally, Gray and Meister (2006) describe up to three different ‘knowledge sourcing’ mechanisms and they relate them to knowledge re-use (or replication), adaptation and re-combination (or creation) which they draw from three system metaphors: mechanical systems, organic systems, and colonial systems.

Knowledge transfer will be the matter to be discussed in the next section (1.3.). It may be understood simply as knowledge transfer (Alavi and Leidner, 2001, Argote *et al.*, 2003a, 2003b, Davenport and Prusak, 1998, Grant, 1996a, 1996b, Ruggles, 1998, Szulanski, 1996), knowledge *dissemination* (Gallupe, 2001, Hedlund, 1994, Nonaka, 1994) knowledge *sharing* (Berends *et al.*, 2006, Brown and Duguid, 1998, Easterby-Smith and Lyles, 2003, Grant, 1996b, Nonaka *et al.*, 2006), knowledge *broadcasting* (Goodman and Darr, 1998) or knowledge *distribution* (Huber, 1991). The transfer of knowledge can be conceived inside a series of knowledge conversion processes (Hedlund, 1994, Nonaka, 1994) or as the sharing of knowledge inside a community of practice (Brown and Duguid, 1998, 2001).

But knowledge that has been created or acquired must not only be diffused across the organization but retained inside it in some of the before mentioned knowledge repositories. This is what is understood by **knowledge storage** (Alavi and Leidner, 2001, Easterby-Smith and Lyles, 2003, Gallupe, 2001, Goodman and Darr, 1998, Hedlund, 1994, Huber, 1991), which has also been called knowledge *retention* (Argote *et al.*, 2003a, 2003b, Gallupe, 2001), *organizational memory* (Alavi and Leidner, 2001, Huber, 1991, Nonaka *et al.*, 2006), knowledge *embedment* (Argote *et al.*, 2003b, Davenport and Prusak, 1998, Ruggles, 1998, Nonaka *et al.*, 2006), or *preservation* (Nonaka *et al.*, 2006). In some scholars, the concept is more complex, because it contains also codification, coordination (Davenport and Prusak, 1998) or knowledge integration (Grant, 1996a, 1996b, Szulanski, 1996, Tsoukas, 1996) tasks. Hedlund (1994) describes a whole group of actions related, at least conceptually, to knowledge retention, such as articulation, internalization, reflection, appropriation and assimilation and compares how Western and Japanese companies differ in these aspects.

The **protection** of the knowledge embedded in the organization is also an important task, but it is not so much discussed as the others. In general, the issue is how to retain and protect knowledge from undesired leaks or intrusions (Brown and Duguid, 1998, Brown and Duguid, 2001, Coff, Coff and Eastvold, 2006, Gallupe, 2001, Grant, 1996a, 1996b, Nonaka *et al.*, 2006, Macdonald, 1995).

Knowledge retrieval is also important, especially when the knowledge accumulated in the organization starts being considerable in size or when it is dispersed. Organizations must spend effort in guaranteeing that knowledge is available when needed (Alavi and Leidner, 2001, Brown and Duguid, 1998, Easterby-Smith and Lyles, 2003, Huber, 1991, Tsoukas, 1996).

But, mainly, knowledge is created, acquired and stored to be used in different moments. Hence, we have **knowledge use** (Gallupe, 2001, Nonaka, 1994, Ruggles, 1998), which is the end of the other actions. It is also known as knowledge *application* (Alavi and Leidner, 2001, Grant, 1996a, 1996b), *utilization* (Easterby-Smith and Lyles, 2003, Tsoukas, 1996, Grant, 1996b) or *adoption* (Ghoshal and Bartlett, 1988, Kostova and Roth, 2002). For this, already possessed knowledge may need to be made useful for the new challenge (Brown and Duguid, 1998), which requires an interpretation of previous knowledge and the situation (Huber, 1991). Szulanski (1996) states that the utilization of knowledge happens at the ramp-up stage of a knowledge transfer process.¹⁷²

THE ROLE OF IT IN KNOWLEDGE MANAGEMENT

The role of IT in OL and learning in practice has been addressed in the corresponding subsections (1.2.3.6. and 1.2.4.4.), but here we will only relate IT to the different actions that are included in IT. For this, we will follow Alavi and Leidner (2001), along with other authors' contributions.

The first topic is **knowledge creation**. To explain the contribution of IT to knowledge creation, Alavi and Leidner, who are following Nonaka's SECI model, state

¹⁷² The stages are initiation, implementation, ramp-up and integration. The latter is the stage in which knowledge starts yielding satisfactory results and, therefore, it gets routinized.

that IT is especially indicated to support the internalization (I) stage through intranets and the socialization (S) one. But, if we closely look at them, these stages are not about creating knowledge but about already existing knowledge. In fact, one of the things that KM information systems alone cannot do is create new knowledge (Davenport and Prusak, 1998).¹⁷³ It is true that the multiplying effect that the use of IT produces creates more occasions for serendipity—i.e. the finding of new solutions—(Beamish and Armistead, 2001) but it is up to the user, who has to bring into play his or her knowledge base, to take advantage of it (Davenport and Prusak, 1998).

On the contrary, IT proves to be very useful to capture, store and distribute knowledge (Davenport and Prusak, 1998, see also Gallupe, 2001). Thus, any successful KM project includes IT and communication systems (Davenport *et al.*, 1998).

First of all, IT is helpful for **knowledge storage and retrieval** (Alavi and Leidner, 2001). Beamish and Armistead (2001) describe how data warehouse and intelligent agents are very helpful KM facilitators. Organizations need to create computer-based knowledge repositories to embed knowledge that, otherwise, resides only in some individuals, thus avoiding the effects of turnover. These “expert systems have some properties, such as accessibility, reliability, and ‘own-ability,’ that are superior to those of human experts and that, in some situations, are useful components of organizational memories” (Huber, 1991, p. 106). Davenport and Prusak (1998) explain how the systems differ accordingly to the knowledge to be stored: for external knowledge, competitive intelligent systems are used to retrieve information from the external environment. For structured internal knowledge, that which is stored is not data but documented information. Finally, if we have informal internal knowledge (i.e., mostly tacit knowledge), we should use community-based electronic discussion forums, narratives and other similar storage methods. We find also a complete description of the different organizational memory information systems (OMIS) and their function in Stein and Zwass (1995). They consider these systems as enhancers for human interactions.

IT can also support **knowledge transfer** via corporate maps or directories —i.e. expert profiles or taxonomies—, forums, videos and so on. With regards to expert

¹⁷³ “The ability to move ideas swiftly around a company is worthless if those ideas are old and irrelevant.” (Ruggles, 1998, p. 89)

knowledge, close-knit personal networks is the best resource. On the contrary, IT can be used to expand the scope of weaker ties in other kinds of knowledge (Alavi and Leidner, 2001). We will go back to this issue in 1.3.

Finally, when it comes to **knowledge application**, IT facilitates, the capture, updating, integration speed, etc. of knowledge. However, there is the danger of being reusing obsolete knowledge, and, in any case, the user must decide on the rules to apply a certain knowledge to a certain problem (Alavi and Leidner, 2001). Ad this leads us again to discuss the limitations of IT systems for KM, because IT is not the solution for all KM problems.¹⁷⁴ There are other non-technical interventions that can be made (Earl, 2001).

According to Alavi and Leidner, the potentialities of each type of system must be studied: not all kinds of knowledge are equally codifiable (see also Hansen *et al.*, 1999). The use of those systems may originate problems of size and quantity of knowledge and other issues related to the intrinsic rigidity of IT. Other problems are the re-use, updating and reliability of the knowledge already inside the systems, plus the usability and quality of the system itself. In addition, technology inevitably will never be enough because people factors are crucial (Ruggles, 1998). For example, IT cannot say anything about the motivation to use it, the discretion of how to use it and the creation of knowledge (Davenport and Prusak, 1998). Beamish and Armistead (2001) consider that IT systems are a “powerful facilitating factor in the human processes of KM” (p. 109)—e.g. communities of interest can be created by sorting the use individuals make of IT inside an organization—but, at the end, what they manage is information, rather than knowledge.

¹⁷⁴ The vaunted potential of expert systems has never been realized (Davenport and Prusak, 1998, p.126).

FACTORS AFFECTING KNOWLEDGE MANAGEMENT

We could not finish this part without referring to the factors that affect KM. In fact, they are similar to the ones affecting learning, and that have been discussed in subsections 1.2.3. and 1.2.4.

According to Szulanski (1996), the most traditionally adduced factors that hinder the transfer of knowledge are motivational. Instead, he provides a research that suggests that they are **knowledge-related factors**, such as absorptive capacity, causal ambiguity and arduous relationships between the different parties involved. In our opinion, relationships are something external to knowledge itself and should be dealt with separately. In any case, this article is centred on knowledge transfer, which we will discuss in 1.3.

Argote *et al.* (2003b) provide a wider perspective, because they focus mainly on the **KM context**, which affects what they call ‘KM outcomes’ and we have called ‘actions included in KM.’¹⁷⁵ According to the diverse traditions the authors want to join, these contextual factors, are 1) properties of units—which could be an individual, an organization or a group of organizations—, 2) properties of relationships between units—i.e., if they are dyadic (e.g. intensity and frequency of connection) or among multiple units (e.g. density of the network, ownership connections and existence of a shared knowledge)—, and 3) properties of the knowledge itself (e.g. tacitness, causal ambiguity and location). We do not agree with the inclusion of knowledge properties among contextual factors. In our opinion, these constitute a separate set of factors, different from context, in which we could consider the *internal* and *external* environment of the organization. Not many pay attention to the external environment (Foss and Pedersen, 2002, Grant, 1996b, Janssens, Brett and Smith, 1995, Roth and Kostova, 2003, Zack, 1999), probably because it is not something the organization has control of, at least a priori (Spender, 1996, Spender and Scherer, 2007).

Argote and colleagues also individuate the causal mechanisms that explain why these three contextual factors affect KM. They are ability (understood as skills or capabilities), motivation and opportunity (in the sense of conditions that provide

¹⁷⁵ Also Soo *et al.* (2002) highlight the relevance of context—market and industry context and information-related context—in KM processes.

opportunities for KM actions). Other themes emerge from all these, such as the fit between factors 1, 2 and 3, types of experience, and the importance of social relationships.

Social relationships are, precisely, the main factor for authors who incorporate elements of social constructivism to their approaches (Brown and Duguid, 1991, 1998, 2001, Cohen and Bacdayan, 1994, Cook and Brown, 1999, Cook and Yanow, 1993, Nonaka, 1994). Brown and Duguid (1998) mention trust and reciprocity as the main characteristics of these relationships (see also DeRosa *et al.*, 2004). Social relationships are also highlighted by Beamish and Armistead (2001), who, in turn, cite Kogut and Zander (1992). Concretely, these authors discuss the counterintuitive outcome of weak ties between members of the same community: weak ties ease the exchange of simpler knowledge and the appearance of ‘divergent thinking’ and knowledge brokering (see also Alavi and Leidner, 2001, Argote and Ingram, 2000, Brown and Duguid, 1998).¹⁷⁶

1.2.5.3. APPROACHES TO KM

Spender and Scherer (2007) review the three main anxieties of the KM scenario. The first has to do with the use of IT to manage information and its influence on KM. The second focuses on knowledge as a valuable and difficult to capture resource. The third “revolves around the organization as a dynamic socio-economic entity with a developing or evolving corpus of knowledge” (p. 9). These three anxieties, according to Spender and Scherer, are shared, respectively, by three different groups of authors. Argote (2005) explains two different approaches to KM: the ‘computational model’ and the ‘organic model’. It is not difficult to see the coincidences between her proposal and Spender and Scherer’s. In fact, what Argote calls the computational model falls under the first anxiety described by Spender and Scherer, and Argote’s organic model is akin to what they describe in the third anxiety.

¹⁷⁶ The balance between weak and strong ties in the case of knowledge transfer is addressed by Hansen (1999). We will address this subject in subsection 1.3.

With these precedents, we are going to describe here three different approaches to KM: 1) what we will call the computational approach, 2) the organic approach, and, finally, 3) the resource-based view of the organization, which leads to a knowledge-based view of the organization, and which would be the second anxiety described by Spender and Scherer. 1) and 2) will be compared to each other, following different authors who have also noticed this duality in a great part of the KM literature.

THE COMPUTATIONAL AND ORGANIC MODELS

The opposition computational vs. organic described by Argote (2005) can be traced back to an article from Hansen, Nohria and Tierney (1999), in which they compare two KM strategies, depending on the kind of organization: the ‘codification’ strategy and the ‘personalization’ strategy. The first is typical of companies that need reliable and fast knowledge sources, with a strong emphasis on standard services and a knowledge-reuse economics. The second is followed by companies that provide complex, customised services, based on a knowledge that resides in individuals. According to Hazlett and colleagues (2005) this dichotomy is also working in the KM academic field: there are scholars with an information systems background and others with a management background. They are two paradigms—computational or scientific paradigm and organic or social paradigm, respectively—that have little or null convergence, and revolve, respectively, around systems and technology, and people.

The computational paradigm shows a preference for mathematical models, empirical facts and IT, and the organic paradigm focuses on people, group dynamisms, social networks and cultural aspects of the organization (Argote, 2005, Hazlett *et al.*, 2005). Nonaka *et al.* (2006) seem to refer to the same topic when they describe the evolution of the KM field from the models of the 1980s, with their interest on IT, economics and adaptation, to the ones of the 1990s, which prioritize processes, knowledge creation, physical skills and perception.¹⁷⁷ Unlike what Hansen and colleagues (1999) proposed—they stated that any of both strategies was right provided that it adapted to the organization’s characteristics—, most of these authors tend to

¹⁷⁷ We briefly mentioned these authors in the epistemological part of the literature review that dealt with the reaction against rationalism (1.2.2.3.). Then we approached them from the philosophical perspective. Now we are using their insights as applied to KM.

criticise computational models in favour of the organic ones. Thus, Blackler (1995) rejects the models that only rely on encoded knowledge and proposes Vygotsky's theory instead, and Brown and Duguid (1998), Davenport and Prusak (1998) and Spender and Scherer (2007) hold the same criticism regarding those advocating for IT systems as the main solution to manage knowledge in the organization.

As for the authors representing each of the branches, Simon, Barney (1991), or many of the authors of the resource-based approach, such as Grant (1996b), would be good examples of the computational paradigm, whilst Nonaka, Blackler or Brown and Duguid could be cited as following the organic model.

THE KNOWLEDGE-BASED THEORY

Regarding the **resource-based theory** of the organization, in the epistemological section (1.2.2.1.) we saw how this approach receives a strong influence of rational economic models. From there, the consideration of knowledge as one of the most valuable resources in the organization triggered a shift towards a knowledge-based economy, which is called a 'weightless economy': the "shift towards high-skill product manufacturing and, especially, high-skill service functions." (Beamish and Armistead, p. 102) The description of this evolution from the resource-based approach to the **knowledge-based approach** is described by many other authors (Davenport *et al.*, 1998, Foss and Pedersen, 2004, Grant, 1996a, 1996b, Kogut and Zander, 1992, Spender, 1996, Teece *et al.*, 1997, Zander and Kogut, 1995. In common, there is the idea that knowledge is a function of profits (Cohen and Levinthal, 1990).¹⁷⁸ According to Easterby-Smith and Lyles (2003, p. 12), the whole KM field "starts with the neo-economic view of the strategic value of organizational knowledge and then uses familiar

¹⁷⁸ The knowledge-based literature proposes "deploying, protecting, or extracting value from the knowledge created" (Spender and Scherer, 2007, p.9). In 1.2.3.2. we discussed the relation between learning—i.e., knowledge creation and acquisition—and performance, and, particularly, with economic performance. There we saw that the assumption of a direct proportion between them is, at least, problematic.

IT software (...) to facilitate the acquisition, sharing, storage, retrieval, and utilization of knowledge.”¹⁷⁹

The consideration of knowledge as the main asset has caught on across the KM literature, but scholars have also pointed out some shortcomings of the knowledge-based perspective. According to Grant (1996b), the organizational approach of the knowledge-based view tends to ignore individual behaviour in KM processes: there is a risk of reifying the organization and ignoring individuals at the origin of organizational mechanisms. This he tries to avoid with his proposal of knowledge integration. Foss and Pedersen (2004) describe the same problem in different words, applied to the MNCs setting: there is an absence of micro-foundation, and capabilities, knowledge assets, knowledge processes, knowledge transfer and so on are not studied with relation to individuals' behaviour. In addition, interest has been placed more on knowledge flows rather than on the stratification of knowledge stocks, when costs and benefits of all KM processes “can only be systematically comprehended through an explicit understanding of how heterogeneous knowledge elements are dispersed across an MNC” (p.343). Moreover, the mutual influence of knowledge processes, mechanisms of organizational control and other organizational arrangements is not clear.¹⁸⁰

The detection of these limitations gave way to a different knowledge-based approach that diverted from the original resource-based background and turned towards knowledge flows and social relationships. It is what Spender (1996) calls “a dynamic knowledge-based theory of the firm,” and is described by Spender and Scherer (2007) as conceiving “the organization as a dynamic socio-economic entity with a developing or evolving corpus of knowledge” (p. 9). Here authors like Cohen and Levinthal (1990), Cook and colleagues (Cook and Yanow, 1993, Cook and Brown, 1999) and Nonaka can be found. Brown and Duguid (1998) propose this knowledge-based view to counter the transactions cost theory, which is closely associated with the resource-based one.

¹⁷⁹ Even the firm in itself is conceived as a solution to a knowledge-related problem: “The existence of the firm represents a response to the fundamental asymmetry in the economics of K: K acquisition requires greater specialization than is needed for its utilization.” (Grant, 1996b. p.112)

¹⁸⁰ According to Foss and Pedersen, in general, theory is either concerned with organizational issues while disregarding knowledge or concerned with knowledge disregarding organizational issues.

In the face of these divergences, we suggest that the dichotomy scientific-organic reproduces again at the inside of the knowledge-based theory of the firm, the former, more akin to the rational models and to social and organic views the later.

1.3. KNOWLEDGE TRANSFER

In this section we will examine all related to knowledge transfer (KT). First of all, we will analyse knowledge transfer in itself (1.3.1.), i.e. its definition, dimensions and characteristics (1.3.1.1.), and then the factors that influence KT (1.3.1.2.). The following subject will be KT in multinational corporations (MNCs) (1.3.2.). Before, we will need to explore some of the characteristics specific to MNCs (1.3.2.1.), and then we will focus on KT in this setting (1.2.3.2.). The last subsection will be devoted to KT mechanisms (1.3.3.), with a special focus on communication channels (1.3.3.2.). We will end the section with a proposal of classification of KT mechanisms that encompasses what has been explained before (1.3.3.3.).

1.3.1. WHAT IS KNOWLEDGE TRANSFER?

A first point of interest is the difference between the concept of ‘transfer’ used in psychology and education and what we refer to now (Nokes, 2009). Here we are talking about the transfer of knowledge from a person or organizational unit to another person or group, and not to “how knowledge acquired [by one and the same person or group] from one task or situation can be applied to a different one” (Nokes and Ohlsson, 2005, p. 2).¹⁸¹ The concept of ‘transfer of training’ — i.e. the transfer of knowledge acquired

¹⁸¹ However, we did detect and categorise it in our empirical chapter (***) , for example, as ‘previous experience.’

from training to real life — constitutes a case of the meaning of transfer we will avoid here.¹⁸² What we called ‘knowledge application’ in 1.2.5.2. is also related to this: in fact, KT for education and psychology is the application of knowledge acquired in one setting to another.

Contrary to what some authors may suggest, KT is not in any case a simple cut-and-paste transference of knowledge, but something quite more complex (Sapsed *et al.*, 2002) , which encompasses relationships, routines and use of IT. For those who equate knowledge and information, IT is the main tool for knowledge transfer (Spender, 2008), but this is a simplistic view: knowledge is not a commodity that can be transported from one place to another. Even accepting this, some would sustain that at least the transfer of a technology is simpler, assuming that “technology is nothing but a set of blueprints that is usable at nominal cost to all” (Teece, 1977, p. 243). But what is codified in a transfer of technology is only the general lines of it and the transfer becomes more complicated if the technology is complex and the recipient lacks some capacities. Moreover, the transfer of a technology requires a great amount of interpersonal relationships (Allen, 1977, Teece, 1977).

Therefore, it is necessary to analyse the concept of KT in all its complexity.

1.3.1.1. THE CONCEPT OF KNOWLEDGE TRANSFER

In this section, we will first clear up what KT is by both discriminating it from what it is not and seeking for a satisfactory definition of KT. Next, we will pay attention to the relationship between KT and imitation. We will finally deal with the different facets and characteristics of KT.

¹⁸² This concept is at the basis of an interesting discussion about the limits of training (Pedler, Boydell and Burgoyne, 1989, Salas and Cannon-Bowers, 2001, Wood and Bandura, 1989), especially when simulation is involved (Cheetham and Chivers, 2001).

WHAT IS AND WHAT IS NOT KNOWLEDGE TRANSFER?

That there is transfer of knowledge is not accepted by all the relevant scholars. We already mentioned (1.2.2.3.) that constructivist authors reject this concept. This is not strange, given that these authors conceive knowledge as existing only as embedded somewhere (individuals, organizations, routines, objects), and, therefore, as not susceptible of being detached, moved and embedded elsewhere. For example, Brown and Duguid (1991) consider that the idea of KT isolates knowledge from practice. Cook and Brown (1999) propose the example of a very prestigious flute makers company and describe how newcomers learn their craft:

While on the surface this can appear to be a *transfer* of knowledge from the master to the apprentice, we see it as an interaction with the social and physical world (flutemakers and instrument parts) in which the master's knowledge is used to and the apprentice's knowledge is *generated* (p.396, emphasis in original).

So for them the issue is to study “how this essentially non-transferable of ‘situated’ dimension of knowledge and knowing, as elements of an organization’s core competency, can be ‘generated in’ (rather than ‘transferred to’) other groups or organizations” (p.398). Cook and Brown call this process a ‘productive inquiry.’

We agree with these authors that knowledge is not something with an entity separated from its repositories, but we also accept that these repositories can be used as vehicles for knowledge. Human communication requires some sort of mediation, the use of symbols that are emitted in some way of support and received and understood. This enables us to use the expression “transfer” as applied to knowledge. In any case, the constructivist approach helps understand the active role of both source and recipient and it also highlights that theory of communication mustn't be understood in a simplistic way.

Another alternative to KT comes from Grant (1996b). In terms of efficiency, KT is too costly for the organization to achieve its goals. Integration, instead, is Grant's proposal, and it is understood as the combination of coordination and cooperation. The example he gives is graphic:

If Grant and Spender wish to write a joint paper together, efficiency is maximized not by Grant learning everything that Spender knows (and vice versa), but by establishing a mode of interaction such that Grant's knowledge [...] is integrated with Spender's knowledge [...], while minimizing the time spent transferring knowledge between them (p. 114).

Thus, he proposes four mechanisms through which integration is to be achieved: rules and directives, sequencing, routines and group problem-solving and decision-making. In our opinion, both types of processes—KT and integration—should not be understood as mutually exclusive but as highly desirable within the organization. Integration without KT would leave the organization at the mercy of knowledgeable individuals who may leave the organization and force it to reinvent itself any time this happens. KT and dissemination and its subsequent embedding into the organization prevents this problem to appear.

The most cited definition of KT is Argote and Ingram's (2000, p. 151): "the process through which one unit (e.g. group, department, or division) is affected by the experience of another." (See also Argote and Greve, 2007, Dinur, Hamilton III and Inkpen, 2009, Murray and Peyrefitte, 2007) It is clear that Argote and Ingram are talking about intra-organizational KT, but there is also the possibility of inter-organizational KT—"whether organizations learn from the experience of other organizations" (Darr, Argote and Epple, 1995, p. 1750). Hansen (1999) describes knowledge sharing as "a dual problem of *searching* for (looking for and identifying) and *transferring* (moving and incorporating) knowledge across organizational subunits" (p.83, emphasis added). We do not agree in including knowledge search in KT as such, but we do view it as a sine qua non for KT. We prefer the definition by van Wijk, Jansen and Lyles (2008), because of its completeness: "The process through which organizational actors—teams, units, or organizations—exchange, receive and are influenced by the experience and knowledge of others" (p.832).

Both organizations and academic literature consider the issue of KT of great importance. "Shifts to more distributed modes of organizing work made knowledge transfer a priority for firms" (Argote, McEvily and Reagans, 2003a, p. v). This is especially true, as we will see, for multinational corporations (MNCs). The literature on KT is quite vast, and this theme is also suggested in the KM literature among the ones

in need to be explored in future developments. For example, almost all the emergent themes in the KM field that are suggested by Argote *et al.* (2003b) are in the KT subfield. Likewise, Alavi and Leidner (2001) include many KT-related subjects among the KM research issues, such as internal KT; knowledge flows between knowledge provider and seeker, with special attention to “social, cultural, and technical attributes of organizational settings that encourage and facilitate knowledge flows by balancing the push and pull processes” (p.129);¹⁸³ and, finally, Alavi and Leidner name the comparison between external and internal sources of knowledge. More understandably, because of their emphasis on information, voices from the knowledge management systems (KMS) and the management information systems (MIS) highlight the importance of KT processes. For example, Soo *et al.* (2002, p. 131) state that, of all KMS subsystems, “in many ways, [transfer] is the most critical subsystem.” Similarly, for Stein and Zwass (1995), one of the meta-requirements of MIS is to provide means to transfer knowledge to the MIS.

We would like to add here a caveat, and that is that although moving knowledge in the organization is essential, KT would make no sense without a parallel work of creation, especially with the current changing and competitive environments. “The ability to move ideas swiftly around a company is worthless if those ideas are old and irrelevant” (Ruggles, 1998, p. 89).

Before starting with the conceptual analysis of KT, it is worth to mention that when we talk about KT we are referring to an intentional activity (or group or activities). Therefore, phenomena known as ‘knowledge leaks’ are not contemplated here (Brown and Duguid, 2001). When we mention ‘knowledge flows’ here, we do it, again, as restricted to those that are purposefully prompted. As above said, KT has also received other names. Some authors talk about ‘knowledge diffusion’ (Ghoshal and Bartlett, 1988, Levitt and March, 1988, Szulanski, 1996), ‘knowledge sharing’ (Berends *et al.*, 2006, Cabrera and Cabrera, 2005) , ‘knowledge dissemination’ (Gallupe, 2001, Hedlund, 1994), ‘knowledge extension’ (Hedlund, 1994), ‘knowledge distribution’ (Huber, 1991), or even ‘knowledge flows’ (Alavi and Leidner, 2001, Gupta and

¹⁸³ Again, these factors are especially relevant in MNCs. Argote *et al.* (2003a) also cite the external environment as one of the factors affecting KT.

Govindarajan, 2000). Szulanski (1996) prefers the term ‘transfer’ instead of ‘diffusion’ because it highlights the sense of purpose. Apparently, Ghoshal and Bartlett (1988) view KT in MNCs as a combination of diffusion and adoption of knowledge, in a movement that may go among subsidiaries or from subsidiaries to headquarters and vice versa.¹⁸⁴ Whenever we use ‘knowledge sharing,’ ‘knowledge dissemination’ or ‘knowledge diffusion’ we will refer to voluntary knowledge sharing (Cabrera and Cabrera, 2005). However, we will consider ‘knowledge adoption’ as something different to KT, and akin to what was referred to in 1.2.5.2. as ‘knowledge application’ or ‘knowledge use.’

KNOWLEDGE TRANSFER AND IMITATION

In the subsection devoted to learning in practice we described the relationship between learning and imitation (1.2.4.4.). We also saw the relationship between learning and knowledge acquisition and of knowledge acquisition and knowledge transfer (1.2.1.). Here we will briefly review what the KT literature says about imitation and replication.¹⁸⁵

We could distinguish a first group of authors who identify KT either with *imitation* or *replication*. For example, Szulanski (1996, p. 28, emphasis added), in his founding work on the impediments to KT, defines the transfer of best practices as the “firm’s *replication* of an internal practice that is performed in a superior way.” Also for Levitt and March (1988), the dynamics of knowledge diffusion consists mainly in imitation. Maritan and Brush (2003) add more complexity by distinguishing between imitation and replication. By the first, it seems that they mean the capture of an alien practice either by an external organization or by another unit of the organization, and their concept of replication is more close to internal KT and application. We do not share such a subtle distinction, because imitation includes replication and replication only can

¹⁸⁴ Some units “adopt innovations developed by the parent company [...] or other national subsidiaries of the company” (Ghoshal and Bartlett, 1988, p.366) and they “diffuse their local innovations to the parent company or other subsidiaries” (p. 366). Similarly, Davenport and Prusak (1998) understand KT as the combination of knowledge transmission and knowledge absorption.

¹⁸⁵ As we will soon see, terminology is not always consistent in the different authors.

be done by imitation. Csaszar and Siggelkow (2010) also focus on imitation but they include it into the wider field of KT. They differentiate imitation from local search. Local search is the positive search for best practices in the local setting, by testing all local alternatives, whilst imitation involves “copying practices from a template firm to a recipient firm” (p. 666). Like Levitt and March, Csaszar and Siggelkow also finally distinguish between replication and adaptation as two closely tied processes *inside imitation*.¹⁸⁶ But, to make things more difficult, here ‘adaptation’ does not mean the adaptation of the new knowledge to the recipient but the adaptation of the organization to the new content. This is how imitation “can lead to the implementation of practices that turn out to be detrimental to performance” (p. 666).

For Teece, Pisano and Shuen (1997), replication is the same as KT, it “involves transferring or redeploying competences from one concrete economic setting to another” (p.525). “Imitation is simply replication performed by a competitor” (p.526). Once again, we would rather leave the expression ‘knowledge transfer’ as a wider concept and consider ‘imitation’ and ‘replication’ as quasi-synonyms. Teece and colleagues also talk about *emulation*, which means the achievement of the same outcome following an alternative path.

Hedlund (1994) attributes the concept of KT mainly as imitation or replication to Japanese organizations, which created new subsidiaries by transplanting identical copies of the original plant to foreign environments.¹⁸⁷ In the particular case of technology transfer, the problems it poses are apparently “attenuated when technology transfer is horizontal, that is, within the same function, as when a second plant identical to the first is built” (Kogut and Zander, 1992, p.389). This is especially true for automotive plants, and it has been successfully adopted, for example, by McDonald’s, but, as Hendlund remarks, “there is little evocation of the adaptation to local circumstances that characterizes much of Western FDI [Foreign Direct Investment]” (p. 80), and it also does not answer to the question of what if this degree of accuracy or standardization is not possible? In our opinion, imitation is the most basic or simple way of acquiring

¹⁸⁶ “First, a firm replicates precisely β practices of a target firm; subsequently, the firm adapts (at least locally) its entire set of practices, which may be necessary because of the newly copied practices” (p. 666).

¹⁸⁷ Of course, this is not the only form of KT cultivated by Japanese companies, as it was noted, for example every time we talked in this work about the way Japanese organizations learn.

knowledge. Chen and McQueen (2010) sustain that (unstructured) copy is a KT process followed by advanced beginners.

Precise copying of an alien element, or “full replication of knowledge in a new location” (Foss and Pedersen, 2002, p. 54) is not always the best solution (Maritan and Brush, 2003). It seems that it works better when goals are ambiguous but “it appears that mimicry is not efficacious when environments are both competitive and fast-changing” (Huber, 1991, p. 96). Csaszar and Siggelkow (2010) understand mimicry as a commitment to high-fidelity copying large chunks of practices, and especially useful when the scope is the enforcement of rules.

In addition, imitation shows inverse effects on legitimation and technical efficiency: on the one hand, pressure for legitimation and institutionalization leads firms to imitate each other; on the other hand, mimicry has negative effects on the technical efficiency of the imitated firm (Levitt and March, 1988). There are two main negative effects of imitation: the first emerges from the hasty or undiscerning adoption of routines that do not fit the recipient (Csaszar and Siggelkow, 2010), the second consists in the fall into competency traps by the whole system of units that imitate each other (Levitt and March, 1988), the third comes from imitability itself: once something is rendered imitable, it becomes so also for competitors (Kogut and Zander, 1992).

In any case, other authors clearly distinguish between KT and imitation. For example, Kogut and Zander (1992) consider that knowledge transfer is willingly sought, whereas imitation occurs in a way that is unwanted by the source. However, they state that “technology transfer and imitation are blades of the same scissor” (p. 384, see also Zander and Kogut, 1995). And here comes the paradox: “technology transfer is a desired strategy in the replication and growth of the firm (whether in size or profits); imitation is a principal constraint” (*ibid.*). Williams (2007) focuses his article on imitation, and he differentiates replication and KT. Replication is the “effort towards exact copying a set of activities [...] without the need to understand their causes. [...] firms replicate knowledge to transfer it in the face of ambiguity” (p.867) But “to transfer knowledge effectively [...], firms must adapt knowledge to a new setting (p.868). So, finally, replication requires adaptation, both facilitate KT, and, the easier KT is, the higher the performance of the firm.

If we go back to the definition of KT by van Wijk and colleagues (2008, p. 832)—“The process through which organizational actors—teams, units, or organizations—exchange, receive and are influenced by the experience and knowledge of others”—, which we have chosen as ours, we see that imitation, replication, search and adaptation are all of them different from KT but intrinsically tied to it. Imitation or replication are a type of KT processes which are characterized by the quasi-literal adoption of a certain element from other organization, group or individual. Knowledge search is a previous condition of transfer, whereas knowledge adaptation is the most usual way a KT process ends, given that there are always difference between source and recipient.

ELEMENTS OR DIMENSIONS OF KNOWLEDGE TRANSFER

We will now explore the different facets of KT. The first one is suggested by the name itself: a transfer has always a *source* and a *recipient*, so the first point will be what the extremes of the KT vector are. This leads us to the *social aspects* of KT. Next, we will examine the different *phases* of KT, followed by the relationship of KT with different *types of knowledge*, especially with *best practices*. Finally, we will deal with the *sequels* of the transfer of knowledge, and especially with the *depreciation* of transferred knowledge.

Factors affecting KT, either as prerequisites or as concomitant conditions, will be treated separately, in the following subsection.

First of all, KT involves a **relationship between parties**. Knowledge comes from a source and reaches a recipient, and this is why we say a *transfer* happened. Alavi and Leidner (2001, p. 119) state: “Transfer occurs at various levels: transfer of knowledge between individuals, from individuals to explicit sources, from individuals to groups, between groups, across groups, and from the group to the organization.” Note that all these relationships admit a vice versa, and we could add that there is also KT between organizations. Knowledge-sharing groups may have different characteristics: they can be groups at the same hierarchical level or communities of practitioners, i.e. individuals who share the same practice or occupation, even across organizations (Argote *et al.*, 2003a, Brown and Duguid, 1991, 2001). There are also differences between inter-organizational and intra-organizational transfer of knowledge. This issue has been studied by van Wijk *et al.* (2008), who make a meta-analysis of recent literature on the

subject and identify a series of divergences among the effects some factors have on KT depending on whether the transfer occurs inside the organization or with external organizations. For example, holding a central position in a network is more relevant for cross-organizational KT than for inter-units KT, and strong ties are more significant for intra-organizational KT. Moreover, “transfer within firms contributes more to performance outcomes than organizational knowledge transfer between units” (p.845).

According to Allen (1977), there is a generalized preference for external sources, which is a puzzling attitude since their contribution is of lower quality than that of internal sources.¹⁸⁸ At the same time, opening to external—i.e. extra-group or extra-organization—sources prevents the firm from falling into a vicious cycle and saturation. In all these processes, there are key individuals with a brokering function between source unit or organization and recipient. He calls them gatekeepers, and, in Allen’s work, which focuses on the engineering industry, they are mainly the ‘star’ performers. (See also Cohen and Levinthal, 1990, Davenport and Prusak, 1998, Dodgson, 1993, Macdonald, 1995) Other individuals may perform this function, such as inpatriates (Reiche, 2011), knowledge scanners (Snell and Chak, 1998) or members of a certain professional or occupational practice (Brown and Duguid, 2001).

There are other matters closely related to those above described, such as who determines the sharing, and who may be the source, the recipient¹⁸⁹ or the organization’s top management, who may incept or guide knowledge flows (Berends *et al.*, 2006). The other subject is the orientation of the transfer itself, that is, what the objective of the transfer is, and what problem the KT process is aimed to solve.

This discussion leads us to another issue that is closely related to the preceding: that of the **social dimension** of KT. This social dimension is evidenced, first, by the fact

¹⁸⁸ This lower quality is because, he says, the existence of an internal culture makes it more difficult to interpret the external knowledge.

¹⁸⁹ These two are, respectively, what Berends and colleagues (2006) call the ‘push’ and ‘pull’ approaches to information sharing. They note that literature shows a remarkable bias towards ‘pull’ approaches, i.e. those in which the one starting the process is the recipient in need for knowledge. This is not contradictory to actual practice: from the interviews made it transpires that most KT moves have been started by potential recipients or promoted by HQ rather than by potential sources.

that KT requires a relationship between human parties.¹⁹⁰ About these parties we have already talked. Secondly, the social dimension of KT emerges and develops from a complex *shared background* between source and recipient.¹⁹¹ The insistence of KM, KT and OL authors on the concept of *sharing* is remarkable. Here are some examples:¹⁹² ‘shared knowledge space’ / ‘shared field’ (Alavi and Leidner, 2001, Nonaka and Konno, 1998, Nonaka and Takeuchi, 2011, Nonaka, von Krogh and Voelpel, 2006, Weick and Roberts, 1993), ‘shared memory’(Alavi and Leidner, 2001, Goodman and Darr, 1998), ‘shared maps’ (Argyris and Schön, 1978), ‘shared values’(Argyris and Schön, 1978, Foss and Pedersen, 2004, Raelin, 1997, Weick and Roberts, 1993), ‘shared systems’ (Foss and Pedersen, 2004), ‘shared know-how’ / ‘shared practices’ (Brown and Duguid, 1991, 1998, Raelin, 1997, Sandberg and Pinnington, 2009), ‘shared know-what’ (Brown and Duguid, 1991), ‘(shared) boundary objects’ (Brown and Duguid, 1998),¹⁹³ ‘shared interpretations’ / ‘shared meaning’ / ‘shared understanding’ / ‘shared mental models’ / ‘shared beliefs’ / ‘shared perspective’ / ‘shared mind set’ / ‘shared schemas’ / ‘shared patterns’ (Brown and Duguid, 1998, Cook and Yanow, 1993, Daft and Weick, 1984, De Geus, 1988, Ghoshal and Bartlett, 1988, Goodman and Darr, 1998, Grant, 1996b, Inkpen and Crossan, 1995, Kostova and Roth, 2002, Marshall, 2008, Nahapiet and Ghoshal, 1998, Nonaka, 1994, Raelin, 1997, Tsoukas, 1996, van Wijk *et al.*, 2008, Weick and Roberts, 1993, Zander and Kogut, 1995) , ‘shared norms’(Cabrera and Cabrera, 2005, Grant, 1996a, Kostova and Roth, 2002), ‘shared language’ / ‘shared narratives’ / ‘shared codes’(Cabrera and Cabrera, 2005, Cohen and Levinthal, 1990, Goodman and Darr, 1998, Grant, 1996a, Kogut and Zander, 1992, Levitt and March, 1988, Nahapiet and Ghoshal, 1998, Zander and Kogut, 1995), ‘shared heuristics’ (Shrivastava, 1983), ‘shared vision’ (Coopey, 1995, Dinur *et al.*, 2009, Senge, 1990) and ‘shared goals’ (Yew and Schmidt, 2009).

¹⁹⁰ It is true that we have above cited Alavi and Leidner (2001) explaining how the terms of the relationship may be an explicit source—such a document or an electronic database—and an individual or group and vice versa, but, in all cases, this source has been designed by humans and for the use of other humans. We will explore this mediation later, when we talk about communication channels.

¹⁹¹ Note that this background is at the same time condition, foundation and outcome of KT relationships. Some authors highlight the first aspect, some the second, and some, both simultaneously.

¹⁹² Some of the terms are grouped by semantic families and separated by a bar [/].

¹⁹³ “These can be physical objects, technologies, or techniques shared” (p.104) by means of contracts, documents, plans or blueprints.

Literature emphasizing social aspects of learning and KM was discussed in the corresponding epistemological subsection (1.2.2.3.), and it is not our intention to be reiterative. We will only note here that the exchange that takes place in a KT process is not something automatically emanated, but involves socio-psychological aspects, and requires some form of cooperation and coordination between the parties involved (Cabrera and Cabrera, 2002, Cabrera and Cabrera, 2005, Grant, 1996b). Thus, Foss and Pedersen (2004) introduce the concept of ‘relational embeddedness’, which consists of three dimensions: strength of ties, trust and shared values and systems.¹⁹⁴ According to van Wijk and colleagues (2008, p. 845), “relational capital is arguably the most important network-level driver of organizational knowledge transfer.” Nahapiet and Ghoshal (1998) state that a shared experience requires shared meaning and negotiation. Thus acquisition or transfer of knowledge requires the development of a series of social skills and, at the same time, it helps them developing further. It is the subject of *social capital*, which will be addressed later (1.4.2.3.). Besides the social skills, social networks are used or created anew (Hansen, Mors and Løvås, 2005).

All process has some **stages or phases**, and the same happens with KT. A classical piece where these stages are explained is that of Szulanski’s (1996): he divides the process into *initiation*, *implementation*, *ramp-up*, and *integration*. In the first phase—initiation—, we find the decision to proceed, which is usually prompted by the detection of a need and of where the potential solution may be found.¹⁹⁵ At the implementation phase, social ties are established, the prevision about the process is made and the easing elements are prepared. The ramp-up part of KT consists in starting to use the transferred knowledge; with the solution of problems, a fine-tuning process starts that leads to the ramping-up to a satisfactory level. Finally, we find integration, which comes with the achievement of satisfactory results, and consists in the routinisation of what has been learned. Notwithstanding the emphasis on ‘satisfaction’, Szulanski is well aware that not all KT processes are successful. He himself finds that one limitation of his article is the disregard of failed transfers, which he considers much advisable for future

¹⁹⁴ Foss and Pedersen state that relational embeddedness has stronger impact on the transfer of tacit knowledge than on that of explicit knowledge, for which only shared systems are relevant.

¹⁹⁵ According to Berends and colleagues (2006), this first phase is quite complex because it requires first detecting one’s knowledge gaps, and then some transactive memory or meta-knowledge consisting in ‘knowing who knows what’ in order to retrieve the knowledge.

research.¹⁹⁶ In a more simplified way, Hansen, Mors and Løvås (2005) suggest three phases: *decision to search*, *search* and *transfer*. They are aware of Szulanski's proposal and refer to it but what their contribution is going "beyond transfer by also including the 'front end' of knowledge sharing—the decision to seek knowledge in the first place, and the search process" (p.791). Once again, our view of KT is narrower: we consider all what knowledge search includes as a necessary antecedent to KT, and what happens after the transfer as consequences, effects or outcomes of the transfer.¹⁹⁷ Curiously enough, Szulanski seems not to consider *transfer* itself: from the preparation stage, he jumps to the first day of use of transferred knowledge. *This* is exactly what we are interested in, without leaving aside the rest.

Another important matter is the relationship **between KT and the different types of knowledge**.

First of all, we find the old dilemma *exploration vs. exploitation* resurfacing here in the form of the choice between the sharing of existing knowledge and the "sharing that involves the creative development of new hypotheses, ideas, questions or evaluations" (Berends *et al.*, 2006, p. 88) . Exploration involves ambiguity and uncertainty, whereas in exploitation all the elements—knowledge available, nature of the problem, operating procedures—are clearer. "In general, we hypothesize that for exploration the origination of knowledge sharing by the persons who have knowledge and who need knowledge is more important, while for exploitation the direction of knowledge sharing by management will be more important" (p.93).¹⁹⁸

But the most mentioned is the well-known distinction *tacit knowledge vs. explicit knowledge*, which we described in detail in part 1.2.5.1. As we noted then, terminology is quite freely used, which prompted an attempt of a more clear-cut set of definitions.

¹⁹⁶ We have addressed this issue in our questionnaire, and some examples of 'disasters' were required and volunteered. Szulanski calls this want 'survival bias.' Zander and Kogut (1995) design their research in a way that it incorporates what they call "censored observations i.e., those capabilities that were not transferred or imitated" (p. 80).

¹⁹⁷ For example, one can ascertain the success of a transfer looking at the outcomes, but sometimes the process may be failed in the previous phase, which is the transfer of knowledge.

¹⁹⁸ Berends *et al.* conclude remarking that "codifying knowledge and collecting it in a database or intranet does not stimulate indispensable mechanisms like pushing and thinking along" (p. 93).

Thus, Grant (1996b) states that KT within the firm is critical, understood as the the transfer of both ‘know-how’ and ‘know-about,’ but then it becomes clear that he is referring to tacit and explicit knowledge. Hedlund, in turn, conceives the extension (i.e. dissemination) of knowledge in the organization as the transfer of both articulated and tacit knowledge.

Tacit and explicit knowledge are not equally easy to detect and to transfer or acquire. “Explicit knowledge is revealed by its communication. [...] Tacit knowledge is revealed through its application. [...] Its transfer between people is slow, costly, and uncertain.” (Grant, 1996b, p. 111) The transfer of tacit knowledge “is usually entailed in the teaching of complex, practical skills, as when an experienced management consultant coaches a group of younger colleagues through working together with them on a project.” (Hedlund, 1994, p. 77) The same happens with the detection and measurement of the transfer of these two types of knowledge.¹⁹⁹ This is the reason why research in this particular area is more difficult. According to Gupta and Govindarajan (2000, p. 492), “systematic empirical investigations into how tacit knowledge gets transferred and the extent to which its transfer does or does not require ex ante codification is all too rare.” As we saw (1.2.5.1), attempting to transform tacit knowledge into explicit knowledge to make it transferable, although possible, always involves knowledge loss. At the same time, the existence of a shared understanding—common frameworks, the use of metaphors and analogy—facilitates the transfer of tacit knowledge (Grant, 1996b).

The combination of tacitness with specificity (i.e. knowledge idiosyncratic to the organization) makes imitability, but also KT, more difficult (Grant, 1996b, Mowery *et al.*, 1996, Teece *et al.*, 1997).

According to Hedlund (1994) articulated or explicit knowledge is not necessarily transferred via documents or oral speech but also via products. This is how, for example, Japanese companies have come to recombine the pieces of a foreign product in a new and surprising way. They, in turn, export products and licenses but not skills, unless in a very much controlled form, i.e. when they virtually get to reproduce the same home conditions in the host country. Western organizations, on the contrary,

¹⁹⁹ “Tacit knowledge flows are virtually impossible to measure” (Mowery, Oxley and Silverman, 1996, p. 83)

prefer a combination of tacit and articulated KT. We do not share this view of products as explicit knowledge carriers. It would be so if they go accompanied by their complete fabrication instructions.²⁰⁰ Otherwise, they force recipients to figure out what is tacit, i.e. the complex invention and fabrication process. In our opinion, this is what happens with the way Japanese re-create many Western products, in a process we have called before ‘emulation.’ In a smaller scale, something similar happens with intra-organizational transfer of technologies: when it comes to horizontal transfer—i.e. among engineers or members of the R&D team—it is easy, because they share a common language, and, although most of the knowledge is tacit, the shared background makes the process easier. On the contrary, vertical transfer—i.e. across different departments, such as from R&D to production—, differences in codes or language used make the transfer more difficult. In both cases, there is still a remaining tacit part that needs to be figured out (Epple, Argote and Devadas, 1991, Kogut and Zander, 1992, Teece *et al.*, 1997).

A very particular case of KT is the transfer of the so-called **best practices**.

We should first start by defining what a *practice* is. In subsection 1.2.4. we developed the concept of ‘learning in practice’. In that piece, the emphasis was in *learning*, i.e. we explored a particular kind of learning that occurred through practice. Now we will provide some definitions of practice. The first one we found did not seem to us very accurate: “approaches used by managers and workers with the goal of achieving certain types of performance.” (Maritan and Brush, 2003, p. 946) The problem is in the word ‘approaches,’ which can mean everything and nothing. Thus, we prefer Szulanski’s (1996, p. 28, emphasis in original): “*Practice* refers to the organization’s routine use of knowledge,”²⁰¹ to which Kostova and Roth (2002, p. 216) add “for conducting a particular function.” According to Szulanski (1996, p. 28), practice “often has a tacit component, embedded partly in individual skills and partly in collaborative social arrangements.” If we apply to this what we have said about the

²⁰⁰ We suggest that the confusion is between ‘codification’ and the particular knowledge embedding process in which consists manufacturing something. The product is *there*, physically present—nothing more explicit, we could say—, but we do not think that the knowledge it contains is explicit unless in a very small part.

²⁰¹ Note that this knowledge is both theoretical and practical but it is obvious that practical knowledge is predominant.

transfer of tacit knowledge—and also of specific knowledge—, the conclusion is that practice is not easily transferred.

The concept of practice is closely related to that of *technology*: “principles by which individual skill and competence are gained and used, and by which work among people is organized and coordinated.” (Zander and Kogut, 1995, p. 77) The idea of technology adds to that of practice the notions of organization and coordination: using technology is performing a practice in a particular way. It also includes the use of some kind of *tools*, as in Daft and Lengel (1986, p. 563, emphasis added): “Technology is the knowledge, *tools*, and techniques used to transform inputs into organizational outputs.”

We will see in short that there are many factors favouring or inhibiting KT, and we expect to find some additional factors in the case of MNCs (1.3.2.). Kostova and Roth (2002) make a good account of the adoption of a practice across an MNC and describe the *different phases*: 1) preinstitutionalization (when there is still limited knowledge about the practice), 2) semiinstitutionalization (“the practice is fairly diffused and has gained some degree of normative acceptance, but it has a relatively short history” (p. 216), and 3) full institutionalization (the practice is fully implemented and routinized). When the adoption of the practice has been prompted from the senior management, recipients may not find it efficient and engage in ‘ceremonial adoption’, i.e. they pay lip service.

If transferring practices across an organization is something advisable, in the case of *best practices* it is considered crucial. This is so because a best practice is “an internal practice that is performed in a superior way in some part of the organization and it is deemed superior to internal alternate practices and known alternatives outside the company” (Szulanski, 1996, p. 28) Once again, Szulanski’s definition is the one that has succeed in literature. It has been versioned in simplified forms by other scholars. Here are some examples: a “superior or exemplary practice that leads to superior performance” (Maritan and Brush, 2003, p.946); “areas of excellence within the organization that have been identified as central to its performance” (Dinur *et al.*, 2009, p. 433). The superior nature of the practice makes it more necessary and, at the same time, more difficult to transfer. Nonaka *et al.* (2006) state that the contextuality of best practices adds to the costs of KT, and they propose the figure of the ‘knowledge

activist,' who is in charge of coordinating the process and filling the gaps that may appear.

We will finally consider **the aftermath of KT**. Knowledge dissemination has *learning* as its immediate effect. The relationship between learning and performance was described in part 1.2.3.2. In the same line, Van Wijk and colleagues (2008) review antecedents and consequences of KT in the recent literature, and identify the latter as *performance* and *innovation*. As above said, KT is considered successful if the knowledge becomes correctly applied and embedded in the new setting. Knowledge flows have another effect, which is counteracting the negative effects of communities of practice, e.g. parochial behaviour, the NIH syndrome, competence traps and other forms of closure and ossification (Brown and Duguid, 1998). However, they can have also negative effects, such as knowledge spills, the emergence of minorities (individuals transferred for learning purposes), and the maladjustment knowledge-context of the recipient (Argote and Ingram, 2000).

An important trait of post-KT processes is the *depreciation* of the transferred knowledge. Darr *et al.* (1995) cite empirical evidence for KT (concretely, of firm-specific experience), the role of KT mechanisms and knowledge depreciation. The classical theory on learning curves supports this. The depreciation of acquired language due to diverse reasons: "individual forgetting, misplaced manuals, personnel turnover, and the like" (p. 1753). Another factor cited by Darr and colleagues is the appearance of interruptions in activities. Knowledge depreciation jeopardizes subsequent transfers, and its rate is higher the less complex the technology is. According to Williams (2007), due to the depreciation of knowledge, the relationship between KT and performance only holds for short-term relationships and it has no effect for long-term relationships. Inkpen and Dinur (1998), in their piece about KM in international JVs note that knowledge may dissipate also in its way to the parent firm, and they cite the usual unlearning-related processes: competency traps, control mechanisms or the interference of managers' belief systems.

1.3.1.2. **FACTORS INFLUENCING KNOWLEDGE TRANSFER**

We have several times stated that knowledge acquisition (or learning) and knowledge transfer are two sides of the same coin. What we already know about learning, knowledge and KM indicates us that KT is not a simple process and that the confluence of several factors may affect the transfer, facilitating or inhibiting it. To examine them, we could review the structure we followed for learning (in practice). There, both for requirements (1.2.4.2.) and obstacles (1.2.4.3.) we followed a triadic structure that consisted of characteristics of the learner, environmental conditions and motivational aspects. What was said there is valid for KT, but remembering that learning focuses on the learner and KT has a wider perspective, which includes both source and recipient. Thus, it is not strange that in the KT literature we found similar proposals. For example, van Wijk and colleagues (2008) suggest: knowledge characteristics, organizational characteristics and network characteristics. Szulanski (1996), in turn, proposes four factors of internal stickiness: 1) *knowledge characteristics*, 2) characteristics of the *source*, 3) characteristics of the *recipient*²⁰² and, finally, 4) characteristics of the *context*.²⁰³ This is the division we will follow. Cognitive and motivational aspects will be considered in 2) and 3).²⁰⁴ In 4), we will consider both the organizational and external environment, and the characteristics of the network. There should be a number 5): mechanisms and communication channels used for transferring knowledge. We chose to deal with them separately (in 1.3.3.), because they constitute a central point in our dissertation.

Another point that will be treated separately is MNCs literature. As we will see, MNCs have specific traits with respect to other organizations. These traits make KT

²⁰² The splitting in source and recipient is important. The learning literature usually emphasizes the learner point of view, although there is a consideration of the sources. In the case of KT, source and recipient are equally important.

²⁰³ This same schema is followed by Csaszar and Siggelkow (2010). Somehow similarly, Reiche (2011) states that KT requires a double effort—from source and recipient—, absorptive capability from recipient and overcoming political issues.

²⁰⁴ Szulanski (1996) and Foss and Pedersen (2002) coincide in finding motivational factors not as relevant as others. However, Foss *et al.* (2009) focus their work on them and Zander and Kogut (1995) suggest them as a topic in need of further deepening.

within MNCs different from that in other organizations.²⁰⁵ Therefore, authors mentioning factors influencing KT in MNCs (among others, Alavi and Leidner, 2001, Bhagat *et al.*, 2002, Foss and Pedersen, 2002, Ghoshal and Bartlett, 1988, Ghoshal, Korine and Szulanski, 1994, Gupta and Govindarajan, 2000, Kostova and Roth, 2002, Moore and Birkinshaw, 1998, Pedersen, Petersen and Sharma, 2003, Reiche, 2011, Teece, 1977) , especially those more proper to these firms, will be brought up later (1.3.2.). We will make some exceptions, when the matter mentioned applies to any other firm.

Let us now proceed with the different factors affecting KT.

KNOWLEDGE CHARACTERISTICS

It is not our intention to repeat what has been said about the types of knowledge (1.2.5.1.) but rather to take this theory as the basis of what we will explain now: how different kinds of knowledge are easier or more difficult to transfer. Therefore, this leads us to the importance of finding the right KT processes for each kind of knowledge (Inkpen and Dinur, 1998, Dinur *et al.*, 2009).

The first and most straightforward one was repeatedly stated before: as far as knowledge is **tacit**, it is more difficult to transfer (Haas and Hansen, 2007, Inkpen and Dinur, 1998). In a rather arguable way, Inkpen and Dinur (1998) attribute tacit knowledge to individuals, so effectiveness of KT at a collective level is negatively related to knowledge tacitness, and the more individual interactions take place in a relationship, the higher the success rate in transferring tacit knowledge. On the other hand, and in the context of JVs, an initial focus on explicit knowledge may lead to ignore tacit knowledge and, therefore, to undervalue the learning potential. They also warn of the danger of personnel transfer and turnover. Finally, they remark that sharing technology and establishing JV-parent firm relationships will be useful mainly for the transfer of explicit knowledge.

²⁰⁵ One of the most remarkable traits is the geographical and cultural diversity that coexists inside an MNC.

Causal ambiguity (i.e. the absence of a clear cause of a certain phenomenon) is also a relevant inhibiting factor for KT (Maritan and Brush, 2003, Szulanski, 1996). When examining how manufacturing plants implement their flow manufacturing in diverse plants, Maritan and Brush (2003) find that causal ambiguity may appear as the consequence of failing to train key personnel. Another characteristic related to causal ambiguity is **unproveness**. It equally makes it difficult for recipients to engage in a KT process (Szulanski, 1996). Knowledge **complexity**—which refers to the richness of variables that must be considered around a certain phenomenon—is another factor that obstructs KT (Csaszar and Siggelkow, 2010, Foss and Pedersen, 2002, Goodman and Darr, 1998). Van Wijk *et al.* (2008) merge some of the preceding characteristics—namely, tacitness and complexity—with *knowledge specificity* (which was mentioned not long ago) in one: **knowledge ambiguity**.

Nokes and Ohlsson (2005) propose **procedural** and **declarative** knowledge and **abstract** and **specific** knowledge. They relate them to ‘cognitive work,’ measured in terms of time spent to find a solution to a problem. Procedural knowledge is more easily transferred via training, whereas declarative knowledge requires less effort by instruction. Regarding abstract and specific knowledge, it seems that instruction will easily convey abstract knowledge, and training will lead to the transfer of specific knowledge, but the more variable the practice sequence, the easier to produce abstract knowledge as well.

Other authors focus not on characteristics proper to knowledge itself but of knowledge with respect to the actions that can be done with it. A noteworthy contribution is that of Zander and Kogut (1995), who propose **five dimensions** of knowledge: codifiability, teachability (in terms of instruction and training), complexity (already mentioned, it is the combination of competences included in knowledge), system dependence (when knowledge simultaneously depends on different people),²⁰⁶ and product observability (i.e. imitability, also already described). Kogut and Zander test them for effects on rate (i.e. time spent) of transfer and imitation. Thus, they aim to

²⁰⁶ These four first dimensions are, according to Zander and Kogut, captured by the construct ‘easiness to be communicated.’

take distance from the transfer costs approach.²⁰⁷ The results of their research suggest that codifiability and teachability have significant positive effects on transfer and imitation. At the same time, contrary to expectation, complexity does not prevent imitation and codification does not lead to imitation.

There are scholars who are more interested in **sources of knowledge** and their effects on KT. Here, in the context of MNCs, we find Foss and Pedersen (2002), who describe the sources of transferable knowledge as the non-motivational factors affecting KT: knowledge that is internally produced ('internal knowledge'), knowledge that is created through network relations to external partners ('network knowledge'), and knowledge that comes from a local cluster ('cluster knowledge'). They are found to be positively related to KT: the more internal, network or cluster knowledge is produced, the more knowledge is transferred to other units. In a different fashion, we find Nokes and Ohlsson (2005), who, as we have seen, pay attention to whether knowledge is acquired through training or instruction. The role of training and instruction on learning in practice was discussed in (1.2.4.4.) From a more general perspective, what has been said about sources of learning (1.2.3.4.) is applicable here.

Finally, we cannot forget that knowledge is normally in constant **evolution**. This has consequences on its transfer. For example, Zander and Kogut propose and confirm that knowledge that is transferred on a first instance but suffers subsequent parallel improvements takes longer to imitate. The effects of knowledge depreciation have been above commented.

CHARACTERISTICS OF SOURCE AND RECIPIENT

There are some characteristics of source and recipient that have a direct impact on KT. Some of them are common to both, some are specific.

First of all, among **common characteristics**, we should cite here *trust*, which is related to *reliability*. Trust is required—in higher or lower levels, depending on the information shared—in any human relationship (Goodman and Darr, 1998, Haas and

²⁰⁷ For example, Teece (1977) cites four main costs of KT: pre-engineering technological exchanges, engineering costs (design and engineering transfer), R& D personnel costs during KT, and pre-start-up training costs and "excess manufacturing" costs.

Hansen, 2007, Nahapiet and Ghoshal, 1998, Uzzi and Lancaster, 2003, van Wijk *et al.*, 2008). It is especially needed when the knowledge that is to be transferred is private (Uzzi and Lancaster, 2003). As we will see, this is connected to the strength of the ties between the members of a network.

Second but not less important, source and recipient must both have some specific *abilities* the lack of which inhibits KT (Hansen, 1999). They are different in each case and we will describe them in short. At the same time, as we are talking about voluntary knowledge sharing, the *willingness* and *motivation* to share are essential (Cabrera and Cabrera, 2005, Foss and Pedersen, 2002, Foss *et al.*, 2009, Goodman and Darr, 1998, Murray and Peyrefitte, 2007, Szulanski, 1996) . The mechanism is described by Cabrera and Cabrera (2005): beliefs and expectations affect attitudes and subjective norms and these, in turn, affect the intention to engage in sharing behaviour, which, finally, leads to actual knowledge-sharing behaviour. Motivating factors, however, are different on the side of the source and on the side of the recipient: on the decision to contribute and to adopt knowledge costs and reputations issues, for example, are differently viewed (Goodman and Darr, 1998).

Finally, it may seem redundant, but a basis of common knowledge must be present as a facilitator to KT: a common language and other forms of symbolic communication, a common specialized knowledge, a shared meaning and the recognition of individual knowledge domains are cited by Grant (1996b). It is the common background we talked about when we discussed the social dimension of KT.

On the side of the **source**, *motivational factors* are several. The first one is power issues. The ones in possession of knowledge, especially if it is high-expertise or sophisticated, may regard it as a power weapon and may be reluctant to share it with others. On the other hand, if source is of lower status with respect to recipient, there are more probabilities it will accede to transfer (Huber, 1991). Sharing knowledge may be costly in another sense, e.g. in terms of time or effort. Being asked for information may also raise the reputation of the potential source and, hence, facilitate KT (Cabrera and Cabrera, 2002, Goodman and Darr, 1998). Sharing knowledge with others can also be positive in terms of positive feelings and expected reciprocity (Cabrera and Cabrera, 2002). The existence of rewards for those who share knowledge with others can facilitate KT processes (Szulanski, 1996, Foss and Pedersen, 2002, Huber, 1991). Job

design is another strong motivational factor: there are three critical psychological states—meaningfulness, responsibility and knowledge of results—which are respectively activated by three job characteristics: task identity, autonomy and feedback (Foss *et al.*, 2009).

Trust with respect to the source takes the form of *reliability*: if an individual, group or organization is not seen as trustworthy, it will not be asked to share its knowledge (Szulanski, 1996). Related to this is the frequency with which the source has previously routed information to the same recipient (Huber, 1991).

According to Huber (1991) KT may be *delayed* if the source has a high workload, the communication chain has more links than the simple source-recipient direct contact. The information may be *distorted* by the source if the source has an interest on it, and/or there are not penalties for this distortion. Distortion can also appear if the source is allowed a broad discretion in the presentation format, or the actual information is different from the information expected. Work overload and the number of links in the communication chain also are positively related to the distortion of the information transferred.

On the side of the **recipient**, we also find *motivational* factors, such as reputation: having to ask for knowledge to a source can make the recipient perceive that he or she is losing face, especially if the source is of lower status or is a competitor (Goodman and Darr, 1998). Allen (1977) suggests that this is the cause of the puzzling situation that most prefer to search for external knowledge rather than inside their own organization, when the contrary would a priori seem more natural and easier and the knowledge would not lose quality in the transfer. The lack of motivation from the recipient may also manifest itself through the NIH syndrome (Szulanski, 1996), mainly when the KT process has been promoted from an instance perceived as alien to the group, such as the HQ or senior management.

Chen and McQueen (2010) conduct a research in which they examine the KT processes that recipients engage in, depending on their *level of expertise*. Concretely, the KT processes are structured (in phases), unstructured (copy), adaptation, and fusion in an unstructured way. Levels of expertise are the classical: novice, advanced beginner, competence and proficiency. Structured stages are used by novices and the rest,

respectively, by advanced beginners, competent and proficient. One of their conclusions is that

The lower the level of recipient *absorptive and retentive capability*, the more difficulty the recipient will have in acquiring tacit and complex types of knowledge, and the more formal structured knowledge transfer approach the recipient will need to adopt. (Chen and McQueen, 2010, p. 76, emphasis added)

Therefore, Chen and McQueen's work restates the importance of absorptive and retentive capabilities (Argote and Greve, 2007, Cohen and Levinthal, 1990, Haas and Hansen, 2007, Mowery *et al.*, 1996, Szulanski, 1996, van Wijk *et al.*, 2008).²⁰⁸ Related to this is something already mentioned: that the fact the recipient received training or not or practice vs. instruction is another factor that affects the transfer of knowledge (Nokes and Ohlsson, 2005).

CHARACTERISTICS OF THE CONTEXT

We will now examine how the context affects KT. To do this, we will first look at the *internal or organizational context*, the internal environment. Most of the authors here cited focus on intra-organizational knowledge transfer. Then, we will have a look at *external organizational context* factors, i.e., the influence of the external environment on KT, mainly on inter-organizational knowledge transfer. Finally, we will talk about *network characteristics*. To do this, we will abstract from whether the network is between units inside an organization or between organizations.

In their work on computer aided systems (CAS) and communication mechanisms and OL, Goodman and Darr (1998) note that a relevant moderator is the **organizational context**.²⁰⁹ This is what we will analyse first.

²⁰⁸ Concretely, studying the transfer of problem-solving skills, Cohen and Levinthal (1990) show how, for developing absorptive capability, internal communication is key.

²⁰⁹ Concretely, they cite the distribution of the problem and solution characteristics (complexity, tacitness), the culture and rewards system, and the existing communication and memory systems

Some authors assume first of all that it is easier to transfer knowledge within the organization than with external organizations. This idea is quite intuitive, but is not always confirmed by actual practice.²¹⁰ In fact, those in need tend to seek for knowledge outside the organization (Allen, 1977). It becomes clear that there are mixed views about this subject.

The organization structure is “the allocation of tasks and responsibilities to individuals and groups within the organization, and the design of systems to ensure effective communication and integration of effort” (Daft and Lengel, 1986, p. 559).

According to Szulanski (1996), a barren organizational context is a cause of internal stickiness. On the contrary, “it has become clear that technology is only one of the ingredients for successful knowledge exchange. The other, even more important, requisite is that of a social environment which encourages or even enforces knowledge sharing” (Cabrera and Cabrera, 2002, p. 704). Dutton and Starbuck (1979) cite characteristics of work sites in terms of location, knowledge base, atmosphere and relationships, as well as describe some sites they visited: “Strong social support from other group members, a culture that encouraged ideation, and freedom from unwanted distraction characterized much of the work at various simulation sites” (p. 504). Therefore, *management practices* must be designed in order to foster knowledge sharing (Cabrera and Cabrera, 2005) and cooperative behaviour (Zander and Kogut, 1995). One example is the creation of special product development teams (Lei, Hitt and Bettis, 1996). Foss and Pedersen (2004) state that the influence of mechanisms of *organizational control* over KT is to be studied, and these two authors, along with other colleagues (Foss *et al.*, 2009), study later a related matter: the influence of job design as a motivating factor to transfer knowledge. This has been already commented among motivational factors. We could add here that Foss and colleagues warn that some organizational mechanisms such as rewards and feedback provision could not be interpreted as positive for KT if they are perceived as control mechanisms. Another

independent from CAS. On the contrary, Epple *et al.* (1991) found in their research that there was more KT intra-shifts than inter-plants.

²¹⁰ Some informants in our field research stated that sometimes it was easier to retrieve information from other countries than inside their own. It is true that, at the very end, the foreign sources belonged to the same company, but in some aspects, especially in the company studied, it is similar to inter-organizational KT.

organizational trait that improves KT is the fact that the company previously invested in training (Epple *et al.*, 1991).

Internal competition to improve efficiency should be fostered with caution: perceiving colleagues or other units as competitors precludes knowledge flows.

Regarding the organizational *structure and roles*, Zander and Kogut (1995) advise that they should be designed considering members of the organization as, yes, selfish, but also of a social nature. Therefore, they call for further research about these issues, as well as cooperative choices of agents, social knowledge and shared language. Argote and Ingram (2000) also ask for further research on people's role and the subnetworks involving them.

Another different subject is that of *similarity-dissimilarity* between the members of the organization who are expected to exchange knowledge. Maritan and Brush (2003), for example, report the influence of the heterogeneity between plants of a same manufacturing company in terms of beliefs, culture, goals, training or experience. It must be noted that these traits make KT by 'pure' imitation or transplant a much more complex issue than expected. Argote and Ingram (2000) cite strategic similarity as a KT facilitator. The same is stated about tasks similarity: it is easier to transfer knowledge to colleagues or units that perform similar tasks. There are diverse ways to increase this similarity: "Selection, socialization, training, and communication processes within organizations make people more similar within than between firms" (Argote and Ingram, 2000, p. 165). As we will see when talking about networks, the *ties* established between the members of the organization are also very relevant for KT.

According to van Wijk *et al.* (2008), *older* firms find KT more difficult and on the contrary,²¹¹ *size* positively relates to KT. This is because bigger firms usually have more resources and knowledge pools available (Hansen *et al.*, 2005).

Finally, we could mention the degree of *customization* the organization offers. The more customization, the more processing it requires, which makes not only KT but all the other KM processes more difficult (Haas and Hansen, 2007).

²¹¹ Competence traps, NIH syndrome, superstitious learning and other obstacles to transfer easily appear in older organizations. It takes time to create these negative routines.

Regarding the **external environment or context**, it also exercises influence on KT (Argote *et al.*, 2003a). This influence is especially important for those who seek knowledge outside the organization and also for cross-country KT, be it in the form of alliances such as JVs or between subsidiaries of an MNC.

The level of social, economic or technological *development* in a country affects knowledge flows: many countries experience problems such as “coping with the lack of law enforcement, unreliable business information, and problem of transparency and corruption” (Hong and Nguyen, 2009, p. 354). Similarly, Foss and Pedersen (2002) mention the availability of business professionals and supply material, the quality of suppliers, the level of competition, the government support, a favourable legal environment and the existence of research institutions as environmental factors that facilitate KT. We could add here the availability of fund support and promotional agents (Dutton and Starbuck, 1979). For Inkpen and Dinur (1998), the particular characteristics of the *industry* are part of these factors.

Cultural and contextual *differences* between organizations make it more difficult the sharing of knowledge. As we will see more in detail in the section devoted to MNCs, cultural distance and cultural barriers are important obstacles faced by MNCs that aim to share knowledge internally and, in general by any organization seeking for knowledge in different contexts (Chen and McQueen, 2010, Mowery *et al.*, 1996). Csaszar and Siggelkow (2010) highlight context similarity and firm similarity. In the case of context similarity, if the context is low in complexity, imitation is a good way to obtain knowledge, but in a highly complex context imitation may be harmful in the long term. In this context, engaging in random experimentation does not improve things, either.²¹² On the contrary, if contexts are different, firms would better avoid imitation and focus on local search.

Zander and Kogut (1995) postulate that firms take shorter to transfer in a context in which competitors are developing similar products. This is so because of the need to avoid being surpassed by competitors. Similarly, in a context in which knowledge of

²¹² Csaszar and Siggelkow suggest that experimentation would be useful, when there is time available and with small chunks of practices, if it is not learning what is pursued but promoting changes in practices.

how to manufacture is common among competitors due to knowledge spillovers, imitation is expected to take shorter.

We will now focus on **network characteristics**. The importance of social networks—i.e. “subsets of established informal relations that exist within teams and across subunits in an organization” (Hansen *et al.*, 2005, p.776)—for KT has been frequently remarked (Argote, 2005, Argote and Greve, 2007). As above noted, network characteristics are useful to understand networks of individuals, of intra-organizational units or of different organizations.

There are many different ways to approach networks. For example, Nahapiet and Ghoshal (1998) examine exchange and combination of social capital across the three *dimensions of social capital*. They understand social capital as “the sum of the actual and potential resources embedded within, available through, and derived from the network of relationships possessed by an individual or social unit” (p.243). The first dimension is *structural* (patterns of connection), the second is *relational* (actor bonds, trust and so on), the third is *cognitive* (representations, systems of meaning). On the side of the structural dimension, the authors examine network ties (how social relations constitute communication channels), network configuration (density, connectivity and hierarchy), and the appropriable organization (i.e. that which can transfer social capital from one setting to another). Regarding the cognitive dimension, shared language and shared narratives are examined. Finally, when explaining the relational dimension, Nahapiet and Ghoshal state that “one of the important barriers to the transfer of best practice within organizations is the existence of arduous relations between the source and the recipient” (p.254). Here, they deal with trust, norms, the relationship between obligations and expectations, and identification with the group. In general, this is a good account of all the matters related to networks.

Van Wijk *et al.* (2008) follow almost exactly the same schema, focusing on and testing some particular aspects.²¹³ Regarding the *structural* facet, they study the centrality of the position of the subject in study and find that the effects of this position

²¹³ An even more simple structure is Foss and Pedersen’s (2004) already cited ‘relational embeddedness’, which consists of strength of ties, trust and shared values and systems.

are contingent upon context: a centralized network position seems to favour inter-organizational KT, but it does not help so much intra-organizational KT. Huber (1991), as we saw, referred to number of links of the communication chain—which can be understood as intermediaries between source and recipient in the network—as increasing the slowness in KT. The physical distribution of the working place may favour certain network configuration (Allen 1977). Other related aspects are the kind of alliance, in the case of inter-firm KT (Mowery *et al.*, 1996), the cohesion and proximity between source and recipient, and the interconnectedness of the different agents involved (Murray and Peyrefitte, 2007, see also Argote and Ingram, 2000). Regarding the latter, the KT transfer curve within franchises is found to be greater when the transfer is across commonly owned stores, especially when these units are numerous (Darr *et al.*, 1995).

On the *relational* side, van Wijk and colleagues (2008) concentrate on tie strength and trust: “trustworthy and strong relations enable firms and units to transfer knowledge” (p. 845). In fact, we have above mention how an arduous relationship between source and recipient harms KT processes (Szulanski, 1996, Maritan and Brush, 2003). Allen (1977), in his seminal work on the transfer of technology, devotes two chapters to the structuring of organizational communication networks. He compares formal to informal communication channels (see also Hansen *et al.*, 2005). “The net conclusion is that although formal organization may be the more [sic] important of the two determinants of communication, informal organization makes its own independent contribution of nearly equal magnitude” (p.223). Once again, communication issues, which we will approach later (1.3.3.2.), appear (Dutton and Starbuck, 1979). Regarding the strength of ties, Hansen studied the matter in some works (Hansen, 1999, Hansen *et al.*, 2005).²¹⁴ He (1999) finds that for the transfer of complex knowledge—i.e. tacit and dependent knowledge—ties need to be strong, and weak ties are only valid for non-complex knowledge. It seems that, in the presence of weak ties, the existence of redundancy of knowledge does not seem relevant, and with this, Hansen shows that redundancy is not the reason why weak ties are beneficial, but that they are less costly to maintain (see also Argote and Ingram, 2000).

²¹⁴ Uzzi and Lancaster (2003) distinguish between embedded (based on social attachments) and arm’s-length (cool and impersonal) ties.

Finally, at the *cognitive* aspect, van Wijk *et al.* (2008) take shared representations and cultural distance. Shared representations do facilitate KT, and cultural distance “particularly hampers knowledge transfer across different units within firms” (p. 845) but firms may have developed experience of dealing with different cultures, so the authors suggest doing more qualitative research to study this matter. They conclude that “relational and cognitive capital are crucial network-level determinants for transferring knowledge as they create closure. Alternatively, structural capital appears to be a mechanism to search and gain access to new, diverse knowledge” (*ibid.*).

We would convey a deceptive view of the literature landscape about the factors influencing KT—knowledge-related factors, characteristics of source and recipient, and characteristics of the context—if we saw them as separately intervening in the process. The **interaction of all these factors** is acknowledged by most of the authors we have read, and it accounts for the complexity of the KT phenomenon. Some examples of this interaction have already been given. We will just comment here some more.

We will start by Cabrera and Cabrera (2002). Their work is focused on knowledge-sharing dilemmas. To solve them, they propose a series of strategies, such as restructuring the pay-off function to make it easier (with some organizational strategies), enhancing self-efficacy to achieve a critical mass, and enhance group identity by information, communication and publicity contributions. As it can be seen, communication and organizational issues are different from motivation, but they have been included here because of their clear influence on motivation. In a different work on fostering knowledge-sharing in the organization, Cabrera and Cabrera (2005) describe, for example, how social ties and a shared language (belonging to the network and cognitive aspects) create an environment for knowledge-sharing and foster the subsequent knowledge-sharing behaviour as *motivational* factors. Similarly, Burgess (2005), when enumerating the *motives* for KT includes, yes, some factors we have considered motivational—such as rewards, risks, power and reputation—, but also other types of factors—such as internal competition, social networks, communal norms and identification with the organization—we considered contextual.

A different example is that of Foss and Pedersen (2004), who connect knowledge types with organizational structure. Dinur *et al.* (2009) explore how the factors

regarding context similarity (in terms of culture, strategy, decision-making, environment and technology) along with the fit between knowledge type (in terms of tacitness)²¹⁵ and transfer mechanisms affect transfer eventfulness.²¹⁶ Among their findings there is the fact that fit issues seem more relevant than tacitness itself. Moreover, “*the fit between knowledge type and transfer mechanisms* employed is also a predictor of transfer eventfulness when examined in *conjunction with context similarity*” (p.442, emphasis added). Uzzi and Lancaster (2003) investigate the relationships between different types of social ties (embedded vs. arm’s-length ties), type of knowledge transferred (public vs. private) and types of learning (explorative vs. exploitative). Within the findings of their research, it emerges that the relationship between types of knowledge and types of knowledge occur as expected: there is a positive relationship between embedded ties and private knowledge and arm’s-length ties and public knowledge. Regarding the relationship between ties and type of learning, the relationship between embedded ties and explorative knowledge and arm’s-length ties and exploitation, respectively, is also positive, but in a more complex way: explorative strategies may use embedded ties (to transfer private knowledge) or arm’s-length ties (to transfer public knowledge), and there are organizations with a high capacity for both.

The examples above cited show us that KT processes are far away from being simple, and that to be successful, many different factors need to be taken into account.

To close this subsection, some words by Haas and Hansen (2007, 1133-134): “Scholars need to move beyond studying facilitators of knowledge sharing to examine how a firm’s knowledge resources are utilized by task units to improve their performance.” Precisely, our study seeks to address this issue by analysing the use of knowledge transfer mechanisms by the different subsidiaries of a services multinational. Thus, we still need to say some words about KT in multinationals (1.3.2.), KT

²¹⁵ At the end of the piece, Dinur and colleagues suggest doing the same exercise but with knowledge complexity instead of tacitness for further research.

²¹⁶ Szulanski’s (1996) work on knowledge stickiness uses the term ‘eventfulness’ to refer to “the extent to which problematic situations experienced during a transfer are worthy of remark” (p.30). Here, eventfulness is measured as the combination of high cost, long time required, and low satisfaction.

mechanisms (1.3.3.) and about service firms (1.4.). These will be the contents of next pages.

1.3.2. KNOWLEDGE TRANSFER IN MULTINATIONAL FIRMS

This subsection will discuss in particular multinational corporations (MNCs) and KT inside them. The discussion will be brief, because it is not our intention to exhaust the subject but to provide some specific traits of MNCs (1.3.2.1.) and focus then on how knowledge is transferred within them, given their particular characteristics (1.3.2.2.).

1.3.2.1. *SPECIFICITY OF MNCS*

We understand by MNC that company that consists of different units—its subsidiaries—dispersed across different countries (multi-national). Subsidiaries are governed from a parent company, usually known as headquarters (HQ). As we will see later, geographical dispersion is not a merely physical factor to consider but it is at the root of the multinational's idiosyncrasy. Therefore, it seems that defining MNCs is a simple task, but it is not so, because there are **different types of multinationals**.

As early as 1982, Egelhoff (1982) proposed four types of MNC, taking into account their macrostructure and tactic purposes.²¹⁷ First, we can find worldwide functional divisions: functional activities in the subsidiaries report to their respective functional divisions in the parent. Second, there are international divisions: “all foreign subsidiaries report to an international division that is separate from the domestic operations” (p. 440). Third, we have geographical regions: they cluster subsidiaries into

²¹⁷ These structures are then measured for their respective information-processing capabilities for company, country and product matters.

geographical regions, with their respective HQ. Finally, Egelhoff proposed worldwide product divisions: “for each parent product line, there is a strategic apex at both the subsidiary and parent product-division levels” (p. 441). We find this classification excessively complex. It also has the disadvantage that not all the types are mutually excluding: for example, we can find a ‘geographical regions’ structure combined with some of the others.

We find more interesting the classification provided by Jarillo and Martínez (1990). They follow an earlier work by Bartlett, who, in turn, proposes three types of organization based on the combination of (low to high) coordination or integration of the activities between subsidiaries and (low to high) adaptation of the subsidiaries’ activities to their local context. We therefore have 1) the *global organization*—high in coordination, low in adaptation—, 2) the *transnational organization*—high in coordination and high in adaptation—, and 3) the *multinational organization*—low in coordination and high in adaptation. The transnational organization appears to be the ideal kind of organization, as the more responsive and efficient. An organization with low coordination and low adaptation is considered not viable. Following the same mind set, Jarillo and Martínez propose a similar way to consider subsidiaries. The characteristics now examined are (low to high) localization of activities in the subsidiary’s country and (low to high) integration of these activities with the other subsidiaries’. Therefore, we find three **types of subsidiaries**: 1) the *receptive subsidiary*—high in integration and low in localization—, 2) the *active subsidiary*—high in integration and high in localization—, and 3) the *autonomous subsidiary*—low in integration and high in localization. Again, a subsidiary low in both characteristics is left out of consideration. Finally, Jarillo and Martínez relate types of companies with types of subsidiaries:

The *autonomous* strategy will be typical of subsidiaries of ‘multinational’ firms [...] competing in ‘multidomestic’ industries [...]; the *receptive* strategy will be typical of subsidiaries of global firms competing in global industries; finally, *active* strategies will be followed by subsidiaries of ‘transnational’ firms [...], which have received strong mandates from headquarters. (Jarillo and Martínez, 1990, p. 503)²¹⁸

²¹⁸ The authors warn that only subsidiaries at a node of a network will engage in active strategies.

In this work we will talk about MNCs without distinguishing, to refer to the generic or broad concept of MNC, which encompasses all three types of organization. The same applies for the subsidiaries.

The subsidiaries' position and performance faces double challenges: they must be well positioned both in their respective market and with respect to the other subsidiaries. Andersson, Forsgren and Pedersen (2001) conceive the latter as a participation or influence in the decision-making. It also has to do with the business network the subsidiary is in (including here both the other subsidiaries and external agents), i.e. its technological embeddedness: a few significant relationships may play a determinant role for its technological development and, as a consequence, for the MNC. The latter will happen if the MNC depends on the subsidiary (resource dependence theory power). At the same time, the situation of a subsidiary with respect to local companies is advantageous, because of the resources subsidiaries can draw from the MNC.

There is an issue that underlies the MNC field and also the research about MNCs, which is **the specificity of MNCs**. The work by Roth and Kostova (2003) is especially relevant. They argue that the use of MNCs as a specific research context is still to be justified, and that this justification depends on whether MNCs are idiosyncratic enough. To ascertain this, they conduct a literature review of the 50 most relevant articles on the subject²¹⁹ and they draw three different purposes: 1) some of them describe MNC-specific phenomena, 2) some seek to further validate or expand existing research, and 3) some aim to develop new theory. The methodological aspect of the article will be discussed later, when we discuss the method of this dissertation, but *some characteristics distinctive of MNCs* can be found in Roth and Kostova's description: "international diversification, internationalization, foreign direct investment, [...] cultural diversity, political risk, international independence" (p. 885), "boundaries," "organizational forms," "implications related to crossing borders," "the socio-political embeddedness of the MNC," "intra-organizational issues of managing foreign subsidiaries," (p. 886), costs related to geographical and cultural distance and the host country-home country dialectic or the internal institutional multiplicity that exists in an

²¹⁹ See also the review made by Werner (2002). His focus is different—international management research—, but he also cites KT, MNCs and subsidiary-HQ relations as some of the main topics.

MNC. MNCs “provide a context characterized by substantial heterogeneity and complexity” (p. 888), concretely made of different layers of contexts, management systems and individual insights.²²⁰

Roth and Kostova summarize all these traits in a list of “internal and external attributes of MNCs that present themselves as extreme competing pressures, choices, or tradeoffs” (p. 896). We could not resist listing them here, because we consider they are a fairly good synthesis:

- Centralized versus decentralized decision-making.
- Use of ownership versus non-ownership forms of control.
- Developing shared organizational values worldwide versus embracing diversity among MNC’s operations.
- Pursuing competitive versus cooperative relationships with other entities.
- Worldwide integration of MNC activities versus local responsiveness in different markets.
- Standardization versus differentiation in management practices and processes.
- Maintaining a centralized versus a dispersed knowledge structure. (Roth and Kostova, 2003, p. 896)

Thus, Roth and Kostova (2003) invite researchers to find new perspectives to overcome these dualities.²²¹ Thus, “the MNC context may be an exceptionally rich theoretical laboratory for the emergence of alternative conceptualizations” (p. 897). MNCs are also the ideal place for the observation of *combinative phenomena*—in which “a complex interplay of various entities and events that results in the emergence of something new” (*ibid.*). In fact, in an MNC, the required diversity and interaction are guaranteed.

We will now turn our attention to KT processes in MNCs, paying special attention to all that is more distinctive of them.

²²⁰ Roth and Kostova show how, for example, two basic pillars of social capital theory—social (close) interaction and shared values and norms—are challenged by MNCs’ internal complexity.

²²¹ This dual perspective is adopted also by Kostova and Roth (2002). In this piece, they describe how MNCs face a situation of institutional duality due to the tension global-local.

1.3.2.2. *KNOWLEDGE TRANSFER IN MNCs*

We will see here the specific traits that KT acquires in the MNCs setting in two parts. First, we will show how KT is crucial for these organizations, given their geographical dispersion and diversity of competitors. The distinctive characteristics of MNCs add some factors that affect KT which we did not find before or had different significance: this will be the second topic to be dealt with.

THE RELEVANCE OF KNOWLEDGE TRANSFER FOR MNCs

The primary reason why MNCs exist is because of their ability to transfer and exploit knowledge more effectively and efficiently in the intra-corporate context than through external market mechanisms. (Gupta and Govindarajan, 2000, p. 473)

This is how Gupta and Govindarajan link MNCs directly to KT. According to these authors, markets remain ineffective ways for an MNC to transfer a mostly tacit knowledge, and market-based transfers are associated by them with negative externalities, such as problems of knowledge property and competition. Pedersen and colleagues (2003, p. 70) follow Gupta and Govindarajan in considering that the subsistence of MNCs “is contingent upon the ease and speed by which valuable knowledge is disseminated throughout the organization.” It is not enough with creating knowledge if then it becomes stuck or it disperses slowly across the organization. Moore and Birkinshaw (1998, p. 82) had stated time before:

Competitive advantage is gained [...] through the transfer of intangible assets from country to country. [...] For a global service firm, new knowledge comes primarily from interactions with clients, and interactions between team members around the world.

Nonaka (1994) goes further by considering that the MNC is the ‘natural’ hypertext organization, which has “the ability to switch between the various ‘contexts’ of knowledge creation to accommodate changing requirements from situations both inside

and outside the organization” (p. 32). That makes that not only KT is essential for MNCs to subsist and thrive but also that MNCs are the ideal setting to investigate KT.

Thus, it is not strange that some authors directly consider MNCs as knowledge-sharing networks (Foss and Pedersen, 2004). For example, Hong and Nguyen (2009) start their study on the behaviour of Japanese subsidiaries in China and Vietnam by stating that “multinational corporations (MNCs) are social communities that specialize in the acquisition and transfer of organizational knowledge” (p.347).

From the point of view of research on KT in MNCs, as early as 1982, Egelhoff notes that measuring information flows is a difficult task, the more so in MNCs, and he suggests conducting anthropological field studies as the best way to approach the matter. Much later, Gupta and Govindarajan (2000, p. 491) remark:

Creation, diffusion, and absorption of knowledge by organizations in general and, by MNCs in particular, constitutes one of the most important subjects for research in the fields of organization theory [...], strategic management [...], evolutionary economics [...], and international business.

But they also acknowledge that “very little systematic empirical investigation into the determinants of intra-MNC knowledge transfers has so far been attempted” (p.474). Foss and Pedersen (2002) agree in that KT is a source of competitive advantage especially crucial for MNCs and, later (2004), in that the theoretical foundation of MNC internal knowledge flows is in its early stages, although there is a proliferation of empirical studies. However, at their time they are in a position to make a brief description of the different streams. Foss and Pedersen refer to a change during the 1990s from the market failure and transaction costs approaches to the knowledge-based theory (see 1.2.2.1. and 1.2.5.3.), which becomes in time the most dominant stream. “This changed lens has arguably produced a host of new insights” (p. 341), such as the aforementioned of the MNC as a knowledge-sharing network, and the causes and impact of stickiness. The authors remark that the shift has also moved the focus towards motivational and cognitive issues and away from control-related themes, such as authority, incentives provision and monitoring. In summary, “there is little theory-based understanding of how mechanisms of organizational control are aligned with knowledge transactions” (*ibid.*). This is an important shortcoming, both for theory and for managerial practice. In their account of the evolution of theory on MNCs, Foss and

Pedersen also show how the knowledge-based approach has paid more attention to knowledge flows than on knowledge distribution, whilst KM processes “can only be systematically comprehended through an explicit understanding of how heterogeneous knowledge elements are dispersed across an MNC” (p. 343). Note that dispersion is especially distinctive of MNCs.

Therefore, it is not only that there are clear differences between KT in MNCs and other companies because of factors such as distance, different languages, different culture and attitude, disparate economic development and structure (Teece, 1977) but also interactions multiply: subsidiaries add to the KT dialogue between parties, and they interact among other subsidiaries and with HQ in all directions (Ghoshal and Bartlett, 1988, Ghoshal *et al.*, 1994, Gupta and Govindarajan, 2000, Hansen *et al.*, 2005). This is especially important because if it is true, as said, that in a MNC “new knowledge comes primarily from interactions with clients, and interactions between team members around the world” (Moore and Birkinshaw, 1998, p. 82), it is not really the MNC as such the one that interacts with all these parties, not even HQ only but its subsidiaries.

The fact that subsidiaries are in a different context from HQ and the other subsidiaries is not only related to difficulties in interpretation, communication and mutual understanding but it also leads to institutional tensions (Kostova and Roth, 2002).

FACTORS AFFECTING KNOWLEDGE TRANSFER IN MNCS

Here we will review the most relevant factors that affect KT in MNCs and we will do it following a structure similar to that which we used in (1.3.1.2.) but trying to point out these factors that are more proper of MNCs. Therefore, we will review, first *knowledge characteristics*, then *source and recipient traits* and, finally, *context* issues. In the latter, cultural differences will be of special interest.

Foss and Pedersen (2004) cite Gupta and Govindarajan’s (2000) as the most comprehensive study on knowledge flows in MNCs. In fact, in this study, Gupta and Govindarajan cite five factors influencing knowledge flows: the value of the source

knowledge stock, the motivation of the source, the existence and richness of communication channels, the motivation of the target and its absorptive capacity. They are also interested in homophily (i.e. affinity or preference for those similar to oneself), a phenomenon that appears both at the individual and collective level. Some of these factors have already been discussed because they can easily be applied to any KT interaction, and not only to those within MNCs. This is precisely what Alavi and Leidner (2001) do: they cite Gupta and Govindarajan but apply their insights to all kinds of organizations.

Pedersen *et al.* (2003) provide another summary of factors influencing KT. They focus on the transfer of knowledge of internationalization in MNCs and review the existing literature on KT in MNCs: literature on internationalization processes, factor facilitating or hindering KT and the use of KT mechanisms in MNCs. The first group is outside our scope and the third will be dealt with later, so we will focus on what Pedersen and colleagues say about “the MNC as a superior vehicle for knowledge transfer” (p. 72). There we find costs, the age of the technology, the number of firms using the technology, previous experience in KT, the evolution of tacit knowledge in its codifiability, internal stickiness due to motivational and knowledge-related causes, socio-cultural and institutional distance and, finally, geographical distance.

Once again, we tried to find an order between these factors and, as said, we followed a similar schema to the one before used (1.3.1.2.).

First, we find those **factors related to the type of knowledge** being transferred. These factors are often found in combination with others. For example, Moore and Birkinshaw (1998) find that MN service firms are specialist in cross-country transfer of intangible assets. But “some types of knowledge are, by their nature, hard to codify and thus remain the natural proclivity of a few experts. But other types of knowledge [...] are well-suited to this cycle of discovery, development, fine-tuning, formalization, and institutionalization” (p.86). When this knowledge is mainly tacit and/or the company is too big that members do not know each other, centres of excellence are most appropriate as a way to disseminate knowledge. Bhagat *et al.* (2002) postulate that cross-country transfer of knowledge is easier when knowledge is explicit (vs. tacit), simple (vs. complex), and independent (with respect to prior knowledge).

Gupta and Govindarajan (2000), commenting the value of the source unit's knowledge stock, state that the greater the value the greater the attractiveness of this knowledge is for others and also when the source's knowledge is non-duplicative (i.e., it is unique or complementary to the one the recipient holds). The age of the technology being transferred is noted by Teece (1977), showing a practical application of learning curves and knowledge depreciation.

A different approach that has already been explained is that of Foss and Pedersen (2002), who examine the sources of the knowledge that is being transferred. We saw how these authors find that the more internal, network or cluster knowledge is produced in a unit, the more knowledge is transferred to other units, but it would be interesting to see this process from the recipient, i.e., for example, to what extent cluster (local) knowledge from the source can be successfully acquired by the recipient, and the same for the other kinds of knowledge. This is a problematic that can be found in a large organization with many units, but it becomes more serious in a MNC.

Regarding **source and recipient characteristics**, we found that most of them are similar to the ones above indicated, and the parties involved could be in many cases two units of an organization as well as two subsidiaries of the MNC. In the latter case, some authors talk about 'host country' (Teece, 1977) to refer to the recipient. There are some other scholars who consider source and recipient as part of the same organization, the MNC, and therefore, they should *share* certain traits for KT to be successful. For example, among the factors cited by Pedersen *et al.* (2003), they choose two—'transfer experience' and 'transfer capability'—, which they attribute to the whole organization—the MNC—and a third—'psychic distance'—, which "is a mix of organizational and environmental subsets" (p. 77).

A different but also *holistic* view is that of Reiche (2011). He studies the role of inpatriates (i.e., those subsidiary members who are assigned a job in HQ) as boundary spanners, and therefore, as agents of KT. In this case, inpatriates can transfer valuable knowledge from subsidiaries to HQ and vice versa. This movement requires a double effort, both from source and recipient, but with motivational nuances: the source (the inpatriate) should perceive a knowledge acquisition effort by HQ, and not only this but also he or she should perceive that HQ possesses the right abilities: absorptive capacity. Political issues also have a say in the process: there is a clear difference in credit

between inpatriates (who move from a subsidiary to HQ) and those who move from HQ to a subsidiary. Here, the existence of support from HQ to the inpatriate has a positive and encouraging effect on KT.

The *cognitive styles* of those who transfer and absorb knowledge are also relevant. Bhagat and colleagues (2002, p. 215) cite three of them: “tolerance for ambiguity, signature skills [i.e. idiosyncratic skills and proficiencies] and holistic versus analytical modes of thinking.” Their effect on the effectiveness of KT is so relevant that Bhagat *et al.* deem it to be noticeable regardless other factors such as culture. Tolerance for ambiguity and signature skills in source and recipient are postulated to be positively related to the transfer and absorption of knowledge. Analytic and holistic thinking in transferring and recipient organization are proposed as facilitators for the transfer of complex, explicit and systemic knowledge.

If we focus solely on the *source*, we find that there are differences if the knowledge stock it possesses is *complementary* or *substitutive* to the knowledge possessed by the target (Gupta and Govindarajan, 2000). The second case requires a higher effort, because it involves also unlearning. The source should also exhibit a certain experience about transfer and the technology it is transferring (Teece, 1977, Pedersen *et al.*, 2003). As always, motivational issues appear: the source unit may view its position as a powerful one, seeking to keep its monopoly and resisting sharing knowledge.²²²

Looking at the *recipient or target unit*, we also find here scholars who mention motivational issues, such as ego-defensive attitudes and the NIH syndrome (Gupta and Govindarajan, 2000). The absorptive capacity of the target unit depends on its prior knowledge base and also on homophily (the more similar to the source it perceives itself, the more willingly it will receive new knowledge) (Gupta and Govindarajan, 2000).²²³ There are some characteristics of the transferee or the host country such as technical and managerial competence, a considerable size, the existence of R&D activities and other contextual characteristics that are also positively related to KT

²²² As Cabrera and Cabrera (2005, p. 723) remark, this attitude does not only prevent them to contribute but also to “free-ride on the contributions of others.” This is the beginning of a vicious cycle of cognitive impoverishment.

²²³ Gupta and Govindarajan view homophily closely related to reciprocity.

(Teece, 1977). “For example, the level of skill formation in the host country will influence the amount and type of training that the labour force will require” (p. 250).

Certainly, in these traits we should admit that in many authors, the ‘MNC’ context does not make what Roth and Kostova (2003) call a difference ‘in kind’ but a difference ‘in degree’ with respect to other organizations. In other words, it is not here where we find the most differential characteristics of KT in MNCs.

It is in the **environmental characteristics** where we find these differences more ‘in kind.’ Here we will follow a slightly different schema: we will, yes pay attention to organizational factors, but keeping in mind that the MNC is an organization of organizations. Similarly, we will delve into the issues arisen from cultural diversity, a matter that requires especial attention in the case of MNCs. Finally, we will review how internal and external networks influence KT in a MNC. Regarding the external context, we will not say much: external to the MNC as such is the whole continent or continents (or even the world) where the MNC operates. If we seek more concretion, there is not only one external context but one for each subsidiary, so what it has been above said (1.3.1.2.) about each organization fits here, showing the complexity that involves managing a MNC and its knowledge flows.

With regard to *organizational* factors, Foss and Pedersen (2002) note how subsidiaries are at present seen as sources of organizational competences. Therefore, knowledge flows between subsidiaries and between them and HQ are key. That means that the organization must be *designed* so that subsidiaries access and produce knowledge, there are appropriate communication channels, and critical knowledge is diffused to all units. In addition, in their research, larger subsidiaries, older subsidiaries and acquired subsidiaries (vs. greenfield subsidiaries) are found to be positively related to KT. As above said, the same authors discuss in a later work (Foss and Pedersen, 2004) how recent literature focused on cognitive and motivational aspects of KT but not so much on *mechanisms of organizational control*, which really have an influence on KT processes. They deem this subject to deserve deeper consideration.

Egelhoff (1982), from the information-processing approach, emphasizes *structure* as a catalyst for knowledge flows inside the organization. Concretely, he gathers MNCs in four groups—worldwide functional divisions, international divisions, geographical regions, and worldwide product divisions—and analyses how their information

processing capability—especially in terms of making knowledge flow—is configured. The ‘worldwide functional divisions’ type is considerably centralized, therefore, it has a limited information processing capability; knowledge must be at the top of the organization and from there flow in a uniform way throughout it. The ‘international divisions’ cluster shows a good information processing capacity between parent and subsidiaries for company and country matters but not for product matters. In MNCs organized in ‘geographical regions’ there is a high flow in all kinds of matters between subsidiaries and regional HQ but not outside the region. Finally, the ‘worldwide product divisions’ type has a behaviour symmetrical to that of the ‘international divisions’ one: it is good to manage subsidiary-parent information flows about products but not about country and company.

There are still other organizational factors affecting KT in MNCs. Ghoshal and Bartlett (1988) cite four of them: local slack resources, local autonomy in decision-making, normative integration and density of internal communication. They examine the impact they have on the creation, adoption and diffusion of knowledge by subsidiaries. We will focus on diffusion and adoption, which correspond to the two movements of KT.²²⁴ Their research showed that normative integration and density of internal communication were positively related to both adoption and diffusion of knowledge. Local slack resources were found to favour knowledge diffusion but their impact on adoption was not clear. Finally, effects of local autonomy in decision-making could not be measured due to serious inconsistencies found in the results.

We found Ghoshal and Bartlett’s description of normative integration particularly interesting. It is described as “the result of a high degree of organizational socialization and was achieved through extensive travel and transfer of managers between the HQ and the subsidiary” (p.371) and the creation of working teams. The process of normative integration is called here the ‘-isation’ of the organization, where the prefix is the name of the company at issue. This process is not exempt of pitfalls. Kostova and Roth (2002), as above explained, describe the phases of institutionalization of a practice in a MNC. Subsidiaries are subject to tensions that press them to become isomorphic both to the MNC and their local environment. They belong to the company and, at the

²²⁴ ‘Adoption’ is here understood as the reception of knowledge coming from outside, and not the complex process of adapting and making use of this knowledge. Likewise, ‘Diffusion’ is communicating the knowledge possessed to other subsidiaries.

same time, they belong to their country. Each organization has an institutional profile defined by regulatory (laws, standard operating procedures (SOPs) and similar rules), cognitive (shared social knowledge and cognitive maps) and normative (values and beliefs socially and individually held) elements. In the case of a MNC, subsidiaries are simultaneously aiming to *two* different institutional profiles: those they have and those the MNC has. In addition, Kostova and Roth describe other two challenges to the adoption of a practice by a subsidiary: 1) the subsidiary feels being coerced to the adoption or is resistant to being dictated by the HQ, 2) they view the practice as inefficient or inadequate (see also Hong and Nguyen, 2009).²²⁵

There is an environmental factor that cannot be considered strictly external or internal to the organization, which is that of *cultural diversity*.²²⁶ It is internal since this diversity is represented by the different subsidiaries. It is external inasmuch as the different cultures are not representative of the culture of the organization taken as a whole, so each one of them can be perceived as something extraneous to it.²²⁷

To examine the effects of *cultural traits* on KT in MNCs it is important to use some conceptualization about them. Bhagat and colleagues (2002) provide quite a complete explanation. Starting from the idea that KT must be easier between societies that show similar cultural traits (again, the homophily principle), they adopt Hofstede's²²⁸ collectivism-individualism distinction, as the most defining one when it comes to understand different cultures. In collectivistic societies, individuals see themselves as a part of the whole and, thus, connected to all the other members. In individualistic societies, members view themselves as independent individuals and bonds are weaker.

²²⁵ All this shows that the adoption of a practice has an *implementation* (behaviour) aspect but also an *internalization* (convictions) aspect (Kostova and Roth, 2002). If they do not go along, problems may arise.

²²⁶ We recall here the definitions of *culture* we have used previously: prevailing ideologies and patterns of behaviour (1.2.3.1.) (Fiol and Lyles, 1985) or shared beliefs and interpretations (1.2.3.3.) (Cook and Yanow, 1993). We have then that the cognitive and normative elements of the institutional profile of an organization are what we call 'culture.'

²²⁷ See how Janssens *et al.* (1995, p. 378) express the "basic tension multinational organizations experience in trying to manage the 'external-outside' [congruence of policies at corporate and subsidiaries levels] and the 'internal-outside' fit [congruence policies and cross-national environment] simultaneously."

²²⁸ Geert Hofstede's prolific work in cross-cultural research is already a classic.

The collectivism-individualism dyad is complemented with that of vertical-horizontal dimensions: in vertical cultures there is a strong feeling of hierarchy and an awareness of one's position in it, whereas in horizontal cultures people see themselves as more or less equals to the others. That results in four pairs of traits—vertical collectivism, vertical individualism, horizontal collectivism, horizontal individualism—that may help mapping the different human groups.²²⁹ How does this diversity affect KT? It depends, Bhagat *et al.* respond, on the kind of knowledge being transferred (i.e., tacit/explicit, complex/simple, independent/systematic).²³⁰ Their propositions could be summarized in the following way: 1) when source and recipient differ in *both* dimensions, KT will be most difficult; 2) KT between two vertical individualist units or two horizontal individualist cultures will be easier when the transferred knowledge is explicit and independent; 3) KT between two vertical collectivist or two horizontal collectivist organizations is expected to be easier if the knowledge that is transferred is tacit and systemic.

Hofstede's classification has been successful²³¹ and spread throughout cross-cultural research. Hence, it is easy to find other authors in the MNCs field who apply his categories to KT. For example, Janssens, Brett and Smith (1995) show how the diffusion of a single policy in a MNC can be challenged by different perceptions by the different subsidiaries. In their article, they combine the cultural dimensions of individualism and collectivism with other traits that are also cultural, but belong to managerial culture: the management style (authoritarian/paternalistic) and the decision-making mode (democratic/autocratic). In fact, Janssens and colleagues consider that the authoritarian style is more proper of individualistic cultures and the paternalistic style is

²²⁹ For example, the UK is categorized as vertical individualistic, Denmark as horizontal individualistic, India as vertical collectivistic, and Japan as horizontal collectivistic. Gouveia *et al.* (Gouveia, Clemente and Espinosa, 2003) label Spain as a horizontal collectivistic country in transition to individualistic. Having returned to the same topic years later to ascertain if Spain is indeed vertical or horizontal, Gouveia and other authors (2011) corroborate the previous classification. This also shows that these classifications are helpful to a certain point, because cultures are not impermeable or static.

²³⁰ Note that, despite proposing these three kinds of knowledge, when it comes to applying it to cultural differences, they only make use of tacit/explicit and independent/systematic. The third pair—simple-complex—is used, as above said, to remark that KT will be always be easier when the knowledge is simple, explicit and independent.

²³¹ That does not mean that it has not been challenged by other authors. One example is Schwartz.

more proper of collectivistic cultures. What does seem to work independently is the decision-making type.²³² At the same time, they state that the same as home country's culture influences corporate policy and the perception of this policy the HQ have, local culture influences local management style and the perception of the corporate policy subsidiaries have. These categories are applied to the case of a diffusion of a corporate safety policy: the different management styles and cultures—that affect, for example, managers-employees relationships—make subsidiaries perceive this policy as more or less imperative. “These results call into question the possibility that a single corporation-wide resource policy will have the same effects in different nations” (p.378).

Similarly, Hong and Nguyen (2009, p. 347) point out the “limitations of applying a standardized and universal set of knowledge transfer mechanisms without considering local idiosyncrasies.” “Host country personnel may find some of the MNC knowledge inappropriate or inadequate to address the complex issues in a local environment” (p. 348). These authors also highlight another environmental characteristic that is not strictly cultural, such as *diverse knowledge base* between the different parties involved in the KT. Provided that KT happens from the unit that possesses the knowledge to that which needs it,²³³ a different knowledge base may have a negative influence in the transfer process. Hong and Nguyen illustrate it with the difficulties Japanese managers found in transferring knowledge to their subsidiary in Vietnam: they found the employees wanting of self-discipline and adequate training. This was not only for blue-collar workers, but also for the white-collar ones: universities provided too theoretical contents and they were not completely updated. That required from expatriates to fill the gap with supplementary on-the-job training.²³⁴

²³² Examples: US (individualistic, authoritarian and autocratic), France (slightly less individualistic, authoritarian and democratic), and Argentina (collectivistic, paternalistic and autocratic).

²³³ “Replication has a generally negative relationship with measures of country attractiveness. [...] knowledge is pulled into less developed countries because local firms have more to learn.” (Williams, 2007, p. 880)

²³⁴ “The picture of multinational firms that emerges from [our] study is of large firms evolving and changing as they move to new contexts rather than replicating uniform practices around the world.” (Williams, 2007, p.883)

Before turning to network characteristics, there is still another environmental characteristic that has also impact on KT: even under the assumption that source and recipient's cultures and knowledge base are similar, there may exist international barriers—diverse local legislation, trade treaties and so on—to knowledge sharing. These are a clear example of totally external obstacles. “International barriers to knowledge transfer is a potential research area not frequently addressed in top management journals.” (Werner, 2002, p. 287)

Among the interunit communication factors—unit autonomy and networks—, Ghoshal *et al.* (1994) consider that *networks* is the most important. With this, they make a move away from the information-processing approach, which emphasizes autonomy. Regarding networks, what has been said about networks in general (1.3.1.2.) applies without doubt for the relationships between one MNC and another but it must be taken with caution for the networks within the MNC: here the structure of the company plays a role. Gupta and Govindarajan (2000) propose several topics for research: the impact of a unit's central position in the network (and the position in general of any unit), the repercussion of the network density (i.e. number of intra-firm relationships), and the influence of the global competitive intensity the MNC faces.

Once established that the phases of KT are three—decision to search, search and transfer—, Hansen *et al.* (2005) examine how different subsets of networks—intra-team networks, inter-subsidiary networks and relationships between knowledge seeker and provider (transfer networks)—affect these three phases. Concretely, the authors study the density of the relationships, the strength of the ties and also the position of the parties in the network. In two of the networks, inter-subsidiary and knowledge seeker-provider relationships, the authors also test competition.²³⁵ As a result, a dense and strong intra-team network and the existence of an extended network external to the team are positively related to the decision to seek new knowledge. Search is positively affected by a strong inter-subsidiary network and negatively influenced by competition by the other subsidiaries. Finally, competition perceived by the knowledge provider is negatively related to transfer, and the positive effect of the strength of the relationship seeker-provider is negatively moderated by knowledge tacitness.

²³⁵ We do not agree with the assumption that seems to underlie this choice: members of the same team do not compete to each other. We argue that this is the case in many organizations.

The picture of the complex relationships between the different factors that have influence on KT would be incomplete if we do not incorporate KT mechanisms and, concretely, communication channels (Gupta and Govindarajan, 2000, Murray and Peyrefitte, 2007). As they are an essential part of this dissertation, we considered they deserve a section for them, which will be the next one.

1.3.3. KNOWLEDGE TRANSFER MECHANISMS

Organizations and individuals share knowledge in many different ways. These are what we understand by ‘knowledge transfer mechanisms.’ The diverse approaches to KT mechanisms will be described in 1.3.3.1. KT requires communication and communication, in the classical theory of communication, is made through diverse channels, which may be qualified in terms of their richness and other characteristics. These topics will be discussed in 1.3.3.2.

1.3.3.1. KNOWLEDGE TRANSFER MECHANISMS

In our review task we have perceived two main groups of authors regarding KT mechanisms. In the first, scholars adopt what we could call a *strategic* approach, i.e. a more ‘corporate’ or managerial perspective: what can be done in the organization to encourage and facilitate KT. Thus, they talk about ‘collaboration,’ ‘network creation,’ ‘exploration’ and so on. The second group, to a certain extent, is more concrete: authors descend to the KT process and describe the diverse ways—the *mechanisms*—in which knowledge can be transferred: written documents, meetings, videoconferences, courses or training are part of their research. This is the perspective we will adopt in our

research. The two views are complementary: for example, written documents are KT mechanisms that can serve different KT strategies.²³⁶

STRATEGIC APPROACH TO KNOWLEDGE TRANSFER MECHANISMS

As an example of this perspective, we can find Shrivastava's (1983) typology of *learning systems*, which, in reality, is a typology of different ways in which organizations deal with learning and knowledge sharing: the "one man institution", which relies on the key broker; "mythological" learning systems, which are based on the sharing of (war) stories; the "information seeking culture", which consists in the promotion of an attitude of open search; "participative" learning systems, sought by means of teams and committees; "formal management" (i.e. strategic planning); and "bureaucratic" learning systems, based on procedures, regulations and restrictions on information flows.

Other authors, such as Argote and Ingram (2000), propose certain strategies for KT that have in common *the management of knowledge repositories*. Accordingly, they propose two ways of moving knowledge: 1) by moving repositories and networks, and 2) by modifying repositories and networks. Regarding the first option, if the repositories are people, results are not always optimal. If the knowledge reservoirs are tools, the task is easier, provided that the technology is simple or the move goes along with moving people. If the elements to be moved are tasks, the traits of the routine and the relationships between source and recipient are critical. When it is networks what is moved, they need to fit in the new context. In the case of 2), it must be done mainly through communication and training, but feedback and communication opportunities seem the most effective ways. They conclude with something that is already familiar to us:

Selection, socialization, training, and communication processes within organizations make people more similar within than between firms, the subnetworks involving people are more likely to be compatible with other

²³⁶ Although not exactly the same, a proposal near to ours is that of Murray and Peyrefitte (2007), who distinguish between organizational-level mechanisms, such as expatriations and JVs, and the underlying social formal or informal mechanisms of communication and training, such as meals, visits or meetings.

subnetworks internal to the organization than with external subnetworks. Thus, achieving transfer through moving the subnetworks involving people is more problematic between than within organizations. (Argote and Ingram, 2000, p. 165)

Given that the main knowledge repository in organizations is people, some authors advocate for the use of *people management practices* as way of fostering knowledge-sharing. For example, Cabrera and Cabrera (2005) propose a series of strategies that ultimately coincide with the characteristics of the learning organization (1.2.3.6.): e.g. a particular work design, and recruitment, training and development policies that promote self-efficacy; systems of assessment and rewards; elements of culture such as (face-to-face) communication, horizontality, fairness and perceived support; and a well-designed and user-friendly technology that is appropriate to the organization. Fostering knowledge-sharing as a corporate policy may adopt different forms if the goal is exploration or exploitation of knowledge. “In general, we hypothesize that for exploration the origination of knowledge sharing by the persons who have knowledge and who need knowledge is more important, while for exploitation the direction of knowledge sharing by management will be more important.” (Berends *et al.*, 2006, p. 93)

Promoting ties in different ways is another strategy that can often be found in literature. Sometimes, these ties are at the corporate level, like in strategic alliances or JVs where the goal can be accessing knowledge or complementing in-house knowledge with that of the other organization and thus bringing the organization to a superior competitive level (Mowery, Oxley and Silverman, 1996). In other cases, the link or bridge is established by key individuals—such as knowledge brokers who belong to overlapping communities or ‘translate’ and adapt external knowledge for the organization—or even what Brown and Duguid (1998) call ‘boundary objects’ (“physical objects, technologies, or techniques shared” (p.104).

The previous topic is related to another strategy, which includes it: *building and managing networks* (Davenport, De Long and Beers, 1998). We have seen that networks are a significant contextual factor influencing KT. Grant (1996a) considers relational contracts—“either in individual strategic alliances or broader interfirm networks” (p.383)— an alternative to market contracts, especially for the transfer of

explicit knowledge that is not embodied in products. Moreover, interpersonal networks are the more critical the more tacit is the knowledge to be shared. “This is especially true for service organizations where only a small proportion of their intangible know-how can be codified and the more tacit components will be lost if not shared via regular, structured interpersonal interactions.” (Soo *et al.*, 2002, p. 142) Therefore, formal and informal networks need to be created. Against this, two obstacles arise: internal stickiness and the lack of time for sharing and learning from mistakes and practice. The latter obstacle has been empirically showed by the work of Edmondson and colleagues (Cannon and Edmondson, 2005, Tucker and Edmondson, 2002, Tucker, Edmondson and Spear, 2002) applied to hospital nurses and their daily routines. There are additional costs: those of social cooperation, which have been explained in form of dilemmas by Cabrera and Cabrera (2002): social dilemmas (general vs. individual interest), resource dilemmas (cooperation leads to the exhaustion of resources, originating a ‘tragedy of the commons’ situation) and the public-good dilemma (when there is a good that can be enjoyed by all, regardless of individual contributions to it, individuals tend to benefit from it while refraining from contributing which, again, leads to a general impoverishment).²³⁷ The organizational strategies Cabrera and Cabrera propose to overcome these dilemmas have been commented before (1.3.1.2.). At the same time, they note how the value of knowledge can grow as it is shared via the combination and exchange processes.

KNOWLEDGE TRANSFER MECHANISMS

We will now address the authors who focus on mechanisms themselves. Although it is not easy to find a structure in some of them, we will see that the distinction **face-to-face vs. technology-mediated knowledge exchanges or vs. written materials** often appears in these works. At the end, it has relation to what the kind of knowledge transferred allows for and where this knowledge resides.

One interesting and early piece is Dutton and Starbuck’s (1979). They describe how what they call an intellectual technology—the use of simulation for traffic planning—is spread across different research centres. It takes time but “*face-to-face* meetings and

²³⁷ For costs of contributing and adopting knowledge, see also Goodman and Darr (1998).

especially on-site, laboratory visits reduce this lag by months and often by years” (p.493, emphasis added), whilst academic journals are of no use in the first instance. In the case described, the technology spread because researchers dispersed geographically but kept contact in an informal network. First, they sustained face-to-face meetings at each other’s sites, and used conferences to share their knowledge. Later came conference proceedings, working papers and correspondence. Finally, around three years later, academic journals were used. Thinking that face-to-face contacts are only with other colleagues is a simplification. Allen (1977) lists up to eight information channels for engineers, some of them are written documents and some are interpersonal interactions: literature (trade journals, professional journals and unpublished reports), vendors (they happen to be the greatest external sources in proportion), customers, other personnel external to laboratories, laboratory staff (who bring their experience from previous work inside and outside the org), company research programs, analysis and experimentation, and the previous experience (individual or in other R&D projects). Similarly to Dutton and Starbuck (1979), Allen (1977) describes the behaviour of engineers: engineering publications will never be apace with the state of the art, consequently, “engineers will continue to rely overwhelmingly on personal contacts for current information” (p. 79). Interestingly enough, organizations operating with a much less sophisticated technology follow a similar pattern. Darr, Argote and Epple (1995) study this in pizza-restaurant franchises and focus on regular communication, personal relationships and meetings. Commonly owned establishments are more frequently sharing innovations because they have more occasions for the mentioned activities.

This does not mean that *written materials* are not useful for KT. We saw how knowledge resides in this kind of documents, whatever their support is (1.2.5.1.). Grant (1996a) describes how the creation of operations manuals along with the institution of routines are the best knowledge integration mechanisms. Note how he describes how he understands routines: “Closely-coordinated working arrangements [...] established through training and constant repetition, *supported by* a series of *explicit* and implicit signals” (p. 379, emphasis added).

Another group of authors where the dichotomy is present are Davenport and colleagues (Davenport and Prusak, 1998, Davenport *et al.*, 1998). Here the opposite to face-to-face KT is *IT*. They state that “scientist and engineers exchange knowledge in direct proportion to their level of face-to-face contact” (Davenport *et al.*, 1998, p.54).

“Data and information are constantly transferred electronically, but knowledge seems to travel most felicitously through a human network” (*ibid.* p.56). Therefore, the best way for organizations to transfer knowledge internally is to “hire smart people and let them talk to one another” (Davenport and Prusak, 1998, p.88). To encourage spontaneous interactions, Davenport and Prusak suggest diverse mechanisms, e.g. rotations, talking rooms, corporate social activities, and knowledge fairs. At the same time, they do not forget the importance of information and communication technology (ICT): virtual offices can be organized, in addition to internet, intranets, knowledge maps, videos and so on. Technology is always seen as a support to personal interaction. Again, it depends on the type of knowledge. For tacit knowledge transfer, partnership, mentoring, apprenticeship and other mechanisms are most indicated. “The more bounded, unambiguous and rules-based that knowledge is, the more easily it can be embedded in an expert system” (Davenport and Prusak, p.84). As we will see later, there is an emphasis on the *richness* of the communication media in use.

ICTs are called ‘computer aided systems’ (CAS) by Goodman and Darr (1998). They are defined as “collections of technology, people, and organizational arrangements” (p.418) which cross space and time barriers, contribute to organizational memory and create a space for sharing. Goodman and Darr describe their potentialities for communication or KT as depending on some traits: the type of media being supported, if they are synchronous or asynchronous (i.e. if source and recipient need to be simultaneously present for the transfer to happen or not), bandwidth of the channels and degree of anonymity. Media richness (i.e. their capacity of bearing information which is rich in detail) is critical for the solution of complex problems. Notwithstanding the obvious advantages of CAS such as electronic libraries, these authors detect that communities of practice—which share the same jobs, language and so on—prefer alternative ways to share knowledge, such as formal and informal face-to-face meetings, call conferences and emails. Their conclusion is that “in environments with high levels of complexity and tacit knowledge, an alternative model is to match adopters to specialized experts rather than to electronically stored solutions” (p. 437), which are better for simple solutions in homogeneous contexts. Brown and Duguid (1998) also note that although IT may spread in an extensive network, it does not mean that personal relationships will follow suit. Inversely, they will work to enable relationships that parties are willing to establish.

We saw above how Argote and Ingram (2000) described transferring knowledge by moving repositories as one of the three main strategies of KT. Here we will devote some attention to **transferring knowledge by moving people**. “Human beings are the most effective carriers of information and the best way to transfer information between organizations or social systems is to physically transfer a human carrier.”(Allen, 1977, p. 42) Transferability of individuals with specialized knowledge (Grant, 1996a), stars abandoning the organization (and taking their knowledge with themselves) (Groysberg, Lee and Nanda, 2008), the role of in-patriates as boundary spanners (Reiche, 2011) or reassignments as brokering moves (Huber, 1991) are different ways the topic has been approached. The issue of learning by hiring or acquiring has been explained before (1.2.3.4.). Here we just will remark that knowledge acquisition is never independent from the context: “Even acquisition of the whole company may not buy its knowledge if the acquisition process disrupts the ecology of the knowledge-creating environment” (Davenport et al., 1998, p.56). And the same is valid for individuals who get recruited for their specialist knowledge.

The contraposition **formal vs. informal KT mechanisms** is also often found. Alavi and Leidner (2001), in their review, make an interesting summary. Regarding informal mechanisms, they promote socialization but are indicated in small organizations: as they base on personal ties, they tend to be limited in scope and wanting of accuracy. Formal mechanisms can have a broader reach—even worldwide—, but as they are not spontaneous but prompted by the organization, they tend to stifle creativity. This does not happen with all formal mechanisms. As we have seen, transferring employees or establishing formal apprenticeship paths can be the best way of sharing and acquiring tacit knowledge. Thus, types of knowledge are relevant here.

And this leads us to the next topic, which is the fit between **knowledge types and KT mechanisms**.

As usual, the most cited characteristic is *knowledge tacitness*. This affords for a preliminary classification of KT mechanisms. Dinur, Hamilton II and Inkpen (2009) separate low-tacitness processes—manuals, on-line instruction, short visits and limited technological training—from high-tacitness processes—long term visits and personal communication. Haas and Hansen (2007), in the field of knowledge-intensive firms

(KIFs), select²³⁸ electronic documents and personal advice. They test these mechanisms for time saving and quality and they find that electronic documents (“document-to-people sharing”) are positively related to time saving and negatively related to quality. With personal advice, the finding is exactly the inverse. Electronic databases are relevant for approaches emphasizing codified knowledge. In other cases, “the handover of knowledge requires direct contact between the provider and receiver of the knowledge, in meetings, by phone, or via e-mail. Because it involves direct contact, such sharing allows for the transmission of tacit or non-codified K” (pp. 1135-1136).²³⁹ At the same time, Haas and Hansen show the costs of using these mechanisms: electronic documents require being reworked, and personal advice requires the effort of the advisor. These costs moderate and may even overcome the benefits of using these KT mechanisms.

Therefore, mechanisms for transferring explicit knowledge appear more or less clear: documents, maps databases and written materials of some sort, plus oral explanations and instruction. When it comes to tacit knowledge, attempting to transform it into explicit knowledge through codification of some sort is still an option. According to Akbar (2003), this can be achieved by using metaphors and stories. The question of how to leverage tacit knowledge without making it imitable or impoverishing it (Coff, Coff and Eastvold, 2006) is closely related to this approach. Coff and colleagues suggest more face-to-face interaction but they do not dismiss totally IT: there are non-codifying systems that can be used, such as monitoring systems, telecommunications networks, pattern recognition systems, or tracking and organization systems. The other option is directly to use different mechanisms related to practice, experience and immersion in a particular environment (Akbar, 2003).

In a more corporate fashion, Moore and Birkinshaw (1998) examine *the role of centres of excellence* to transfer intangible assets. These are established to disseminate the knowledge held by a group of experts in some strategic areas throughout the organization. Therefore, they also have a clear knowledge enhancing role. Moore and

²³⁸ They remark that studying both mechanisms simultaneously is new: “Prior research has tended to focus on either electronic documents [...] or social networks that tap into individual expertise [...], but not both.” (Haas and Hansen, 2007, p.1134)

²³⁹ As we will see later, we do not agree in that emails are a good means to transfer tacit knowledge. We argue that it needs to be a finer distinction inside these different mechanisms.

Birkinshaw provide a typology of these centres—charismatic (based on some individuals), focused (on a single area of knowledge and with a physical location) and virtual (experts live disseminated and connect to each and the rest through ICTs)²⁴⁰—, which corresponds also to the three stages of their evolution.

Some types of K are, by their nature, hard to codify and thus remain the natural proclivity of a few experts. But other types of knowledge (...) are well-suited to this cycle of discovery, development, fine-tuning, formalization, and institutionalization. (Moore and Birkinshaw, 1998, p. 86)

Tacitness along with size of the company determinate the appropriateness of establishing centres of excellence: when key knowledge is tacit and “the activities of the firm are so large or so dispersed that professional staff members cannot possibly know all their colleagues” (p.92), a centre of excellence is most indicated. “In most cases, centers were deliberately kept lean” (p.90). Therefore, to motivate employees to share knowledge, ‘soft’ systems (social relationships, social recognition) are preferable to ‘hard’ systems (reporting, bonuses).

A more recent work explores the relationships between certain types of knowledge—universal vs. local combined with technical, systemic and strategic knowledge—and certain KT mechanisms—personnel rotation, dialogues, formal meetings, documentation, in-house training programs and so on. A remarkable trait of this research is that the technical, systemic and strategic types of knowledge are found in different hierarchical positions in the organization (respectively, blue collar, middle management and top management). Another is the interest in the underlying paradigm in each of the items—local adaptation and/or knowledge transfer. One thing that could be criticised is that the authors make an articulate description of types of knowledge and their characteristics, but do not provide clues of an internal order between the different mechanisms. This is precisely what we will do in 1.3.3.3.

²⁴⁰ Databases and other devices are not the excellence centre: “It is the individuals’ collective knowledge coupled with the codified part of their knowledge in the system that constitutes the virtual center.” (Moore and Birkinshaw, 1998, p.86) In the case of virtual centres of excellence, the authors warn that there is a requirement: individuals must know each other beforehand: face-to-face interaction is still needed.

1.3.3.2. COMMUNICATION CHANNELS

For any kind of knowledge to be transferred, communication needs to be established. This communication is different if it is person-to-person or if it is mediated by written materials—‘document-to-people sharing’ (Haas and Hansen, 2007)—or electronic devices. To better understand these differences and, at the same time, have some tools to classify the diverse KT mechanisms, we engaged in a research in which we found some interesting concepts.

First of all, we were stroke by the frequency with which the term ‘**richness**’ appeared in the text as referred to information, and communication channels (Daft and Lengel, 1986) or media. For example, Huber (1991) states that media richness determines the shared meaning between source and recipient: the more clues they allow, the better.²⁴¹ Similarly, van Wijk *et al.* (2008, p. 844) state that “partners exchanging knowledge are likely to collaborate more closely and actively, using richer media.” Gupta and Govindarajan (2000) consider the existence and richness of transmission channels one of the main determinants of KT (see also Foss and Pedersen, 2002). Concretely, richness of channels influences the speed and ‘viscosity’ of the transfer (Davenport and Prusak, 1998). Pedersen, Petersen and Sharma (2003) oppose *rich* media to written media, and rich media is equated to *oral or face-to-face communication*, which is considered by Cabrera and Cabrera (2005) as a ‘high bandwidth’ (i.e. rich) communication channel (see also Gupta and Govindarajan, 2000).

But if we want to find a definition of information richness, we need to go to the work by Daft and Lengel (1986), who are cited as the main source for this topic. These authors assume “that [1] organizations are open social systems that must process information” (p. 555), 2) organizations process information in order to reduce uncertainty (with respect to outcomes) and equivocality (with respect to a situation, there are diverse rival interpretations). To reduce the latter, organizations need

²⁴¹ However, Huber (1991) also signals that some authors view ambiguity as beneficial because it forces sender and receiver to reach consensus.

clarification, more than many data. Thus, the key factor is the availability of rich information, understood as

the ability of information to change understanding within a time interval. Communication transactions that can overcome different frames of reference or clarify ambiguous issues to change understanding in a timely manner are considered rich. Communications that require a long time to enable understanding or cannot overcome different perspectives are lower in richness” (p.560).

Thus, rich communication media are preferable for equivocal situations, and media of low richness are useful to transfer well-known and standard information.

But how is richness detected? There are certain criteria: “the medium’s capacity for immediate feedback, the number of cues and channels utilized, personalization, and language variety” (*ibid.*). This allows to provide a classification of media from highest to lowest in richness: “(1) face-to-face, (2) telephone, (3) personal documents such as letters or memos, (4) impersonal written documents, and (5) numeric documents” (*ibid.*). This classification will be discussed later (1.3.3.3.). DeRosa *et al.* (2004) state that this theory does not account for new ICTs. At the same time, they show how people get familiar with these apparently less rich media and learn to add cues to convey additional information, thus ‘enriching’ them.²⁴² These authors also mention “‘super-rich’ technological media” (p. 222), i.e. highly sophisticated virtual media that combine different streams at the same time.

We would like to show one example of the application of media richness theory to empirical research. Murray and Peyrefitte (2007) relate communication media richness to the transfer of know-how and information. Concretely, under the assumption that “messages transferred on channels that are inappropriate to the situation run a higher risk of being ineffective” (p. 114), they want to show how users choose between richer and less rich media. The activities they analyse are clustered into “technology-assisted communication, meetings, and training methods” (p. 115). “Findings suggest that the type of knowledge to be transferred was the primary driver of the choice” (p. 125),

²⁴² We could provide an example, which is the current, widespread use of emoticons to add emotional information to the otherwise ‘cold’ text.

being, in general, low-richness media chosen for the transfer of information and high-richness media for the transfer of know-how.

Media richness theory has been completed with other contributions, namely, **social presence theory**. “*Social presence* is the degree to which a communication medium conveys the physical presence and non-verbal and social cues of the participants.” (Rice and Shook, 1990, p. 198, emphasis in original) Social presence theory facilitates a classification of communication channels according to the awareness of the other person they allow for. “Communication is effective if the communication medium has the appropriate social presence required for the level of interpersonal involvement required for a task.” (Kock, 2004, p. 328) Kock points out that although social presence theory emerged in the 1970s, when computer mediated communication (CMC) was still not developed, it had a strong impact on the consideration these tools acquired later. Social presence theory can be related to a characteristic that Goodman and Darr (1998) describe in these media, which they call CAS: if they are *synchronous or asynchronous* (see also DeRosa *et al.*, 2004). The former means the co-presence of both parties, the latter implies some time lapse between the issue of the message by the sender and its reception. That means that if in one sense new ICTs make communication to overcome space and time barriers, it also can keep knowledge in a way that it is possible to retrieve it whenever it is needed.

As it can be seen, both theories can be easily connected. Although social presence theory does not expressly mention it, it also bears the idea of a gradation in the richness of information the media transmit. Communication media richness theory emphasizes the contents the medium is capable to convey, and social presence theory refers to the capacity of the medium to point at or bring in the presence of the interlocutor (Kock, 2004).²⁴³ The use Rice and Shook (1990) make of these theories is particularly interesting for us, because they link the use of types of media—face-to-face (FTF) interactions, meetings, memos/letters, telephone calls and emails—with the different job categories and levels in hierarchy in a meta-analysis that includes 40 previous studies. In their search of patterns, they take elements from media richness and social presence theories. The two hypotheses—different job categories show different usages of media,

²⁴³ We see an overlapping of both theories, rather than media richness theory as an elaborate version of social presence theory, as Kock (2004) puts them.

and higher hierarchical ranks use more social presence and rich media—are supported by their research.²⁴⁴ The article also advocates for meetings as communication channels with their own distinctive traits, especially with respect to FTF (one-to-one) interactions.

A third thread adds to the previous: **media naturalness theory**. This theory is the result of applying some ideas from biological evolutionary theory to human communication. Both social presence and media richness theories advocate for a gradation that has FTF at one end of a continuum (from less rich to richest²⁴⁵ or from less social presence to most social presence) and written materials at the other end. This view becomes challenged with the emergence of worldwide spread CMC. Although CMC should be considered a less-rich or with less social presence communication channel, in some cases it is preferred over others and in ways that compensate for its deficiencies (Kock, 2004).²⁴⁶ This fact has led to a rejection of those two theories, although the partial support of social presence and media richness theories remains to be justified. And this is what media naturalness theory seeks.

The main thesis is that human beings are physically constituted—through the evolutionary processes²⁴⁷—for FTF communication. That is the most *natural*—i.e. effortless, clear and physiologically exciting—way they communicate. FTF communication has some characteristics: co-location (space), synchronicity (time), facial expressions, body language, and speech (DeRosa *et al.*, 2004, Kock, 2004). The absence or decrease of any of these characteristics (i.e. less naturalness) leads to more ‘cognitive effort’ and ambiguity, and less ‘physiological arousal’ (DeRosa *et al.*, 2004, Kock, 2005). At the same time, humans have used ‘communication aids’ (physical supports of signs) almost since the beginning, to overcome some problems, such as the course of time or spatial distance, although they are harder for them, or require additional effort. CMC is one more step in this evolution (Kock, 2004). Human beings *learn* to adapt to new communication channels in ways that allow them to use these

²⁴⁴ These results may seem too generic, but the heterogeneity of the sources does not allow these authors to fine tune their descriptions.

²⁴⁵ As we will see in short, some versions of media richness theory admit the possibility of super-rich media, i.e. media that are richer than FTF, so they would be the ones to be at the end of the continuum.

²⁴⁶ The example provided by DeRosa *et al.* (2004) is the constitution of virtual teams.

²⁴⁷ These processes, which are sometimes costly, are described in detail by Kock (2004).

media with less effort, but they remain as less natural. One contribution of the theory is that, instead of viewing FTF at one end of the continuum, it views it *at the centre*, between two extremes, *both less natural*: one is the media classically acknowledged as less rich or with less social presence (written documents, databases, phone calls...), the other is what Kock calls ‘super-rich’ new technologies, which theoretically add more stimuli to the usual FTF communication (thus, they are richer than FTF communication) but are also less natural, because they tend to overload with information and, therefore, they require more cognitive effort.

A different alternative to media richness and social presence theories is the **social information processing perspective** (Walther, 1996).²⁴⁸ Walther’s work is focused on CMC and its role, and follows a different thread: that of asking how *personal* communication media are. The appearance and development of CMC has raised the concern that these media ‘depersonalize’ relationships by reducing solidarity and empathy. Other authors, assuming this depersonalization, view it as positive, because it allows for more disinterestedness, task-orientation, rationality and equality. Based on how people start, develop and strengthen their relationships over time, Walther postulates that the longer they interact via CMC, the more personal the relationship becomes, so at the end, there is no difference with FTF in all ‘personal’ parameters. He even proposes the possibility that some media become ‘hyperpersonal,’ which happens when exceedingly intimate relationships develop through CMC. This occurs when the receiver has an idealized perception of the sender, who, in turn, offers an optimized self-image, the form of communication is asynchronous, and the process feedbacks itself. Given the examples provided by Walther, these extreme cases, based on deception or, at least, lack of real knowledge of the other party, hyperpersonal communication cannot be considered a real option for organizations or individuals who seek useful knowledge. It is difficult to believe that *real* intimacy and *authentic* emotional relationships may develop and last over time without any kind of FTF interaction. At the end, Walther’s intention is to show that communication may be more or less impersonal depending on the user.

²⁴⁸ Walther portrays media richness and social presence theories—which he calls ‘cues-filtered-out’ approaches—and their subsequent partial confirmation by empirical studies in a similar way to the authors above discussed, but he proposes a different alternative.

The social information procession theory is dismissed by DeRosa *et al.* (2004) because it focuses on social interactions and disregards media themselves, their traits and their use.

With all the different approaches to KT mechanisms and communication channels we have reviewed, we are now in a position to propose a KT mechanisms map that enables us to conduce the empirical research with proper rigour.

1.3.3.3. A PROPOSAL OF A KNOWLEDGE TRANSFER MECHANISMS MAP

There have been diverse attempts to provide a classification of KT mechanisms. For example, Levitt and March, with their emphasis on the ecology of learning—i.e. the relationships between source and recipient and the context—, classified learning mechanisms into coercive, mimetic and normative, depending on who takes the initiative in the process and how it happens. We will not follow these criteria in our analysis.

Our proposal is more close to that of Daft and Lengel (1986), who establish an order of decreasing richness between various KT mechanisms: FTF interactions, telephone calls, personal documents, impersonal written documents and numeric documents. If we complete this list with other elements, we will have the complete map of KT mechanisms.

Therefore, from media richness theory we drew the concepts of co-location, synchronicity and the abilities of transmitting facial expressions, body language and speech, as well as the ideas of the different degrees of richness of ICTs and personal vs. impersonal communication media. Although those systems can be very sophisticated and, consequently, very rich, we have placed them quite far away from FTF using the media naturalness theory, which considers FTF as the most natural way humans have to communicate and the other mechanisms—leaner or richer—as artificial and requiring more cognitive and motivational effort from users.

Our basis in the following map is the *distinction personal vs. impersonal* KT mechanisms. This must be well understood: in any KT, sooner or later, there are persons interacting, but this interaction can be more or less mediated: it is not the same to call somebody to ask for information as to write an instructions manual and upload it into a database open to everybody in the organization.

INTERPERSONAL COMMUNICATION

We have included here all means of communication/KT between two or more persons. We have subdivided them in two: those that include some kind of *physical presence or FTF interaction* and *technology-mediated interactions*.

Regarding **FTF interaction**, here all interactions are synchronous: there is simultaneousness of space and time, and the possibility of an exchange of facial expressions, body language and speech. But there are many different ways of interacting FTF. First of all, we could find *conversational* or *dialogic* FTF exchange, which encompasses from the simple conversation between two individuals (e.g. two colleagues, mentor-protégé, customer-provider) to one-to-group interaction (as in a class), to a more complex group interaction (e.g. informal break meetings, work team meetings, corporate conventions). On the other hand, there is the possibility of transferring knowledge in a more complex way that, rather than FTF it could be called *side-by-side* or *hands-on* interaction, or, simply, *practice*. This is, for example, what takes place in (off-the-job or on-the-job) training and actual occupational scenarios. Here, dialogue is established between two or more people, but—and this is no less important—simultaneously they engage in a ‘dialogue’ with actions (as in trial-error learning), organizational routines, and material items (e.g. work tools or a patient’s body). We argue that a scale from less to more complexity can be applied to this schema, from the simplest conversational one-to-one interaction to the latter, most complex form of practice, in which also material items are involved and mediate human communication.²⁴⁹ As we already saw, the latter mechanism is the most appropriate to

²⁴⁹ For example, in a hospital setting, the professional physical/manual examination, the practice protocols that are applied and the conversation professional-patient are altogether interpersonal communication.

share procedural tacit knowledge. The more the mechanism goes away from FTF, the more difficult it becomes to share tacit knowledge.

As for **technology-mediated interactions**, there is no co-location and the interaction may be *synchronous* or *asynchronous*. Examples of the former are video-conferences, conference calls, webinars, and instant messaging (as on a chat). Examples of the latter are voice mail, e-mail, and virtual discussion forums. A look at the examples provided shows how the first in each list still keep some traits of the FTF interaction, which gradually disappear as we proceed.

NON-PERSONAL KNOWLEDGE TRANSFER

This is usually a one-way communication, in which no immediate feedback is intended and there is not necessarily a personal relationship between the recipient and the person or group who have initially provided the information. For the same reason, it is always asynchronous. The knowledge remains embedded in some kind of support that can be accessed by others. This support can be either **digital or electronic** or **physical**. In the first case, we can find documents (e.g. newsletters or magazines, word documents, audio-visual materials, presentations and surveys), databases or lists, and data-processing programs (e.g. assessment and reporting systems, calculation and planning systems). Here, again, there is a growing degree of complexity. Physical documents are, for example, the ‘hard’ version of the documents just mentioned and, in general, any piece of knowledge or information in paper support. Manuals, reports, posters, brochures, books, business cards and so on can be found here. It should be noted that digital documents may have some traits—such as voice or images—that make them closer to FTF than physical documents.

If we want to schematically summarize this map, we have:

- Interpersonal communication
 - Physical / FTF interaction
 - One-to-one
 - One-to-group (instruction)
 - Group activities
 - Practice/hands-on interaction

- Technology-mediated interaction
 - Synchronous technology-mediated interpersonal KT
 - Asynchronous technology-mediated interpersonal KT
- Non-personal KT
 - Digital / electronic media
 - Documents
 - Databases
 - Data-processing programs
 - Physical documents

We will use this classification to analyse the different KT mechanisms interviewees mention in their conversations.

1.4. THE WORLD OF SERVICE FIRMS

In this subsection we will develop the last piece of literature review. Given that we will focus our research in the service firms field, it is essential that we understand well the characteristics of these firms. Thus, we will first examine them (1.4.1.), and, concretely, the distinction between knowledge intensive firms (KIFs) and other service firms (1.4.2.), to later focus on the classification of service firms (1.4.3.). With this, we will end.

1.4.1. CHARACTERISTICS OF SERVICE FIRMS

Service firms (SFs) have distinctive traits that make them a special object of study. Their most remarkable characteristic is that the product they provide is not a physical or tangible object but an **intangible** one: *service* (Hitt *et al.*, 2001, Løwendahl, Revang and Fosstenløykken, 2001, Moore and Birkinshaw, 1998, Nanda, 2002).²⁵⁰ It is precisely this intangibility what makes service multinationals to gain competitive advantage by transferring intangible assets such as: corporate name, image and reputation, proprietary services, standard operating procedures (SOPs), and know-how about customer base (Moore and Birkinshaw, 1998).

This is not to say that all in services is totally intangible: the sophisticated machines and facilities used by health service providers (Von Nordenflycht, 2010), or the physical characteristics of a hotel—building, linen, food, machines—are inseparable from the service they provide.²⁵¹

²⁵⁰ Darr *et al.* (1995) test the learning curve model in service companies, but the service companies they choose are quite similar to manufacturing companies: pizza stores franchised from a corporation.

²⁵¹ These characteristics will be taken into account in the taxonomy we will propose (1.4.3.).

Closely related to this characteristic is the relevance **human resources**—human capital, intellectual capital, social capital, labour and so on—reach in these firms, with respect to machinery and other forms of capital.

The capacity to manage human intellect—and to transform intellectual output into a service or a group of services embodied in a product—is becoming the critical executive skill of this era. (Soo et al., 2002, p. 129)

Mason (1992, p. 32) provides a more complete list of characteristics of services compared to manufactured products:

- intangibility,
- inseparability of production and consumption,
- heterogeneity in quality,
- high perishability,
- fluctuating demand, and
- labor intensiveness.²⁵²

Some of these items, namely inseparability of product and consumption and fluctuating demand, make service companies especially dependent from their *environment*: service firms continually “interact with the environment throughout their operations” (Williams, 2007, p. 882).²⁵³

Especially, service firms **depend on their clients**. This results in two issues becoming crucial for a service firm to thrive: *quality* and *customer retention*.

Regarding *quality*, service organizations have developed different procedures to ensure the required quality of their products. This is achieved by a combination of employees’ training and development and feedback from senior managers, partners and customers. Stumpf and Longman (2000) define quality as the simultaneousness of high

²⁵² By the context, it seems that Mason understands labour intensiveness in its broadest acceptance, as the fact of relying, as it has been remarked, on human capital in opposition to non-human forms of capital. As we will see, this is not the most common meaning of the term: it is often seen as opposed to knowledge intensiveness.

²⁵³ This is another way of putting something often mentioned by interviewees in our research: that front-line employees are the *face* of the company, because they are the ones who are really interacting with customers on a daily basis. Williams remarks that for this reason service firms have more need for adaptation than replication.

impact, expertise, comfort, trust, intimacy and agenda creation being conveyed by the service firm. This requires from managers to have a deep knowledge of the customers' expectations and to be actively involved in the development and supervision of their front-line employees—who are ultimately the ones to be in contact with customers. Among employees, those who are more relevant for this follow-up are *supervisors* (Burke, 2001). According to Burke,

Supervisors are the purveyors of organizational values, sources of feedback and learning, administrators of rewards and punishments and providers of resources and support necessary for the delivery of high quality service and products (p. 29).

This statement is empirically confirmed by the results of Burke's research: quality supervision is negatively related to barriers to service and positively related to support for service, job satisfaction and quality of service and products.

Focusing on professional service firms (PSFs), Sharma (1994) remarks that there is a sort of trade-off between price and quality. He proposes a typology of buyers, based on what they seek: piecemeal vs. project buying and price vs. quality. Those two pairs combined result in four types of buyers: the Bargainer, who buys piecemeal and is concerned with price; the Loyal, who buys piecemeal and is concerned with quality; the Confused, who buys project and considers price; and, finally, the Competent, who seeks project and quality.²⁵⁴ He also describes the phases of the buyer-seller relationship—pre-purchase, test, evaluation and maturity—in which building a long-lasting and trustful relationship is the ideal.²⁵⁵

Thus, *customer retention* becomes crucial for service firms. To achieve it, organizations must pay particular attention to some of the aspects of the service

²⁵⁴ “‘Quality’ is not always a Rolls Royce, but providing the client the best service according to the agreed price” (Interview 100208). That implies that ‘quality’ may have different parameters in each case.

²⁵⁵ Stumpf and Longman (2000) elaborate these phases a bit more; they are: cold relationship, conversation, potential proposal (it is the high risk stage), engagement, preferred vendor status and sole vendor. The underlying concept is the same as Sharma's: the goal is to establish a durable and—if possible—exclusive relationship.

deliverer-client relationship: their working style,²⁵⁶ the emotional depth of the relationship,²⁵⁷ what role each one plays in the relationship,²⁵⁸ the duration of the relationship²⁵⁹ and the common vision and expectations about the relationship (Stumpf and Longman, 2000). The firm must find out the needs (which are objective) and wants (preferences and choices, which are irrational) of the client.

Clients expect professionalism. They expect objectivity, integrity, deep and up-to-date expertise, and dedication to advancing their interests first and foremost.

They expect to find people who are interesting, curious about everything, and tactfully irreverent—prepared to question anything. (Stumpf and Longman, 2000, p. 130)

There are some firm-client relationships that may become a sort of prison. That happens when the service provider submissively adapts itself to all the customer's demands and ends up being dependent on the client. In any case, the dependence must be kept in the opposite direction: clients must be satisfied but in a way that they are kept dependent on the service. Otherwise, there is also the danger that the client starts trading with the supplier's suppliers (Eriksson and Löfmark Vaghult, 2000). That means that client satisfaction is relevant, but perhaps not in the degree that is usually assumed. In any case, client satisfaction must be monitored, as well as the quality of the relationship must be assessed (Feldman Barr and McNeilly, 2003). A different practice companies engage in to retain clients is *lagniappe* in its different forms, included that of cross-selling (i.e., offering additional services) (Feldman Barr and McNeilly, 2003, Stumpf and Longman, 2000). This and other marketing tools can be used to build a solid

²⁵⁶ It can be collegial, cooperative, dependent, independent, rivalrous or adversarial. The two latter are also possible, especially when the client has no other option. Obviously, they are not the best to facilitate fluid relationships (Stumpf and Longman, 2000).

²⁵⁷ Stumpf and Longman (2000) state that the relationship must be friendly and, above all, trustful to facilitate information sharing.

²⁵⁸ The best working role pairs for information flow are peer-peer, patient-doctor and expert-client. On the contrary, the information flow decreases when the roles adopted are those of buyer-vendor and superior-subordinate (Stumpf and Longman, 2000).

²⁵⁹ Achieving partnership-like relationships, once more considered ideal, depends on the benefit they entail for both parties (Stumpf and Longman, 2000).

relationship, contrary to the use of marketing just for short-term achievements (Feldman Barr and McNeilly, 2003).

A particular case referring to client satisfaction and retention is that of service companies that grow by acquisition. In this situation, there is a high risk of client attrition. Thus, it becomes crucial to (financially) value the client base before the acquisition and plan how to retain them (Doucet and Barefield, 1999). In Doucet and Barefield's research, it is confirmed that retaining the key client contacts in the company is a major factor of client retention, together with trust and the absence of service failures, after an acquisition. Therefore, to retain clients, it is also important to take care of some special employees who are in contact with them. This is not a simple task, particularly for PSFs, whose 'star' employees are known as difficult to manage, move around and satisfy (Groysberg *et al.*, 2008, King and Ranft, 2001, Rogers and Tierney, 2004).

Among the causes of client attrition, literature cites lack of attention to their needs, communication and knowledge-related issues and price. However, a series of interviews to managers by Feldman Barr and McNeilly (2003) reveal other reasons: acquisitions, organizational structure, national regulations, changes in the management of the company and, finally, the aforementioned possibility of clients bypassing the organization (Eriksson and Löfmark Vaghult, 2000).

Apparently, service diversification may contribute to credibility loss, because it may convey the message of doing a little bit of everything and nothing well. Paradoxically, diversification is a strategy many firms follow to escape from the pressures that emerge from having few clients and foci. Another paradox—already mentioned (1.3.2.2.)—appears in the field of multinational KIFs, which on the one hand need to depend on autonomous teams, because clients require tailored services, but, on the other hand, must cultivate an homogeneous culture worldwide (Starbuck, 1992).

1.4.2. KNOWLEDGE INTENSIVE FIRMS

When attempting to understand the dynamics of knowledge development and management, insight is more likely to result from a study of extreme cases than of traditional firms (e.g. Starbuck, 1993). PSFs represent such extreme cases, as they employ a very high percentage of highly educated people, and they are extremely dependent on their ability to attract, mobilize, develop and transform the knowledge of these employees to create value for their clients. (Løwendahl *et al.*, 2001, p. 912)

This paragraph explains why literature on KM in general and on KT in particular has usually taken knowledge-intensive firms (KIFs) as paradigmatic cases and, among them, it has mainly focused on professional service firms (PSFs) (Ofek and Sarvary, 2001, Von Nordenflycht, 2010).²⁶⁰ Although this is the cause of a particular gap in the service literature, a gap we intend to fill,²⁶¹ it must be acknowledged that such an approach has helped conceptualise KM and KT processes in organizations and detect the main factors related to them. Accordingly, in this section we will review the most remarkable traits of KIFs (1.4.2.1.) and PSFs (1.4.2.2.). We will next address a topic which is closely related to knowledge processes in organizations, which is that of human capital (HC) and other HC-related forms of capital (1.4.2.3.).

1.4.2.1. WHAT ARE KNOWLEDGE-INTENSIVE FIRMS?

We will start by the **definition of KIFs**. According to Blackler (1995, p. 1022), KIFs are “organizations staffed by a high proportion of highly qualified staff who trade in knowledge itself.” This definition stays quite generic, however. First of all, what does

²⁶⁰ It is equally true that PSFs were the first companies to explore the implementation of formal KM systems (Ofek and Sarvary, 2001).

²⁶¹ Knowledge processes in manufacturing companies are also studied, but with a strong stress on processes themselves and standardisation.

“highly qualified” mean? For some, it is a high level of education (Alvesson, 1993), others specify further: a “formal education and experience equivalent to a doctoral degree” (Starbuck, 1992, p. 719). This definition of what an expert is does not help much since it seems difficult to define and assess this equivalence in actual practice. He later broadens this description by adding the use of sophisticated equipment and the following of unusual routines. According to Von Nordenflycht (2010, p. 159, emphasis added), ‘knowledge intensity’ appears when the “production of a firm’s output relies on a substantial body of *complex* knowledge.” Such a “skilled frontline” makes knowledge intensity equal to the concept of human capital (HC), which will be discussed later (1.4.2.3.). Second, what does “a high proportion” stand for? In this, Starbuck (1992) is more precise: a KIF is “a firm in which such experts are at least one-third of the personnel.”²⁶²

Such a definition allows us, first, to discard from the KIFs group some companies in which knowledge resides in machinery, standard procedures and products, given that knowledge must be held by individuals (Von Nordenflycht, 2010). In second place, it conveys the idea that KIFs are a broad cluster of companies that includes PSFs but that it does not identify with them (Alvesson, 1993, King and Ranft, 2001, Von Nordenflycht, 2010). This tension between a broad definition of KIFs and a more restrictive one—i.e., nearer to PSFs, which would make of KIFs a very exclusive type of organizations—is typical of the literature on the topic (Starbuck, 1992). This literature has assumed an historical evolution from Taylorism to the dependence on knowledge work (Blackler, 1995).

Related to this ambiguity—which is the main problem of the definition of KIFs—in the subsection devoted to KM (1.2.5.), we mentioned Alvesson (1993) as one of the most direct critics against the notion of KIFs and KM itself. We will explain here these objections in more detail. All his argumentation revolves around the underlying notion of ‘knowledge.’ If we reduce it to *formal* knowledge, we leave apart cultural, somatic, interpersonal and other forms of tacit knowledge, such as skills and creativity. If we include *skills*, we run the risk of considering as a KIF almost any kind of organization, and therefore, KIFs lose the exclusiveness they stand for. It is obvious that neither it is a matter of *quantity* of knowledge. Alvesson also discusses if *complexity* is the

²⁶² Alvesson (1993) is vaguer: he talks about KIFs being based on an educated labour force.

differential trait, but, he objects, “one could argue that, for example, most consultancy or research work (and the management of it) is simple compared to the running of an airway, a car manufacturer or even a MacDonald [sic] chain (cf. Gummesson, 1990)” (p. 1001). He finally addresses the notion of ‘exceptional expertise’ used by Starbuck: it seems that “KIF’s successes are more contingent upon more-or-less loose *beliefs* about them being able to offer something specific to clients” (p. 1002, emphasis in original). Moreover, also the role of knowledge in KIFOWs (knowledge intensive firms, organizations and workers) is ambiguous. Therefore, it would be much better to acknowledge this ambiguity and that “the role of KIFs is partly to draw upon as well as create and offer institutionalized myths/rationality-surrogates” (p. 1010). That also casts a shadow over knowledge workers as the depositories and main actors of this institutionalised manipulation. With our proposal of a taxonomy of service firms we will try to clarify all these issues. Now we would just like to add that this criticism has found opposition. For example, Blackler (1995) notes that the social constructivist approach shifts the emphasis of researchers to a concept of the knowledge worker as that who engages in an intra-organizational creative dialogue.²⁶³

Starbuck’s (1992) seminal work on knowledge, knowledge work and KIFs describes other traits of the latter: relying as they do on experts’ knowledge, they learn by personnel management, i.e. through hiring, training, moving and dismissing experts. At the same time, they aim to embed this individual knowledge into the organization with mechanisms such as training, routines, organizational culture and physical capital. However, routinisation may have its backlash: this mechanism, which is typical of big organizations, seems to constitute a sort of trade-off with knowledge intensity (Starbuck, 1992). In any case, KIFs exchange organizational as well as individual expertise (Baumard, 2002).

If we shift the focus from KIFs to **knowledge work**, we find the same conceptual problems we signalled above: the knowledge work perspective puts an excessive emphasis on abstract knowledge and therefore, knowledge workers constitute a sort of elite. On the contrary, if we adopt a practice-based perspective, all work ends up being knowledge work (Hislop, 2008). To solve this problem, Hislop proposes an adaptation

²⁶³ About the limitations of this approach, which, as we see, only relocates the problem, we talked in the epistemological section of this chapter (1.2.2.3.).

of Frenkel's dimensions of knowledge work. These three dimensions are 1) skills, 2) type of knowledge and 3) creativity. Skills may be action-based (manual or other), intellectual or social. The types of knowledge contemplated are contextual (high or low) and theoretical (high or low). Creativity can also be high or low. The combination of all these dimensions projects a rich and nuanced view of knowledge work.²⁶⁴

We have been considering knowledge work as performed by humans. We could ask what part of this work is actually done by machines. Davenport and Prusak (1998, p. 18) answered: "The computational power of computers has little relevance to knowledge work, but the communication and storage capabilities of networked computers make them knowledge enablers."

Regarding **knowledge workers** themselves, according to the literature, they show some specific characteristics. Drucker (1999) compares them to manual workers, who are always given the task and they must learn how to do it. Knowledge workers, instead, ask themselves 'What is the task?', i.e. it is the worker who programs the task and not the contrary. Paper work and other non-core activities tend to be left to other job categories. Knowledge workers also enjoy autonomy and responsibility, they engage continuous innovation, learning and/or teaching the practice is included in their schedule, they are assessed for the quality of their delivery, rather than for its quantity, and, finally, they are considered an *asset*.

It is this latter peculiarity what adds an interesting feature to KIFs. Being knowledge workers high-skilled individuals (Beamish and Armistead, 2001) and being *knowledge* in different forms what these firms offer, the result is that knowledge workers are the true owners of the means of production: they possess the HC of the organization (Drucker, 1999). "The assets go down the elevator each night (Coff, 1997; Lorsch & Tierney, 2002; Scott, 1998), and the firm can't control whether they come back." (Von Nordenflycht, 2010, p. 162) Star knowledge workers are entitled a high bargaining power regarding the conditions of their practice (Groysberg *et al.*, 2008). Contrary to Groysberg *et al.*, Løwendahl and colleagues (2001) highlight the flexibility of relocation of knowledge workers and they add that, as a set-off, they also are in a position to refuse to take on whatever tasks they consider unsuitable. As a consequence,

²⁶⁴ We will use this description along with our proposal of types of knowledge (1.2.5.1.) in the section devoted to the classification of service firms.

“KIFs call for new definitions of ownership and new ways of controlling the uses of capital.” (Starbuck, 1992, p. 715)

Regarding KIFs, it is important not to identify knowledge intensity with professionalization. The degree of professional service intensity is what distinguishes PSFs from the other KIFs (Von Nordenflycht, 2010). We will examine it next.

1.4.2.2. PROFESSIONAL SERVICE FIRMS

“PSFs are knowledge intensive organisations that provide expert advice and services to clients; examples of professional services include accounting, engineering, management consultancy and legal services.” (Chang and Birkett, 2004, p. 8)

“Professional services firms (e.g., consultants, accounting, firms, or advertising agencies) generate and sell business solutions to their customers. In doing so, they can leverage the cumulative experience gained from serving their customer base to either reduce their variable costs or increase the quality of their products/services.” (Ofek and Sarvary, 2001, p. 1441)

This text attempts to describe, in general terms what PSFs do, but there is nothing there that would not be applicable to other KIFs. It is the particularity that their key employees are *professionals* what gives them their specific physiognomy. A profession can be delimited according to the following characteristics:

- A common body of knowledge resting on a well-developed, widely accepted theoretical base;²⁶⁵
- a system for certifying that individuals possess such knowledge before being licensed or otherwise allowed to practice;

²⁶⁵ Sandberg and Pinnington (2009) challenge the idea that professional knowledge relies only “on a substantial body of scientific or formalized knowledge”. They state that it also has a tacit dimension, with the broader concept of KSA (knowledge, skills and abilities), which includes a bodily component.

- a commitment to use specialized knowledge for the public good,²⁶⁶ and renunciation of the goal of profit-maximisation, in return for professional autonomy and monopoly power;
- a code of ethics, with provisions for monitoring individual compliance with the code and a system of sanction for enforcing it. (Khurana, Nohria and Penrice, 2005, p. 45)

To these characteristics, we should add other two: those of *autonomy* (Starbuck, 1992) and the *high reputation* or *social recognition* associated to professions (Empson, 2008a, Sharma, 1994, note 16, Schudson, 1980). Some aspects could be noted from this definition. First of all, the emphasis on theoretical knowledge, which suggests higher education, but also the idea that it is a kind of knowledge not available to profanes (Marshall, 1939). This is also enforced by the barriers to entry the profession. Also a particular behaviour is expected from professionals, with the possibility of some control mechanisms to enforce compliance.

According to Von Nordenflycht (2010), PSFs are low in capital intensity—i.e. they rely less on nonhuman assets²⁶⁷ and their professionalized workforce provides them with knowledge intensity.²⁶⁸ “The increasing importance of expert talent in today’s economy has significant theoretical implications for the nature of the employment relation within such a firm; and the nature (and theory) of professional service firms as a distinct organizational form.” (Teece, 2003, p. 895) According to Empson (2008b), this organizational form is that of a partnership,²⁶⁹ but she later explains how PSFs themselves have evolved from professionalism and partnership to commercialism and corporatism.²⁷⁰ The process is described in detail by Muzio and Kirkpatrick (2011):

²⁶⁶ “Both the services provided and the processes involved are customised or adapted to individual customer’s needs. Highly skilled and trained staff provides services in direct contact with the customer, developing customer-centric relationships” (Chang and Birkett, 2004, p. 9)

²⁶⁷ They have limited physical resources (vs. human resources) (Empson, 2008b).

²⁶⁸ Mason (1992) states that their main product is information, which is “infinitely expandable, compressible, substitutable, transportable, diffusive, sharable” (p. 33)

²⁶⁹ As we will see in short, this organizational form has been slowly evolving.

²⁷⁰ Related to this, Khurana’s (2007) work on the history of American business schools is quite insightful. Under the illustrative title of *From Higher Aims to Hired Hands. The Social Transformation of American Business Schools and the Unfulfilled Promise of Management as a Profession*, Khurana shows how the

instead of having business as a profession, professions become business.²⁷¹ With the introduction of professions in corporations, there is a mutual transfer, in which professions transfer the characteristics of status, rules, and standards to organizations and these instil in professions the commercial drive and the compartmentalization in levels and departments. This runs parallel to the attempt of other KIFs to be legitimized as PSFs. “The effect is to legitimize processes of occupational change, which paradoxically favour rationalization, standardization²⁷² and accountability *over individual autonomy, discretion and judgement*” (p. 397, emphasis added).²⁷³ Thus, a process of general levelling by reducing the traditional professional traits to a few (status, standards, high fees) and incorporating other originally alien to them (marketing, profit maximization, hierarchy).²⁷⁴ Autonomy, so typical of professionals, apparently has been lessened in this evolution. Thus, Von Nordenflycht (2010) notes, consulting organizations have replaced those related with medicine in PSFs literature.

attempt of making of business a profession by creating University schools in image of Law schools was not successful.

²⁷¹ The authors describe how there has been an exodus of staff from sociology departments to business schools.

²⁷² Chang and Birkett (2004, p. 26) conclude their research explaining how the introduction of competency standards in PSFs affects the professionals’ attitude: “If individual creativity is a prerequisite of organisational innovation, overemphasis on work productivity, process control and risk aversion in competency standards will discourage professionals from being creative and hence impede organisational innovation.”

²⁷³ This phenomenon is negatively pictured by Muzio and Kirkpatrick—various occupations *hijacking* the notion of professionalism—but it is just the example of (ordinary) normative isomorphic change DiMaggio and Powell (1983) cite in their relevant piece on institutionalization. However, they note that not all occupations complete it, because—as in organizations—there are other pressures in action towards mimetic and coercive isomorphic change. The case of accounting firms in Alberta is analysed by Greenwood, Suddaby and Hinings (2002), with the particularity that, being firms that strive to be accepted as PSFs, at the same time, the model Greenwood *et al.* show is not an isomorphic one but a model triggered by destabilizing jolts. In this case, legitimacy was sought by means of adopting the service rhetoric. They also highlight the role of regulatory agencies. See also Feldman Barr and McNeilly (2003), who also focus on accounting firms and show how their gradual access to the professional category has introduced the use marketing strategies, element which was before considered inappropriate to professions.

²⁷⁴ The last trait shows that some theorists of professions seem to overlook the internal hierarchy that has been present in professions since the beginning: the apprentice must achieve different professional levels until he or she is considered a full professional (Marshall, 1939, Chang and Birkett, 2004).

Regarding the work of professionals in PSFs, they best ones are assumed with certain “‘rainmaking’ abilities [...]. In particular, the skill to help solve complex problems, to help make critical decisions, or solve complex disputes” (Teece, 2003, pp. 895-896). Among them, there are also top performers, those who “‘through superior education, experience, position (e.g. former public officials) or performances somehow get recognized by society as leaders in their field” (p. 896). Some PSFs have specialized in these services, which, therefore, have also the highest prices. Like in other KIFs, professionals dictate the terms of their job, and are especially zealous of their autonomy and the flexibility of their tasks (Teece, 2003). PSFs tend to use relational contracts and incentives to keep conflicts of interest between the professional and the organization at bay.

If managing knowledge workers in general is not easy, in the case of professionals, because of their idiosyncrasy, we could expect that this will be more complicated. Thus, Von Nordenflycht (2010) talks about ‘cat herding’ whilst Rogers and Tierney (2004) suggest some tips for a ‘leadership without control.’ Almost all challenges emerge from professionals’ bargaining power: the need to build consensus, a correct distribution of HC, how to avoid adverse selection and winner-takes-all situations as well as influence costs (i.e. those derived from pressures and negotiations) (Rogers and Tierney, 2004, Teece, 2003). Teece also cites the importance of keeping a reputation and horizontal information flows.²⁷⁵

Leaders need to understand their own moods and motivations [...]. Leaders must keep [...] emotions in check, as well, suspending judgement and thinking before acting, so that the discussion moves toward agreement, instead of toward increasingly angry debate. They need the capacity to put themselves in another

²⁷⁵ All these actions require from PSFs senior management a set of competences; the ones cited by Rogers and Tierney (2004, pp. 79-80) remind us of the Aristotelian virtue of prudence (*areté*), and we could say that they are valid for any type of leader: “Leaders need to understand their own moods and motivations [...]. Leaders must keep [...] emotions in check, as well, suspending judgement and thinking before acting, so that the discussion moves toward agreement, instead of toward increasingly angry debate. They need the capacity to put themselves in another person’s shoes and to understand and respond fairly to positions that differ from their own.” The emphasis on the management of emotions is also present in King and Ranft (2001).

person's shoes and to understand and respond fairly to positions that differ from their own.

Besides retaining professionals, there is also the need to make them share their knowledge. Given that is not to be achieved through control arrangements, it is important that the company creates the right culture and environment so professionals feel encouraged to share with other colleagues their best practices (King and Ranft, 2001). Note that what lies beneath this is the interest in embedding the experts' knowledge in the organization.

If Alvesson (1993) criticised the notion of KIFs, he also did so with PSFs as a case in which 'profession' is wielded as a weapon for power and elitist purposes. This view has its origin in a Marxist approach, in which dominant classes establish a series of structures and institutions to protect their prerogatives, being professions one of them. This state of things is reinforced by the alliance of professions with companies. According to Schudson (1980), this view tends to ignore that professionals do commit to a certain ethics that includes putting the client or patient's interest first, and also that they really possess a specific knowledge. None of these arguments are valid for Alvesson. The ethics claim is just a way to legitimize their monopoly, and regarding knowledge, advocates of professions convey what he calls a false sense of scientificity, which corresponds to a Cartesian view of knowledge that has nothing to do with skills and judgement.

In fact, this is an old discussion. Early pieces on professions had already addressed these matters. For example, Marshall (1939), focusing on elitism, acknowledges that some of the traits in the concept of profession do have an origin in the ancient Greeks' conception of the aristocracy, who could work for the public good given that they had spare time and were free from the desire for wealth.²⁷⁶ Following this thread, in his defence of professions, Marshall seeks to establish a sharp contrast between them and trade. The natural enemy of profession is double: commercialism and politics. Regarding the other aspects, the difference of knowledge between the professional and the client is real and the basis for the relationship between them. That requires a high

²⁷⁶ Paradoxically, professions "can only remain respectable if they succeed, in spite of this pecuniary indifference, in making quite a lot of money, enough for the needs of a gentlemanly life. Money must flow in as an almost unsolicited recognition of their inestimable services" (p. 326).

ethics from the professional and mutual trust.²⁷⁷ Customization of professional services is also distinctive. Other authors, like Parsons (1939) and Meadows (1946), seek to show how professions are benefitting business by transferring some of their characteristics to the managing occupation. The starting point is the same as Marshall's: business and professions are ruled by different mind sets—dominated, respectively, by interest and disinterest—, but Parsons and Meadows use a dynamic concept of professions, in which the idea of technical competence and social recognition move to the foreground, so becoming applicable to management. In addition, Parsons (1939) highlights the possibility of conflicts of interests in individuals who belong to different social groups: their organization, their society, their family and—we could add—their profession. Parsons is also optimistic regarding the opening of the corporate world to a higher form of morality.

If we compare these first works with more contemporary authors, we could say that there may have been a sort of blurring of the differences between professions and business with the constitution of PSFs and the attempt to provide managers with a more professional education, for example, with the constitution of business schools.

1.4.2.3. HUMAN CAPITAL, INTELLECTUAL CAPITAL AND SOCIAL CAPITAL

One of the most remarkable traits of the literature on KIFs and PSFs is its emphasis on their human resources with respect to all the other, non-human resources of the organization—i.e. “computer and telecommunications equipment, furniture, and possibly leasehold improvements” (Teece, 2003, p. 902). This “underscores the importance of managing/organizing human talent [...]. Investment decisions are

²⁷⁷ It is precisely this what makes quality ‘opaque’ (Von Nordenflycht, 2010). It requires trust in that the professional ‘knows better.’ And, at the same time, this is what authors who draw from the philosophy of suspicion highlight as a resource professionals use to keep clients dependent on them. Starbuck (1992) also notes that there is a kind of expertise that attracts clients even when benefits are not clear: that happens with some occupations with an aura of esoteric knowledge. It works like a sort of placebo effect, which takes effect not only at the time of the contract but also after the service has been delivered.

primarily people acquisition, training, and retention decisions” (*ibid.*). But literature has further investigated in these resources, bringing forth some interrelated concepts, mainly, human capital (HC), intellectual capital and social capital (SC). Although knowledge base and networks have already been discussed in section 1.3.1.2., there we centred on their influence on KT. The focus here is conceptually different: they are considered as *capital*.

What they all three have in common is that they are considered intangible assets, by opposition to what are considered tangible assets, physical capital or *capital per se*—i.e. products, technology, equipment and financial capital (Starbuck, 1992). Physical capital is hard assets (Nahapiet and Ghoshal, 1998), which are “embodied in tools, machines, and other productive equipment” (Coleman, 1988, p. S100, see also Barney, 1991).²⁷⁸

HC, SC and intellectual capital are interrelated. Thus, it is not easy to delimitate them. We will examine first intellectual capital, then HC and finally SC.

Intellectual capital can be defined as “the knowledge and knowing capabilities of a social collectivity, such as an organization, intellectual community, or professional practice” (Nahapiet and Ghoshal, 1998, p.245). Patents and intellectual property are part of intellectual capital. The first trait that emerges from the definition is that it is a collective notion, in a clear parallel to that of HC (Nahapiet and Ghoshal, 1998).

Intellectual capital is the addition of HC (we will define it later), structural capital (the hierarchic structure, practices, norms and organization of the collectivity) and relational capital (all the existing relationships in the organization and with other entities) (Chang and Birkett, 2004, Nahapiet and Ghoshal, 1998). These three elements are also interrelated. For example, formal and informal organizational structures support the use of HC in the organization (Chang and Birkett, 2004). Nahapiet and Ghoshal (1998) explain how intellectual capital is created by combination and exchange of knowledge.

The next notion is that of **human capital**. Nahapiet and Ghoshal (1998, p. 245) define it as “the acquired knowledge, skills, and capabilities that enable persons to act in

²⁷⁸ Starbuck (1992) focuses all his reflection on physical capital on IT and, based on the potentialities he sees in this technology, he states that physical capital will replace experts, but it will allow to expand the client base and innovate more.

new ways”²⁷⁹ (see also Coleman, 1988). Or, in different words, “the training, experience, judgment, intelligence, relationships, and insight of *individual* managers and workers in the firm” (Barney, 1991, p. 101, emphasis added). Therefore, HC is generated through education and experience (Hitt *et al.*, 2001, Killingsworth, 1982), to which some add “professional reputation (i.e. skills, temperament and integrity), and relationship with clients” (Morris and Pinnington, 1998, p. 6).²⁸⁰ These definitions pose the question of the measurability of HC. Several proposals coincide in the notions of experience (in time measure) (Colombo, Delmastro and Grilli, 2004, Hitt *et al.*, 2001) and education (school) (Hitt *et al.*, 2001). Also diverse competencies, such as managerial or entrepreneurial ones, can be measured (Colombo *et al.*, 2004). Some authors with a financial approach measure HC in terms of potential wage (Killingsworth, 1982). This latter proposal connects with the idea that professionals’ competence is recognized, and acknowledgement often runs parallel to high salaries.²⁸¹

As it can be detected, all these measures admit a scale, different degrees of intensity. According to Von Nordenflycht (2010), HC intensity is the same as knowledge intensity. Following him,²⁸² we will make use of this idea in our proposal of a classification of service firms.

It follows that most of the knowledge in an organization can be found in its HC, and this knowledge is both articulable (e.g. the one acquired by formal education) and tacit (acquired through practice) (Hitt *et al.*, 2001). Hence, it is not uncommon to find HC characterized in way similar to knowledge. Thus, for example, Groysberg *et al.* (2008) and Colombo *et al.* (2004) differentiate general and firm-specific HC. According to the former, if knowledge workers can take their talent with them when they leave the firm it means that there is only general HC; but, Groysberg and colleagues argue, there is at least one kind of firm-specific HC: that which resides in relationships among

²⁷⁹ Cabrera and Cabrera (2005, p. 720) enlarge the definition: “the skills and abilities of individuals or the stock of K within an org,” but with this addition, the distinction with intellectual knowledge becomes confuse.

²⁸⁰ These are the professionals that should be promoted to partnership in PSFs.

²⁸¹ As always, this does not apply to all professions. Some of them, even requiring a preparation and professing high ethical ideals, are not accordingly recognized by society or in terms of wages. One example is that of medical nurses (Empson, 2008a).

²⁸² He only uses it in the segment of KIFs.

colleagues, which, in turn, originates SC. That this is firm-specific HC is quite problematic, because these relationships change and modify when the different agents do, it is not clear how they remain if organization members move or leave. Precisely Cabrera and Cabrera (2005) state that HC is a source of competitive advantage because it is “valuable, *unique, inimitable* and *non-substitutable*” (p. 720, emphasis added). In any case, HC is not a static resource, it needs to flow through voluntary sharing (Cabrera and Cabrera, 2005) and it also needs to be used, otherwise, it depreciates (Killingsworth, 1982).

In the resource-based perspective, what makes resources valuable is their effect on performance. In the case of HC, Hitt and colleagues (2001) hypothesize and confirm that the HC residing in a PSF employees in their evolution from apprentices to partners has a curvilinear (U-shape) effect on performance (measured as return on sales). A contributing factor to this effect is the costs of HC: firms usually invest great quantity in hires and newcomers development with the expectation of a later return. However, the importance of HC for the strategy and performance of the organization is shown to be key, and this, always according to Hitt *et al*, goes against the mentality of some managers, who “perceive employees as a cost rather than an asset, and human resource costs are listed as an expense on income statements” (p. 25). Another conclusion of their research is the relevance of possessing the right HC to engage in geographical or service diversification. Comparing their results, Hitt and colleagues conclude that the highest performance occurs when there is a high geographical diversification and a low service diversification. This is explained by Jovanovic and Nyarko (1996, p. 1306): “Human capital accumulation on a given activity [...] is linked to how it depreciates when switching to a different activity” (p. 1306).

Kogut and Zander (1992), instead of a theory based on self-interest, propose a view of organizations as “social communities in which individual and social expertise is transformed into economically useful products and services by the application of a set of higher-order organizing principles” (p. 384). This social view of organizations has originated the concept of **social capital** (Cabrera and Cabrera, 2005). It is Coleman (1988) who introduces the term, and explains that it is the result of drawing from social construction and neoclassical economics, completing the lack of internal purpose of the former and the absence of context of the latter. He understands social capital as a variety of entities that facilitate the agents’ actions and “inheres in the structure of relations

between actors and among actors” (p. S98). As we saw in 1.3.1.2., Nahapiet and Ghoshal (1998) retake the concept and define it as “the sum of the actual and potential resources embedded within, available through, and derived from the network of relationships possessed by an individual or social unit” (p. 243).

SC has three *dimensions* or aspects: structural (regarding the patterns of relationships), relational (regarding the ties, trust issues, and so on), and cognitive (regarding shared representations, interpretations and the like) (Nahapiet and Ghoshal, 1998, Cabrera and Cabrera, 2005). Coleman (1988) distinguishes three *forms* of SC: 1) obligations, expectations and trustworthiness, 2) information channels and 3) social norms and sanctions.

As per the *effects* of SC, the first is that it facilitates the achievement of goals by reducing transaction costs. Some studies on KIFs seem to confirm this (Nahapiet and Ghoshal, 1998). Coleman (1988) describes how SC in the family setting (in terms of bonds, support, and so on) creates HC (understood as lower school dropout rate and quality of education), stating that something similar happens outside the family. Starbuck (1992, p. 726) mentions a similar process: “The creation of social capital, such as mutual trust with clients or customers, tends to convert organizational experience into the property of individuals,” i.e. it increases HC. This is why experts with more social skills overtake those with a more ‘technical’ approach.²⁸³

Similarly, Nahapiet and Ghoshal (1998) explain the mutual influence between SC and intellectual capital. Intellectual capital depends on SC in its origin, given that combination and exchange are social processes, and all three dimensions of SC favour intellectual capital. In turn, SC receives the influence of intellectual capital:

The view that shared knowledge forms the basis from which social order and interaction flow is a central theme in sociology. [...] It is the coevolution of social and intellectual capital that is of particular significance in explaining the source of organizational advantage (p. 259).

These authors also note that the creation of social capital has also a dark side: it may lead to deviations such as group thought or a certain collective blindness which—

²⁸³ This fact is not exempt from problems: there is a danger of a certain trade-off social skills-technical knowledge.

as we saw in the sections dedicated to learning (1.2.3. and 1.2.4.)—prevents organizations from detecting flaws, changes in the context and, consequently, addressing them. Other negative facets of SC are that creating it is costly, requires a certain knowledge base and there is also the risk of overloading the network with information when adding more people to it (Nahapiet and Ghoshal, 1998). On the other hand, SC does not benefit all the members of the network equally:

A property shared by most forms of social capital that differentiates it from other forms of capital is its public good aspect: the actor or actors who generate social capital ordinarily capture only a small part of its benefits, a fact that leads to underinvestment in social capital (Coleman, 1988, p. S119).

There are some factors that favour the creation of SC: the availability of time, the persistence and density of interactions, interdependence and closure (i.e. the existence of boundaries for the relationships) (Nahapiet and Ghoshal, 1998). Coleman (1988) cites the latter as one of the characteristics of a social structure that enables SC, and he adds to it an appropriable social organization (i.e. existing social organizations can be appropriated for different purposes by the members of the network).

As said at the beginning of this section, there is some overlapping between the definitions of SC, HC and intellectual capital that make it problematic to clearly discriminate the concepts. For example, intellectual capital is defined as the addition of HC, relational capital and structural capital, and SC has structural, relational and cognitive dimensions. It is not clear if ‘relational capital’ is the same as SC: although if we keep to the meaning of the terms it could be considered so, the relational aspect is viewed as just one dimension of SC. Perhaps a further investigation on the concepts would shed light on this issue, but we consider it is outside our scope at the moment.

1.4.3. CLASSIFYING SERVICE FIRMS: A CONTINUUM OR A TAXONOMY?

We are now ready to end this theoretical chapter with the proposal of a classification of service firms.

The range of service firms is indeed wide. A service firm has been commonly placed somewhere within a continuum between two extremes: the sophisticated PSF, whose workforce, as we have seen, consists of a particular kind of experts—the professionals—who, in addition to having received a rigorous education, hold a highly idiosyncratic and esoteric knowledge, and the labour-intensive firm, whose low-skilled employees perform relatively simple and standardized tasks. This hierarchical view is based mostly on the types of knowledge required from the employees to perform their task (i.e. to deliver the service) (Nanda, 2004, Von Nordenflycht, 2010).

Examining the literature, we have found reasons to challenge this view as perhaps too simplistic.²⁸⁴ We suggest that the right simile is not the continuum but, rather, arborescence, similar to taxonomies in science. To state this, we are based mainly on Von Nordenflycht's (2010) classification of KIFs. Thus, what we will do is to describe his work (1.4.3.1.) to then draw from it to make an adaptation of the model that is valid to classify *all* types of service firms. Our proposal will be built by pieces, following the examination of two different aspects of service firms and the work categories inside them: knowledge-related issues (1.4.3.2.) and institutional aspects (1.4.3.3.). We will add a third one, which is mentioned but not discussed by Von Nordenflycht: the degree of customization of the service (1.4.3.4.). We will finally put forward our proposal (1.4.3.5.).

²⁸⁴ “Social scientists need to stop averaging across large, diverse categories.” (Starbuck, 1992, p.738)

1.4.3.1. A TAXONOMY OF KNOWLEDGE INTENSIVE FIRMS

In his piece about this matter, Von Nordenflycht (2010) starts by highlighting the ambiguity of the term ‘PSF.’ From 52 books and articles, Von Nordenflycht makes a list of types of company cited as PSFs.²⁸⁵ With this he shows the great variety of organizations given this label. In order to discover some order in this variety, he proposes three characteristics he views as essential to PSFs. They are “*knowledge intensity, low capital intensity, and a professionalized workforce*” (p. 156, emphasis in original),²⁸⁶ which he then describes and sees how they apply to the other KIFs.

By definition, all KIFs possess high **knowledge intensity**, understood in the terms described previously (1.4.2.1.). As we will see (1.4.3.2.), this notion, which is made equal to HC, will require more explanation if we do not want to simply separate KIFs from non-KIFs.

Capital intensity has also been defined in 1.4.2.3. Von Nordenflycht includes in *capital* all “non-human assets, such as inventory, factories equipment, and even intangible nonhuman assets like patents and copyrights” (p. 162). Not all KIFs are low in this kind of capital. Some of them depend on sophisticated technology or physical

²⁸⁵ The list reads as follows, from highest to lowest number of appearances: accounting, law, management consulting (subdivided into IT consulting/design, HR consulting and technology consulting), engineering consulting/design, advertising, architecture, investment banking, marketing/public relations, physician practices/medicine, real estate agencies, insurance brokerage, software development, actuarial services, executive recruiting, media production (film, TV, music), research firms/R&D labs, education/teaching, financial advising, investment management (hedge funds, VC, mutual funds), talent agencies, universities, fashion design, graphic design, hospitals, professional sports, project management, quantity surveying, risk management services, and social work agencies.

²⁸⁶ The author admits that there may be other criteria, such as the intangibility and customization of the product (service), and the fact of serving business clients, rather than individuals. Although we have incorporated the former, we will not do the same with the latter, i.e., we will not explore the customer base: first, in order to avoid an excessive complexity; second, because we believe that business clients add complexity to client relationships, especially from the management point of view, but their influence on front-line employees’ daily operations is not so clear. Although it is true that every service employee should consider himself or herself involved in marketing and sales, at the very end, every one of them deals with particular individuals, spaces and machines, not with a whole corporation.

spaces to deliver their services. This introduces a first discriminating principle. The degree of **professionalization** of the workforce is the second.

We have already described the main traits of a profession and a professional (1.4.2.2.). Von Nordenflycht summarizes them in three concepts: ‘knowledge intensity’ (this is why PSFs are a type of KIFs) along with the existence of occupational barriers to entry and control mechanisms—‘self-regulation’—, and the presence of codes of ethics and internal norms for all the practitioners of the trade—‘ideology.’ That implies that some occupations may lack some of these traits and, therefore, they are not *fully* professionalized, i.e. there are KIFs with quasi-professionalized or non-professionalized workforce.

This distinction allows him to find, at least, four types of KIFs. First, ‘classic or regulated PSFs’ (e.g. law, accounting and architecture), with knowledge intensity, low capital intensity and a professionalized workforce. Then, ‘professional campuses’ (e.g. hospitals), again with knowledge intensity, but quite a high capital intensity and a professionalized workforce. ‘Neo-PSFs’ (e.g. consulting and advertising) are characterized by knowledge intensity and a low capital intensity, but their workforce is not fully professionalized. Finally, ‘technology developers’ (e.g. biotechnology and R&D labs) have just knowledge intensity, but are high in capital intensity and lack professionalization. This taxonomy responds to the following Table 1:

It is noteworthy that Von Nordenflycht avoids presenting the KIF field as a continuum in which the main criterion is ‘knowledge.’ Indeed, it would be impossible to tell which type between technology developers, neo-PSFs, professional campuses or regulated PSFs is the *most* knowledge intensive. It is not clear, either, if classic PSFs should be *more* professional than professional campuses. Obviously, the ones that share less in common are technology developers and classic PSFs, but it is also clear that the structure of the classification is not linear, which, on the other hand, is more similar to how things appear in real life.

Table 1

A Taxonomy			
Category (with Examples)	Characteristics		
	Knowledge Intensity	Low Capital Intensity	Professionalized Workforce
Technology Developers Biotech R&D labs	X		
Neo-PSFs Consulting Advertising	X	X	
Professional Campuses Hospitals	X		X
Classic PSFs (or Regulated PSFs) Law Accounting Architecture	X	X	X

Source: Von Nordenflycht (2010, p. 166, detail)

Von Nordenflycht's paper goes on describing the main challenges and organizational responses every type of KIF usually experiments, which we will not develop here.²⁸⁷ He also revisits the former literature making use of his taxonomy. The main contribution of this piece is the introduction of clear criteria to distinguish between different kinds of KIFs. We will now build on top of this work, trying to adapt it to make the classification valid to other service firms. Concretely, we are here asking ourselves if between technology developers and service companies that employ large numbers of low-skilled workers and can be managed similarly to manufacturing or retail companies there is a void, or, simply, an amount of undifferentiated organizations, all under the label of 'non-KIFs' or, as we will see, 'labour intensive firms.'

²⁸⁷ This is the missing part in Table 1.

1.4.3.2. *KNOWLEDGE-RELATED ASPECTS OF SERVICE FIRMS*

In service firms, the type of service provided, the knowledge required from the employees and their work category are closely related. This fact shows a double facet: 1) when we have talked about KIFs and PSFs, ‘knowledge intensity’ was, at the same time, a characteristic of the company and of the employees: it is not the knowledge managers possess what distinguishes the different types of companies—it is quite similar across KIFs—but the specific knowledge held by (front-line) employees, who are majority in this type of organizations, and who are the ones who are in contact with customers. We argue that something similar happens with other service companies. Moreover, 2) knowledge intensity was a component of what ‘a profession’ is, in addition to other elements. But, in general, every occupation requires a certain kind of knowledge. We will take these observations as our starting point. The other aspects—the *institutional* aspects—of a profession or an occupation will be addressed in 1.4.3.3.

If we go back to the spectrum of service firms, we will most probably find PSFs in one extreme and labour-intensive firms such as fast-food chains or courier services in the other. What the latter have in common is that they have taken standardization to the extreme, as a way to save time and avoid mistakes. The knowledge they use is largely managerial, and it has been handed down in the form of documents and procedures in which the vast majority of the workforce is trained (Grant, 1996a, 1996b, Starbuck, 1992).²⁸⁸ Some call this method *downskilling* (Brown and Duguid, 1991) or *deskilling* (Duguid, 2006, Hislop, 2008),²⁸⁹ others consider it is a form of knowledge integration (Grant, 1996a, 1996b). In any case, in these companies, the divide-and-conquer principles coming from Taylorism via scientific management are applied to their advantage (Blackler, 1995, Drucker, 1999, Manning and Cullum-Swan, 1998). One of

²⁸⁸ This is enough for some to include McDonald’s among KIFs (Grant, 1996a, Starbuck, 1992). Given that the work is organized, precisely, to prevent as much ‘knowledge’ as possible in front-line employees, we do not see how this would be possible, however much expert are managers. Generally speaking, ‘downskilling’ or ‘deskilling’ have negative connotations.

²⁸⁹ Duguid (2006) describes downskilling as using simple instructions to “replace the need for understanding” (p. 1795).

the most cited examples is that of McDonald's.²⁹⁰ Leaving apart those that consider the chain not strictly a service company but a retail one (Baum, Li and Usher, 2000), we find some interesting references that show us how this kind of businesses is viewed:

McDonald's perhaps the world's best-known business [...]. Its success is related to its fit with many contemporary urban lifestyles: it is fast, efficient, predictable, standardized, routinized, and bureaucratically organized. (Manning and Cullum-Swan, 1998, p. 260)

Mason (1992) opposes the McDonald's 'physical services' to professional services:

Unlike physical services –the usual metaphor for which is the person who fills your order at the counter of McDonald's– professional services are characterized *neither by low pay, low productivity, low skill, nor low transportability* (p. 32, emphasis added).

It is not strange that Starbuck (1992) finds some definitions of KIFs elitist, although they have their point: meals are *assembled* in a McDonalds store the same as the pieces of some manufacture in an assembly line (Schmidt, Adler and Van Weering, 2003). Alvesson (1993) shares the same view but he points at something we will mention later, which is *complexity* of knowledge: McDonald's is an example of non-ambiguous organization: it "can be managed without very developed rhetorical skills" (p. 1007), whereas in highly ambiguous organizations "talk and conversation is a crucial part of the work day" (p. 1007). Specifically, it is not the fact of verbal interaction but how elaborated (i.e. complex) language codes are.

There is no doubt that this type of companies represents the opposite extreme to KIFs but this does not mean that all the non-KIFs are like McDonald's. But to prove this, clear discernment criteria are required.

The KIF/non-KIF distinction is quite confusing, especially if we substitute knowledge intensity with HC. We find, then, the dichotomy 'HC-intensive' vs 'labour-intensive,' which is often overlapped with that between 'mental' or 'intellectual work' vs 'manual work.' We argue that both frameworks do not necessarily coincide: skilled

²⁹⁰ It is the one mentioned by Starbuck (1992) of an organization with high managerial expertise and low technical expertise. The opposite—low managerial expertise and high technical expertise—is exemplified by law partnerships.

manual work is present in some professions like medical doctors (Drucker, 1999). Groysberg *et al* (2008) suggest that prior research on tacit knowledge and firm- and team-specific HC focused on tasks with a manual facet precisely because ‘purely’ intellectual work “may not be as ‘tacit’ as work that is partly physical” (p. 1227). “Above all, a mental-manual division predisposes organizations to ignore a central asset, the value of know-how created through all its parts” (Brown and Duguid, 1998, p. 99). “All individuals and all organizations, not just so-called ‘knowledge workers’ or ‘knowledge organizations’, are knowledgeable” (Blackler, 1995, p. 1026, emphasis in original). Once more, knowledge in the organization is distributed; it is not a monopoly of the elite (Alvesson, 1993, Brown and Duguid, 1998). Brown and Duguid note later (2001) that structures based in hierarchical control often draw from the old distinction intellectual vs. manual work.²⁹¹

Although it is true that there are differences between “employees whose work involves them in action skills or in the execution of procedural routines, and those who are involved in creative problem solving” (Blackler, 1995, p. 1041), ‘grey’ or routine labour does appear in knowledge work and KIFs (Alvesson, 1993). Moreover, there are occupations with a low expertise level along with a high professional status (Pavlin, Svetlik and Evetts, 2010). Indeed, the dichotomy raises some questions: Does that mean that ‘labour’ is not ‘human’? Or that ‘manual’ workers do not think? Regarding the latter, Duguid (2006) recalls the 19th century “language of factory ‘hands’ that worked and ‘heads’ that thought” (p. 1797).²⁹² Practice-based approaches show how manual work includes also a great deal of knowledge and expertise. This has led scholars to investigate another type of worker, who is known as *the technologist*.

According to Drucker (1999), technologists are all knowledge workers who “do both knowledge work and manual work” (p. 88). The problem with his definition is that 1) it seems to refer to ‘knowledge workers’ only, and 2) he says, it “includes people who apply knowledge of the highest order” (p.88), a knowledge that he does not define.

²⁹¹ A distinction that had had its summit in Taylorism and it evolved into the total quality management (TQM) movement (Drucker, 1999).

²⁹² See, for example, Marshall’s (1939) description of how professions were traditionally viewed: “The professions were, in English parlance, the occupations suitable for a gentleman. [...] The professions in such a society were those means to living which were most innocuous, in that they *did not dull the brain, like manual labour, nor corrupt the soul, like commerce*” (p. 325, emphasis added).

But he then apparently expands the group by stating that “it also contains large numbers of people in whose work knowledge is relatively subordinate—though it is always crucial” (p.88).²⁹³ Therefore, technologists are surgeons, health-care workers, mechanics, and so on. He also states that more and more practitioners are joining the ranks of technologists in developed countries, as a fruit of the evolution of manual work. This evolution is promoted through empowerment, which involves appreciating the knowledge that is embedded in manual work. Brown and Duguid (1998) explain that when this happens in organizations, they become forced “to reconsider the division of labor and the possible loci of knowledge production” (p. 100), given that knowledge is acknowledged to be distributed all over the organization, from the front line to R&D and management teams.

We argue that introducing the category of the technologist as any professional or worker who uses his/her hands and, at the same time, some level of knowledge is, perhaps, too vague and over-comprehensive.

Another proposal is that of Mason (1992), who presents a classification in four categories—physical production, physical service, managerial administrative, and technical professional. Focusing on services, physical services and technical professional services attempt to cover the whole range. As examples of technical professional service occupations “engineers, doctors, scientists, financial analysts, nurses, accountants, technicians, and paraprofessionals of all types” (p. 33, citing Swyt, 1988) are cited. Technical professional services are subdivided, in turn, in technical services and professional services. That means that Mason would consider the ‘technologists’ a category apart from professionals, but also different to ‘physical

²⁹³ This state of subordination is not necessarily accepted as something positive. When the contribution of lower levels in an organization is understood rather in terms of ‘hands,’ ‘labour,’ or ‘manual work,’ subordination is seen negatively, and conquering upper positions is, at the same time, viewed as entering the ‘knowledge worker’ status. This, which is already described by Mason (1939) (he portrays semi-professionalism as a dead end that must move to professionalization or otherwise it proletarianises), seems at the root of the claims by some professions and occupations to be entitled more decision power and less manual work. For example, nurses are claiming to be less subordinated to doctors in their daily tasks and, at the same time, are delegating more manual tasks in nursing assistants. This upwards movement seems, at the end, to disregard the fact that there will always be the need to have someone there performing more ‘physical’ or manual tasks, and that there is also a great deal of knowledge in them.

services,’ in which he cites “for example, hospital orderlies, parking lot attendants, custodians, security guards, and fast food workers” (*ibid.*). Note that neither does this classification use the nomenclature of KIFs nor does it use manual vs. intellectual as a means to discern, but proposes a more articulate view of the service industry. We think that this classification may be richer than the one above discussed but, at the same time, it does not explain what criteria are being used for the classification, which is what we will try to do in 1.4.3.5.

In any case, regarding service firms that are not KIFs, it is obvious that it is not possible to straightforwardly use Von Nordenflycht’s (2010) model to classify them. Knowledge intensity and professionalization are concepts that, by definition, are missing in non-KIFs. Notwithstanding, we consider that some criteria regarding knowledge or HC may and should still be present if we want to draw a map of service firms. In fact, HC as we have previously defined it (1.4.2.3.), includes theoretical and practical knowledge—which we called skills and judgement (1.2.5.1.) (Barney, 1991, Coleman, 1988, Nahapiet and Ghoshal, 1998, Von Nordenflycht, 2010). Therefore, we will make use of this richer notion because we sustain that a company being non-knowledge intensive does not mean that it does not rely to a considerable extent on HC (in opposition to non-human assets or capital intensity). “Even jobs widely regarded as unskilled may entail much knowledge (...). Yet, people put other labels—such as know-how or skill or understanding—on expertise learned through primary school or on-the-job experience” (Starbuck, p.717).²⁹⁴

Therefore, regarding HC in service firms, we propose to use the classification of types of knowledge we used in 1.2.5.1., both at the individual and collective levels. This will render different types of HC depending on the service company we are talking about. Different services may require, for example, different preparation at the

²⁹⁴ An interesting essay is Crawford’s (2006), who illustrates how much knowledge there is in touching, hearing, smelling—sensing in general—applied to mechanics and other technical occupations. The book by the same author and with the same title (published in 2009) had a great success in expanding further these insights. Almost at the same time, Richard Sennett had published *The Craftsman* (2008), with a similar theme. “Cognitions are also forms of material practice (i.e. [...] they involve physical, manual and interactional actions as well)” (Alvesson, 1993, p.1034). As a consequence, we argue that even the concept of ‘knowledge intensity’ becomes problematic: what *knowledge* are we referring to as being more or less *intense*?

theoretical / scientific level, some may require bodily skills, whereas other consider them unimportant. The same happens with the requirement of judgment. Regarding the knowledge collectively held, we find it in different repositories, such as documents, standard procedures, property rights, and so on.²⁹⁵ In 1.4.3.5., we will show the place that knowledge-related aspects have in the service firms field.

1.4.3.3. WORK CATEGORIES IN SERVICE FIRMS: INSTITUTIONAL ASPECTS

Von Nordenflycht (2010) discusses the characteristics of a professionalized workforce. The knowledge intensity aspect has already been discussed and the other two aspects—ideology and self-regulation—could be considered ‘institutional.’ Here, instead of professionalization of the workforce—which only applies to a group of service companies—we will talk about ‘occupational category of the workforce’. Therefore, there will be place both for professional and non-professionalized services.

The first we should say is that the existence of barriers or regulation and (explicit or not) codes of ethics and norms must not excluded a priori from non-KIFs. To these, a third element—the social status of the occupation—should be added. This addition has been suggested by the paper by Pavlin *et al* (2010, p. 102), who use a previous model, in which four types of occupations are identified:

Can a level of occupational knowledge and competence be matched with the social standing of the professional, or might there be no general link at all? This question was postulated by Harald (2003: 51), who identified four types of occupations: the first with high expertise and professional status (e.g. medical doctors), the second with high expertise but low professional status (e.g. hairdresser), the third with low expertise and high status (e.g. political

²⁹⁵ From what we are saying, it transpires that we are going to consider both HC and part of the theory about intellectual capital.

government officials) and the fourth with low expertise and low status (e.g. cleaner).

In this work, expertise is understood in terms of knowledge and competence, and professional status in terms of social standing and educational level. What we find interesting is the idea of separating expertise from professional status. Of the two aspects of professional status, educational level if measured in Pavlin *et al* (2010) using the UNESCO's standard of formal education. We already contemplate this facet inside the knowledge-related aspects or HC. The other interesting aspect—social status—adds the social perception of the occupation, which, we have seen, may not run parallel to the formal education and degree of expertise. This is the item we have incorporated in addition to the other two—ideology and self-regulation.

1.4.3.4. THE DEGREE OF CUSTOMIZATION OF THE SERVICE

Von Nordenflycht (2010) mentions customization as a potential item to be explored regarding KIFs, but he states that “a review of the literature, however, suggests that customization does not have any distinct implications not already captured by knowledge intensity (it generally amplifies the same challenges)” (p. 165). However, we consider that the same services (e.g. catering) acquire different characteristics if they are standardised or tailor-made, and this trait is relevant for the operations and structure of the company (Hansen, Nohria and Tierney, 1999), and also for the qualification required from front-line employees. Hansen and colleagues (1999) show how the degree of customization is related to the exploration vs. exploitation strategies and, at the end, with the option of being ‘promoters’ or ‘administrators’. Standardisation is linked to exploitation, whereas customisation is connected with exploration.

Løwendahl *et al* (2001) cite Hansen *et al*'s (1999) work and relate the degree of customization with the type of interaction with the client “from a rather hands-off type where industry information, market data, or expert answers are provided, to a deep involvement of both client and PSF representatives in a joint team implementing a strategic change process” (p. 922). It is true that they refer to PSFs but we can see that

these different interactions also can take place in other service firms. Therefore, they provide a classification of professional services in a continuum from lower to higher customization.²⁹⁶ We are not going to use this classification, because we are more interested in firms themselves.

1.4.3.5. A PROPOSAL OF A TAXONOMY OF SERVICE FIRMS

Here is the complete outline of the different characteristics we can use to classify service firms.

- Capital intensity:
 - Financial assets
 - Property rights
 - Physical assets
- HC or knowledge-related aspects:
 - Knowledge held by individuals:
 - Theoretical / scientific knowledge:
 - Declarative (know-what)
 - Causal (know-why)
 - Practical knowledge / expertise / competence:
 - Skills (know-how): manual, cognitive and social
 - Judgment: contextual knowledge (know-where-and-when), prudence (know-what-should-be-done)
 - Knowledge held by the organization (in repositories):
 - Documents
 - Organizational routines
 - Technology and equipment

²⁹⁶ They are, in this order: information, market analyses, reports; certification, quality assurance, audits; expertise, advice; training; solutions to problems; innovation, new ideas, creative design; assistance in implementation; mediation, negotiator, 'middle man role'; and stand in, management for hire, spokesperson 'on behalf of.'

-Products

- Institutional aspects
 - Social status
 - Barriers and regulations
 - Ethics and norms
- Degree of customization of the service (high / low)

In Table 2 we have compared Von Nordenflycht’s model with our proposal.

VON NORDENFLYCHT’S (2010) CRITERIA TO CLASSIFY KIFS	OUR PROPOSAL OF CLASSIFICATION OF SERVICE FIRMS
-Capital intensity (nonhuman assets) -Knowledge intensity (=HC intensity): Expertise / body of complex knowledge -Individually held -Collectively held -Professionalized workforce -Knowledge intensity -Barriers and regulation (self-regulation) -Ethics and norms (ideology)	-Capital intensity (nonhuman assets) -HC-related aspects: -Individual: -Theoretical/scientific knowledge (declarative and causal) -Practical knowledge / expertise / competence (skills, judgment) -Organizational (in diverse repositories) -Institutional aspects -Barriers and regulation -Ethics and norms -Social status -Degree of customization of the service

Table 3 displays a test of this proposal. There we test the examples of KIFs cited by Von Nordenflycht (2010) (see Table 1), which are located in the first column on the left. At the end, we added an example of a different type of service company—fast-food chains—, which is usually considered as the opposite to PSFs in the services sector. We have assigned a value from 1 to 5 to each item, depending on the intensity or relevance this item has in each type of company, being 1 not relevant and 5 mostly relevant. The column regarding ‘Theoretical knowledge’ was coded taking into account the contents

of the academic studies practitioners need to access the occupation. The column of ‘Judgment’ refers to the *discretion* individuals are allowed in the performance of their occupation or profession in the service delivery. ‘Customisation’ is understood as opposed to standardisation.²⁹⁷

As it can be seen, there are still plenty of possibilities in the empty space represented by ‘Other’. We are interested, precisely, in exploring this gap, where we find intermediate values, and therefore, where KT processes may have specific characteristics. We used this table to find out the services we need to study (2.2.).

With this last review on service firms, we have finished the theoretical framework. We have talked about the characteristics of service firms, and in order to propose a classification of service companies, we have adapted some insights from the KIFs and PSFs theory to the broader field of service firms. Now it is time for the hypotheses.

²⁹⁷ Note that some services—such as medical services—can be high in routines and, at the same time, highly customised.

Table 3 Test of the classification of service firms

COMPANIES	COMPANY CHARACTERISTICS													
	Capital Intensity	HC - related aspects							Institutional aspects of workforce's occupation			Customization		
		Individual					Organizational				Social status	Regulation & barriers	Ethics & norms	
		Theoretical/Scientific Knowledge	Practical Knowledge / Expertise						Documents	Routines				
			Skills			Judgment								
Manual	Cognitive		Social											
KIFs														
Technology Developers														
Biotechnology	5	5	3	4	2	5	5	4	4	4	4	4	5	2
R&D Labs	5	4	3	4	3	5	5	4	4	4	3	3	3	4
Neo-PSFs														
Consulting	2	3	1	4	4	4	4	3	3	2	3	2	2	4
Advertising	2	2	1	3	5	5	4	2	1	4	2	1	1	5
Professional Campuses														
Hospitals	5	5	5	4	4	5	5	4	4	1	5	5	5	4
Classic PSFs														
Law	2	4	1	4	4	5	4	3	2	1	4	5	5	4
Accounting	2	4	1	5	2	3	5	5	5	4	3	4	4	2
Architecture	2	5	2	4	3	4	5	4	4	4	5	5	4	4
...other...														
Fast-food chain	2	2	2	1	3	1	3	5	1	2	1	1	2	1

1.5. RESEARCH HYPOTHESES

We have previously reviewed what academic literature says about factors influencing KT in general (1.3.1.2.) and KT in MNCs (1.3.2.2.). Our interest was primarily on the use of KT mechanisms depending on the type of knowledge a service uses. The setting where we wanted to explore these phenomena was a non-knowledge-intensive service company. If this company were a MNC, this would allow us to capture variations in the operations across countries by keeping constant other elements such as the company's culture and corporate functions. If we chose two different services, we would be able to compare them in general and in each subsidiary. The finally selected setting will be described in 2.2.

Making a brief summary of the factors affecting KT we cited *knowledge* characteristics, characteristics of the *source and recipient*, and *context* characteristics.

The first regarded to the *types of knowledge* and how it is transferred. If we chose two different services, we should expect from them different behaviour, according to the types of knowledge used in their practice, and, at the same time, similar characteristics in the same service across countries.

The second group, characteristics of the source and recipient, comprised several factors such as *motivational* factors—like the perceived absence or presence of support or coercion from the top management team, or whether there is internal competition—, *trust* and *power* issues, the *expertise* of both source and recipient, the recipient's *absorptive capacity*, and structural, cultural and behavioural similarities and differences between source and recipient (homophily-related issues).

Finally, we analysed context characteristics, i.e., characteristics of the organisation's *internal environment*, characteristics of its *external environment* and *network*-related characteristics. As internal factors—the internal environment of the organization—, we find internal competition again, age and size of the organization, technological development, structure of the company, the degree of customization of the service (in a service company), and the perception of coercion or inadequacy of the top management's directives. As external factors we have the cultural, economic and social characteristics of the country where the organization operates. If the organization is a

subsidiary, the influence of these factors will be stronger if its management team and employees in general are locals. Finally, regarding network characteristics, we have their structure, their density, the strength of the relationships, the position of the subject with regards to the other members of the network and so on.

We needed to find a setting in which we could control for the other factors and focus our research, as said, on types of knowledge and KT mechanisms.

Literature tells us that the type of service determines the type of knowledge used and, therefore, it will determine the type of mechanisms used to transfer operations-related knowledge in this service. Concretely, we saw that Hansen *et al.* (1999) link standard services with explicit knowledge and codification. On the other hand, codification is linked to IT systems, which, in turn, are considered the most opposite to FTF interactions. Thus, we can formulate the following hypothesis:

Hypothesis 1: The more *codifiable* the knowledge of a service is, the more *standardisable* it is, and therefore, the *more non-personal KT mechanisms* it will use.

Zander and Kogut (1995) understood knowledge complexity as the “number of distinctive skills, or competencies, embraced by an entity or activity” (p.82), and proposed that it hindered imitation. We will relate complexity with KT in general and will link it to FTF interactions, which are the richest communication media. We will propose the following:

Hypothesis 2: The more *complex* is the *practical* knowledge a service contains, the more knowledge related to it will be transferred in *FTF interactions* related to *practice*.

To check H1 and H2 in the conditions above described, we could simply take two services in one multi-service company and compare them. Choosing a MNC allows us to replicate the comparison in several more subsidiaries.

According to previous research, age and size are related to KT. Size is positively related to KT, but there is no agreement regarding age: according to some authors (van Wijk *et al.*, 2008), older companies find it more difficult to share knowledge, but according to others who study MNCs (Foss and Pedersen, 2002), older and larger

subsidiaries are found to be positively related to KT. Thus, we have two traits more that we must take into account, especially if the subsidiaries we choose have different size or age. We will consider them together, i.e. we will assume that an older subsidiary is also larger, or more developed in terms of the variety of mechanisms it creates. Therefore:

Hypothesis 3: The *older* and *more developed*—in terms of variety of mechanisms it creates—an organization is, the more and more diverse KT mechanisms it will use.

Note that this hypothesis may refer to the subsidiary but also to a particular subunit inside it, such a service division.

Theory on networks and social capital (Nahapiet and Ghoshal, 1998) states that time is required to build solid and numerous relationships. Theory on communities of practice explains how in developed organizations experts sustain relationships with peers in other organizations (Brown and Duguid, 2001). Therefore, and assuming again that age and development are correlated, we can expect that:

Hypothesis 4: The *older* an organization is, the more external relationships it will develop.

Again, we can apply this to a subsidiary with relation to other subsidiaries, but also to a subunit inside it, e.g. a service division.

But the use of a MNC as a setting does introduce the cultural factor in the research. Cultural distance is negatively related to KT (van Wijk *et al.*, 2008). Hence, regarding the use of KT mechanisms we may expect that:

Hypothesis 5: The more *cultural distance* between two subsidiaries or between a subsidiary and the HQ, the less KT will happen between them.

Following literature (Bhagat *et al.*, 2002), this effect is expected to be more pronounced when the subsidiaries do not share any of the *cultural* characteristics of the pairs collectivism/individualism and vertical/horizontal.

Finally, the dialectic local-global is present in the form of the influence of the *context* the subsidiary operates in.

Hypothesis 6: The *local market context* of a subsidiary—specific market, technological, educational and economic development, laws—will modulate the adoption of certain KT mechanisms.

CHAPTER 2. EMPIRICAL RESEARCH

In this second chapter, we will describe the empirical research. First of all, we will justify and explain the methodology we used to understand the phenomenon we are studying (2.1.). In particular, we will explain why we chose to make a qualitative research and do it through a case study. Next, the setting where the research took place will be described (2.2.). We will then elaborate on how the data collection was conducted and what sources we used (2.3.). The analysis will be described in section 2.4., results will be presented discussed in section 2.5.

Obviously, the distribution of the contents of this chapter follows the usual procedure in qualitative research. For example, Berg (2007, p. 346) displays a table in which the recommended order is: research procedures and strategies, description of the sample, sampling techniques and/or subjects, setting, data collection, data organization, and data analysis.²⁹⁸

2.1. METHODOLOGY

Before starting the description of the methodology, we should remember the epistemological controversies we discussed regarding what knowledge and learning is (1.2.2.). Similar topics appear when comparing qualitative vs quantitative research and in the characterization of qualitative research itself. For example, in Denzin and Lincoln's introduction to each of the well-known three volumes they edited (1998a, 1998b, 1998c), they defend qualitative research against positivism and other approaches by embracing relativism: any method can be valid. They later (p. 27) display on a table the diverse theoretical paradigms involved in qualitative research: positivism, postpositivism, constructivism, feminism, ethnic approaches, Marxism and cultural studies appear as the basis for different criteria of validity, forms of theory and types of narration, and afterwards proceed to narrate the history of qualitative research, where,

²⁹⁸ We can find a similar path in Yin's (1994) description of the phases needed for a case study research.

again, the diversity of (irreconcilable) perspectives is highlighted.²⁹⁹ Valles's (1997) entire second chapter is also devoted to epistemological issues. Unlike we did regarding knowledge and learning, we are not going to open an epistemological discussion here: our dissertation is not about research methodologies, rather the method has been chosen accordingly to what we are inquiring, and this we hope to explain in brief.

There is also another issue, that is, terminology. We have not found consistency among the authors with the terms related to methodology. For example, for Denzin and Lincoln (1998a, 1998b, 1998c), grounded theory is a *strategy* of inquiry, whereas interviews, documents or analysis of artefacts are *methods* of collecting and analysing materials. However, Berg (2007) calls the latter data collection *strategies*, and Valles (1997) distinguishes between *methodological strategies* or *methods* (e.g. case studies) and the *techniques* (e.g. interviews) used in them, which are called by Stake (1998) *methods* of inquiry, who considers that case studies are a *form of research*. We guess that this confusion is due to the terms themselves: very often, method, strategy and technique are used as synonyms in ordinary language. We will try to keep consistent in our use of these terms: to follow the cited examples, qualitative and quantitative will be types of *research methodologies*, grounded theory is a *qualitative research approach* that can be developed through different *research strategies* or *methods* such as case studies, which, in turn, may include several *data collection techniques* such as interviews and documents. In our case, we have chosen a qualitative research methodology that could be included under the grounded theory approach, and the strategy we are following is the case study. The data collection has been made through the techniques of interviews, (written and other) documents, and observational techniques.

The first thing we will do next is a description of qualitative research (2.1.1.), its characteristics and how it applies to our aims, as well as the research approach we think has more in common to this empirical inquiry: grounded theory. We will also justify our choice for the case study method (2.1.2.).

²⁹⁹ The imprint of epistemology is even stronger in subsequent editions of Denzin and Lincoln's trilogy, as, for example, in their (2005) edition (3rd edition). We have stuck to the 1998 edition, which consists of the three separated volumes for two reasons: the first is that this is the first we came across with. The second is that, after examining the aforementioned 3rd edition, we found the older one more 'technical' and, therefore, more helpful in terms of methodological tools.

2.1.1. QUALITATIVE RESEARCH AND GROUNDED THEORY

To answer to the research questions we need to grasp the actual knowledge flows that occur in a real organization (Egelhoff, 1982), and “how a firm’s knowledge resources are utilized by task units to improve their performance” (pp.1133-1134). At the same time, we need to capture the different preferences regarding KT mechanisms and to what extent the organizational structure, and service-specific, cultural and geographic differences influence knowledge. A special attention is to be paid to the different networks of relationships (Foss and Pedersen, 2004). All these requirements point at a qualitative research as the best one to meet them. But, as we will see, there are many different qualitative approaches (2.1.1.1.), so we need to examine the characteristics of grounded theory to ascertain if our research resembles it (2.1.1.2.).

2.1.1.1. *QUALITATIVE RESEARCH*

We will here very briefly review some ideas around qualitative research, its nature, main elements and requirements, which will clarify the reason for our choice in this dissertation.

THE NATURE OF QUALITATIVE RESEARCH

Sutton and Staw (1995), in their article on “What Theory is *Not*,” define *strong theory* in a way which is very similar to the classical definition of *science*: strong theory seeks to answer to the question of ‘why’ and it investigates the underlying processes of the phenomenon under study. Therefore, “references, data, lists of variables, diagrams, and hypotheses are not theory” (p. 371). In consequence, if we read in Berg’s (2007) work that the main difference between quantitative and qualitative research is that the former deals with ‘amounts’ whereas the latter deals with ‘the nature of things’, in our opinion, this assertion should not be understood in a superficial way, as if quantitative research relied merely on data, lists of numeric results and the like, and qualitative research were the only way of grasping the core of reality. The idea behind Berg’s

description is that quantitative research has its strength in the *quantity* of data supporting its theory. Mind that this is not raw data or quantity for the sake of it, but a robust statistical support with a certain way to interpret the results that must meet certain criteria. On the contrary, qualitative research allows going into detail:

“Qualitative research is multimethod in focus, involving an interpretive, naturalistic approach to its subject matter. This means that qualitative researchers study things in their natural settings, attempting to make sense of, or interpret, phenomena in terms of the meanings people bring to them.” (Denzin and Lincoln, 1998a, 1998b, 1998c, p. 3)

On the other hand, this is not the way the dilemma qualitative vs. quantitative is often posed. In fact, nowadays the discussion leans toward the opposite side: precisely because qualitative research does not seek statistical support but it operates differently, it is considered less ‘scientific,’ less rigorous. This misconception is at the base of the hegemony of quantitative research in social and human sciences. Publishing qualitative research papers is far more difficult than for quantitative materials.³⁰⁰ We will go back to this view later, when we address validity issues. In any case, the choice of a method is always subordinated to the object of study, and in qualitative research “the issue is not so much the quest for conventional generalizability, but rather an understanding of the conditions under which a particular finding appears and operates” (Huberman and Miles, 1998, p. 204), that is, answering to the questions about causes, factors and conditions for a certain event to occur. In fact, causal relationships are better found through qualitative studies, more so if they are longitudinal. “In effect, we get inside the black box” (*ibid.*, p. 191). This idea is also highlighted by Rist (1998, p. 416), who describes how a qualitative researcher can access and organization that, for example, has launched a programme, and

“address the treatment and training of staff, reasons for attrition and low morale, the service-oriented philosophy (or lack of it) among the staff and leadership, the beliefs of the staff in the viability and worthiness of the program [...], the quality and quantity of information used within the program for decision making, and the like.”

³⁰⁰ We should expect, at least, that the ones that make it are really the best ones. There is, however, the possibility that they are assessed by applying them quantitative criteria.

This quotation is especially pertinent because the task we undertook was quite similar to the described here: we needed to access an organization that had introduced a whole new knowledge-sharing strategy and we wanted to take the pulse of the reception it was having in different services and countries, not only in terms of favourable or adverse reaction but also in terms of the preferences regarding some KT mechanisms over others. To do this, we also needed to capture the direction of knowledge flows, and the role of HQ in all this process. It seemed obvious to us that we needed to take a qualitative approach.

There is a last issue to mention here, that is the relationship between theory and empirical research in qualitative studies. We will retake this topic when we talk about grounded theory but, in general, we could say that there is a mutual feedback between theory and research: the former prepares for the latter and, in turn, theory emerges from research (Berg, 2007). At the same time, according to Sutton and Staw (1995), the balance research-theory is different in qualitative and in quantitative research. They state that quantitative research needs to improve in the theory side, whilst qualitative research needs to improve its description side.³⁰¹ Therefore, the right approach is not a confrontational view, but a complementary one, in which both modes of research have evolved differently and for different purposes.

CHARACTERISTICS OF QUALITATIVE RESEARCH

As above said, once we have chosen to undertake a qualitative research, we still can choose among several **research approaches**. For example, we can select grounded theory, ethnography, action research or clinical research (Denzin and Lincoln, 1998a, 1998b, 1998c, p. 64).³⁰² Among those, we have chosen grounded theory, which we will

³⁰¹ See also Eisenhardt (1989). Indeed, it has been very difficult to find qualitative papers that discuss in detail the data collection and analysis process. We will try to do it as far as possible.

³⁰² We do not agree, however, with the inclusion Denzin and Lincoln make of some other approaches ('strategies of inquiry', they call them), such as case studies or participant observation. We do not see, for example, why grounded theory could not include in itself any of the other two. That shows that these items are at a different level. In addition, these authors connect each approach to a particular paradigm. For example, participant observation is linked to anthropology, and grounded theory to symbolic interactionism in sociology. Looking at the complete table, we find some correspondences a bit forced,

explain in short (2.1.1.2.). Then we must decide which will be our **research strategy or method**: case studies, experiments, biographical or historical methods or other. Regarding them, Valles (1997) rejects the hierarchical view that distributes all these strategies in exploratory, descriptive or explanatory: all these three purposes can be achieved by using any of the strategies. It rather depends on 1) the research questions we have posed,³⁰³ 2) the degree of control we have over the events,³⁰⁴ and 3) if our approach is synchronic or historical. In our research, we have chosen case studies, in a comparative modality, which we will also describe later.

Next, we need to obtain the data from the phenomenon itself. Valles (1997, p. 119) states that the three main ingredients of social research are “documentation, observation and conversation.”³⁰⁵ We think this is a great synthesis, because all the different **data collection techniques** we may use belong to one of these groups. In fact, this corresponds to our ordinary way of knowing, for “we obtain knowledge from individuals or groups of knowers, or sometimes in organizational routines. It is delivered through structured media such as books and documents, and person-to-person contacts ranging from conversations to apprenticeships.” (Davenport and Prusak, 1998, p. 6) To finally extract this knowledge, we need to use several **analysis techniques**, and we should decide whether or not this analysis will be computer-assisted. In any case, the technique we choose must be explained (Berg, 2007, Valles, 1997), and it will in due time (2.4.).

There has been a lot of discussion in methodological literature on **validity issues** regarding qualitative research. Valles (1997) notes that, on the one hand, there are those who advocate for no criteria of validity, as a consequence of the nature of qualitative research. On the other hand, there are scholars who, as above said, reject qualitative research as lacking of proper scientific or empiric method. Valles sharply remarks that

because it seems that, once again, only researchers following a particular paradigm can engage in a particular research approach, with exclusion of others.

³⁰³ For example, for questions about ‘who’ and ‘where,’ archival and survey strategies are indicated, but case studies, histories and experiments are more appropriate to answer to ‘how’ and ‘why.’ In all this, Valles follows Yin (1994).

³⁰⁴ We have no control over historical facts, so here historical strategies are required, whereas in an experiment we can manipulate the setting.

³⁰⁵ The translation is mine. He distributes the chapters of his book accordingly.

something that—putting aside some extremes—can be found along the continuum quantitative-qualitative research is, precisely, the pains researchers take with constantly refining their methodology. And this does say much about their aspiration to do real science.

Huberman and Miles (1998) note that the great danger of qualitative research is the incurrence by the researcher in different types of **biases**, such as judging by first impressions, unconscious selection of data, illegitimate generalizations, forcing data to fit the hypotheses, and so on. Huberman and Miles mention **triangulation** in diverse forms as a means to avoid biases, along with other devices such as checking for researcher effects or testing for representativeness. They also detect other issues: mistaken patterns and problematic conclusions. Regarding the former, they advise to use comparisons³⁰⁶ and look for outliers and extreme cases; to address the latter, they propose the replication of key findings and looking for contrary evidence and alternative explanations.

The way the research is displayed also helps addressing some of these issues: a first requirement is **transparency**. "The conventions of qualitative research require clear, explicit reporting of data and procedures" (Huberman and Miles, 1998, p. 200, see also Wolcott, 1990), for reasons both internal and external to the research. The first are the search for internal consistence and data manageability; the second are the possibility to replicate the research or, at least, to verify the data, and the absence of deception. The problem in qualitative research is that, given the diversity of approaches, there is not an exclusive way to describe the method, so Huberman and Miles suggest keeping track of all the elements used and steps taken during the research process. Altheide and Johnson (1998) add a different perspective to this, which is the need for the researcher to clarify his or her particular point of view.³⁰⁷ This will allow the reader to understand the key in

³⁰⁶ Stake (1998) sees a contradiction between comparisons and the thickness of description that can be reached in case studies, because comparison forces the researcher to take a more general perspective from which the comparison is established, and therefore, to take distance from real-life details. Although we are aware that this may not be shared by all scholars, in our opinion, any kind of research necessarily entails a relative distance from the object of study. The confusion researcher-participant, taken to the extreme, may invalidate the research.

³⁰⁷ It is true that Altheide and Johnson are talking about ethnography, but we think that their contribution can be made extensive to all qualitative research, given that interpretation is an essential component of it.

which facts are described and analysed. These authors believe that the maladjustment between the phenomenon and what is understood can be bridged as far it is acknowledged and accepted.

A particular topic related to transparency is that of *confidentiality*: it seems that they are two opposite concepts. We will also talk about this and other ethical issues later (2.3.3.). Huberman and Miles (1998) finally propose an ultimate test, a sort of audit in which the researcher must answer to a battery of questions about the robustness of findings, the justification of categories, the existence of bias, and the actions taken to strengthen credibility.

2.1.1.2. GROUNDED THEORY

According to Denzin (1998, p. 330), grounded theory is “the most widely used qualitative interpretive framework in the social sciences today.” Obviously, this is not the reason why we have chosen it. As defined by Strauss and Corbin (1998, p. 158), grounded theory is “a general methodology for developing theory that is grounded in data systematically gathered and analysed.” This does not necessarily mean that the theory that results from this research approach is completely new. “Theory may be generated initially from the data, or, if existing (grounded) theories seem appropriate to the area of investigation, then these may be elaborated and modified as incoming data are meticulously played against them” (p.159). Strauss and Corbin state that this approach was developed to counter functionalism and structuralism and to give a robust foundation to qualitative research. Regarding the theory that emerges from this approach, they explain that it is not formal or general theory but something that originates “from extant theories and developing them further in conjunction with ‘qualitative case analysis’” (p.176). Therefore, this preliminary theory must be based—grounded—in the actual research.

In our case, we seek to do this with a case study. In fact, Morse (1998) affirms that when we have questions about processes or change, the most indicated approach is grounded theory, and the most appropriate data collection techniques are recorded interviews and other sources like participant observation or diaries. Our questions are

clearly around change, learning and the transfer of knowledge, and we aim to contribute to the theory on the subject, and this is the reason why we have decided to adopt this approach.

Valles (1997), citing Strauss and Corbin (1998), proposes some **validity criteria** more specific to grounded theory: *trustworthiness*—which unfolds in credibility (i.e. thoroughness in using certain qualitative resources), transferability (it refers to sampling choices) and dependability (i.e. openness to external inspection)—, *authenticity* (keeping rapport with the people and context studied) and meeting some *ethical criteria* (beyond respect for the informants' privacy and their consent, towards empowerment and education). As a consequence, by applying these criteria, it is up to the reader to judge the credibility of the theory that results from this approach (Denzin, 1998).

Case study research allows for the building up of grounded theory by applying all these principles (Eisenhardt, 1989), but also provided that case study is done in a particular way. This is what we will describe next.

2.1.2. CASE STUDIES

We have set apart a subsection devoted to case studies because we think that this research method requires some more detailed description. We will explain what case studies are (2.1.2.1.), the different types of case study available to the researcher (2.1.2.2.), some methodological questions related to case studies (2.1.2.3.), and, finally, a general overview of our own case study (2.1.2.4.).

2.1.2.1. *WHAT ARE CASE STUDIES?*

[A case study] is an empirical inquiry that

- investigates a contemporary phenomenon within its real-life context, especially when
- the boundaries between phenomenon and context are not clearly evident.

(Yin, 1994, p. 13)³⁰⁸

The real-life context indicates both little control by the researcher over facts and contemporaneity with them. When the questions are ‘how’ and ‘why,’ it is most appropriate, and it is often associated with the techniques of observation and interviewing. The line between events and context is blurred because there are various variables intervening. In case studies there are usually also different sources both of data and theory to draw from (Yin, 1994). Therefore, no specific data collection technique defines case studies (Stake, 1998).

This potential to cope with complexity makes of case study a very much versatile strategy that can be used in different levels of analysis—from individuals to organizations—, and especially contributes to the application and shaping of (grounded) theory (Berg, 2007, Yin, 1994).³⁰⁹ “Extremely rich, detailed, and in-depth information characterize the type of information gathered in a case study.” (Berg, 2007, p. 283) This trait is, at the same time, a strength and a weakness, as we will see soon. At the same time, case studies are not an amalgam without order but they are integrated systems that show patterns (Stake, 1998).

³⁰⁸ Yin completes this definition stating in the preface that this ‘research tool’ is different “from (a) the case study as a teaching tool, (b) ethnographies and participant observation, and (c) ‘qualitative’ methods. The essence of the case study goes beyond all these, even though there can be overlaps with the latter two” (p. xiv). (a) is clear, especially for anyone who has ever written a case for this purpose; we can also understand (b), and we see the mentioned overlaps. Regarding (c), as Yin notes, we can find the case research strategy also in quantitative research, i.e., case studies in which all the data are quantitative and quantitatively treated, as well as mixed cases. Here we will only refer to case studies as qualitative research methods.

³⁰⁹ Stake (1998) remarks that the case report is akin to experience, because it conveys experiential and theoretical (‘propositional’) knowledge.

With all these virtues, however, case studies have been seen with suspicion in the research field. Yin (1994) enumerates the different **prejudices** that are set against the use of case study research.

The first of them arises from the frequent confusion of teaching cases and research cases: they are seen as *lacking rigour*. Cases used for teaching have an illustrative purpose or they just portray a particular situation with the intention that readers practice what they have learned in theory. Case studies are a research strategy, so they must follow a method and avoid some faults to be really useful for research. For example, the idea that the researcher should display all the steps he took and choices and assumptions he made so other researchers can inspect and/or replicate the research indicates that an effort for scientific rigour is being made. Berg (2007) relates this to *objectivity*, meaning that this is how objectivity should be understood in case study research. Anyway, we will consider methodological issues in short.

The second prejudice has to do with the *complexity* a case study can reach: they are often associated to bulky, unreadable reports. Eisenhardt (1989, p. 547) talks about the “temptation to build theory which tries to capture everything.” This can be avoided by applying some synthesizing strategies (Yin, 1994).

The third prejudice is also associated to other forms of qualitative research: it refers to *generalizability*. Cases are seen so concrete that they do not allow for generalization (Huberman and Miles, 1998). “The short answer is that case studies, like experiments, are generalizable to theoretical propositions and not to populations or universes” (Yin, 1994, p. 10). Their purpose is to expand theory and not to express frequencies. Eisenhardt (1989, p. 537) similarly states that “cases are chosen for theoretical, not statistical reasons.” And she adds that cases “may be chosen to fill theoretical categories and provide example of polar types” (p.537). From a different point of view, the advantage of case studies is their ability to go into details: therefore, “people find in case reports certain insights into the human condition, even while they are well aware of the atypicality of the case” (Stake, 1998, p. 96). Berg (2007) joins this discussion arguing that every research, even focusing on a single case, has a scientific value, and, therefore, it would not make sense to ask if case studies are ‘scientific’ enough, but, nonetheless, cases have the value of investigating the logic behind phenomena.

2.1.2.2. *TYPES OF CASE STUDIES*

We have found many different ways to classify case studies, responding to different criteria.

Perhaps the simplest one is that in which the criterion is the design of the case (Berg, 2007). According to this, case studies can be exploratory, explanatory or descriptive.³¹⁰ In the first, usually fieldwork precedes the definition of research questions, with the purpose of a deeper, subsequent research. The second look for causes and patterns. Finally,

Descriptive case explorations require that the investigator present a descriptive theory, which establishes the overall framework for the investigator to follow throughout the study. What is implied by this approach is the formation and identification of a viable theoretical orientation before enunciating research questions. The investigator must also determine before beginning the research exactly what the unit of analysis in the study will be. (Berg, 2007, p. 293)

If we follow this classification, we could say that the empirical research we will present here shares more traits with the latter kind of case studies.³¹¹ Berg's description is almost the same we did, except perhaps that we started in a more exploratory way. In turn, and citing several authors, Berg describes different kinds of descriptive case studies. The three first—snapshot, longitudinal and pre-post case studies—refer to chronology.³¹² Then, patchwork studies (i.e., multiple-technique and case studies), and comparative case studies follow. In this dissertation, we could say that we compare various cases but with some longitudinal elements, because we have used data collected previously to the actual research to follow an organizational process.

³¹⁰ With this, Berg is supporting the idea that one research strategy can be used for any of these purposes, as we said before regarding qualitative research (2.1.1.1.).

³¹¹ Notwithstanding, we also use data we collected with an exploratory purpose time before the actual research was launched.

³¹² Terms are quite clear here, but, to clarify, the latter means those cases that study the previous and posterior moments to a critical event.

When the research involves organizations, cases can be panoramic (i.e., the focus is the internal life of the organization in itself) or with a focus on a specific aspect of the organization (Berg, 2007). We could say that we are moving in the latter area, because we look for KT processes and in two particular services.

Stake (1998) goes deeply into where the focus is, if it is in the phenomenon itself or some of its aspects (intrinsic case studies) or the interest is outside it, i.e. in understanding some other phenomenon or theory (instrumental case studies). To these, Stake adds a third type that seems to follow a different criterion, which is collective case studies: they are instrumental case studies extended to several cases. Our research belongs to the first type, although we cannot deny that most probably the insights obtained will help better understanding, for example, the related theory.

The words ‘comparative’ and ‘collective’ have appeared here and they seem to have relevance. For example, comparative case studies are considered “a crude substitute for experimentation” (Rihoux and Ragin, 2009, p. xviii), because in most social and behavioural sciences, experimentation is “neither empirically possible nor ethically desirable” (*ibid.*).

We will now describe a classification proposed by Yin (1994) that combines this ‘single case’-‘multiple case’ duality with other two concepts,³¹³ which refer to the number of units of analysis, and which are ‘holistic’ and ‘embedded’ case studies, depending on whether there is only one unit of analysis or several in the case. With these four categories, Yin proposes a matrix in which we can find single, holistic case studies, single, embedded case studies, and the same for multiple-case studies. And not only this, but also the author explains in detail the reasons for using one type or other.

We can have some purposes in mind when we are using a single-case study: testing a theory, describing a very unique or extreme case or, on the contrary, portraying a representative or typical case, revealing a new phenomenon or following a longitudinal study. Regarding the difference between holistic and embedded case studies, the former entail the risk of remaining too general or abstract, whilst the latter allow for more detail.

³¹³ In this, Yin (2009) does not change anything of the basic concepts with respect to the earlier edition.

When explaining multiple-case studies, Yin criticizes the use of the term of ‘comparative’ cases as meaning that comparative cases something completely different from other types of cases. On the contrary, Yin states that both single- and multiple-case studies are types of the same genre. Multiple-case studies are more complex to handle, and they require more effort and time. They are developed with a double purpose:³¹⁴ the replication of a single case and the search for differences between several cases. It is important to note that ‘replication’ is different from following a ‘sampling logic.’ Replication always keeps a relation to theory: we seek to find either reiterations of events (literal replication) or different outcomes (theoretical replication). How many cases are required for a good multiple-case study? According to Yin, the number is discretionary, and it depends on the phenomenon, the same as the choice between a holistic or embedded case study does.

If we apply all these distinctions to the present research, at first sight we could say that, as it is focused on what happens within a single company, we are in a single-case study, but we have chosen to study each country separately and compare what happens in each of them to the other two. Therefore, we are developing a multiple-case in which there are different units of analysis (i.e., KT mechanisms in different services) in each of them, i.e. an embedded multiple-case study. Based on previous theory, we expect to find some differences between the countries and between the services, so we are seeking a theoretical replication.

We argue that the preceding is the most relevant classification of case studies we have found. Related to them, Yin describes how cases may be written. For example, what he calls ‘classic’ single-case study consists of a more or less linear relation illustrated with charts and graphs. For a multiple-case study he prescribes separate sections for each case with a final cross-case analysis, and in this he strongly insists: if results are presented joined, it is not a real multiple-case study. Even here, we may find different structures: the most comfortable and advantageous is the linear-analytic one, in which the topic is presented, followed by a literature review, the method, results, conclusions and implications (i.e., the one we have chosen), but other options are

³¹⁴ As Yin affirms, some of the purposes aimed by single-case studies cannot be sought through multiple-case studies: for example, and by definition, the unique case or the revelatory case.

available to more daring researchers, such as the chronological, the theory-building or the unsequenced ones.

2.1.2.3. *METHODOLOGICAL ISSUES RELATED TO CASE STUDIES*

Eisenhardt (1989), in her excellent paper on “Building Theories from Case Study Research” draws from grounded theory, Yin’s (1994)³¹⁵ work and other authors for her synthesis of how to construct what she calls ‘good theory.’ She describes all the steps, from the research question to the closure of the research. The structure is very similar to that described by Yin (1994): design, data collection, analysis and report, but the focus is different because Eisenhardt is more interested in the relationship theory-research, which permeates all her piece, where she recognizes she adopts a positivist approach. Thus, for example, when she states that one important previous step is to prepare the research questions and constructs, at the same time, she remarks that “it is equally important to recognize that both [research question and constructs] are tentative in this type of research” (p.536). In conclusion, what she proposes is a sort of tabula rasa: once established the issue and main factors, the researcher should suspend the judgement about the potential outcomes of the research and remain initially receptive to any possibility.

If we compare this to what Yin (1994) proposes, the latter gives much more importance to the previous identification and/or construction of founding theory. This is so because Eisenhardt follows the grounded theory model, whereas Yin expressly seeks to differentiate case studies from grounded theory, precisely in this. As it becomes clear from what we have been proposing since, we do not share this exclusive view because: 1) grounded theory does not necessary mean to start from scratch, but it admits a range of possibilities that includes also the modification of existing theory, 2) we talked about exploratory case studies (2.1.2.2.), i.e. case studies in which the purpose is to explore new phenomena, which do not have any supporting or explanatory theory, and 3) case studies are an excellent tool for developing grounded theory. This said, we share Yin’s idea that the more related theory is previously reviewed, the easier will be to

³¹⁵ She cites the 1984 edition, the first one.

subsequently design the case study and conduct the analysis. At the same time, we agree in the importance of keeping a substantial flexibility and openness throughout the whole research process. In this dissertation, we have attempted to keep a balance and a mutual feedback between these two aspects—theory and empirical research.

What are the sources of data for case studies? We could say that the same as for qualitative research in general (2.1.1.1.). Yin (1994) lists six of them: documents, archival records, interviews, direct observation and physical artefacts, but we saw, following Valles (1997) that they can be grouped into three: documentation, observation and conversation. Data can be linked to (eventual) propositions in different ways: “pattern matching, explanation building, time-series analysis, logic models, and cross-case synthesis” (Yin, 2009, p. 34). The choice between is suggested by the propositions.

What kind of generalizability is expected from case studies? Generalizability of case studies has already been dealt with (2.1.2.1.). We will just remind here that “cases are not ‘sampling units’ and should not be chosen for this reason” (Yin, 1994, p.31). Yin suggests an ‘analytic generalization,’ as opposed to a ‘statistical generalization,’ in which previous theory is the mirror on which results reflect. In fact, the question about generalization very easily brings in the question about ‘how many cases’ are needed for a phenomenon to become generalizable. Here, instead, what is sought is to ascertain the existence of a certain phenomenon that confirms, completes or contradicts a theory, or that is not explained by any previous theory, or to establish (causal and other) relationships between phenomena.

Related to this, Eisenhardt (1989) examines the applicability of case studies that build theory: it is mostly indicated when there is a theoretical void or extant perspectives are inadequate or conflicting. Regarding how this theory must be evaluated, she states that it must be done following ‘good theory’ criteria: it must be “parsimonious, testable, and logically coherent” (p.548). This leads us to the criteria of validity that apply for this research strategy. Yin (2009) divides them in four: criteria regarding the construct (which refer to the sources, the chain of evidence and the revision of the draft by informants), criteria regarding internal validity (which apply only to explanatory/causal studies and aim at telling the real causes from the apparent ones), criteria regarding external validity (which refer to generalizability), and criteria regarding reliability (those related to replicability). The latter mean “to make as many

steps as operational as possible and to conduct research as if someone were always looking over your shoulder” (p.37).

To end, we could mention the strengths and weaknesses of research case studies. Among the first, Eisenhardt (1989) cites the high susceptibility to generate good theory case studies hold. At the same time, the constant iteration theory-phenomenon she suggests is a good antidote to preconceptions or unjustified assumptions. As weaknesses to be avoided, she mentions the danger of getting lost in a web of data, connections between data and implications pretends to be all-encompassing. The opposite risk is also likely to appear, i.e. a view so tied to the particular case that allows for no theory or for a too narrow one.

2.1.2.4. THE STRUCTURE OF OUR CASE STUDY

In our literature review we have found some papers based on case studies, which helped us to see how the case study is applied in actual research. The examples we cite here have the advantage that they show some elements in common with our research. For instance, Dyck *et al.* (2005) engage in a longitudinal case study in which they observe a company that launches a project containing a series of improvements that imply a process of change and relearning throughout the organization. The process we study was also launched by the organization’s HQ and it required changes in some working procedures. Inkpen and Dinur (1998) seek to document how KM works in joint ventures also through a longitudinal case study in which they use theoretical replication (Yin, 1994, see 2.1.2.2.). We focus on KT processes and we use information that although does not strictly constitute our case a longitudinal one, at least it gives some clues about the evolution of KT processes in the company. Similarly, this is how Dinur, Hamilton III and Inkpen (2009) justify their choice: “Because the goal was to gain deep insight into organizational processes, a case study methodology was used” (p. 437). In their work, they refer to previous literature that underscores the need for qualitative comparative case studies with a marked exploratory facet in the field of MNCs’ knowledge integration. What gives our case a similarity to exploratory cases is the setting, which not so often appears exemplifying knowledge processes. Likewise, Tsoukas and Vladimirou (2001) base their research on a case study, in which the setting

is a customer department, i.e. a department that is not a priori knowledge-intensive, under the conviction that: “human action in organizations (all kinds of organizations) *necessarily* draws on organizational knowledge” (p.984, emphasis in original). Finally, Maritan and Brush (2003) have the aim of describing the process of the transfer of a practice—flow manufacturing—across an organization, paying attention to the differences between plants as influencing factors. Let us see how they explain their decision:

We take a case study approach for several reasons: (1) we are interested in how a process progresses rather than its frequency or incidence, (2) we have largely qualitative data, and (3) we have many more variables of interest than data points (Yin, 1994). The study follows an embedded case study design (Yin, 1994) (p. 947).

Similarly to our case study, they can focus on the transfer and the main factors affecting it by keeping constant the practice and the context. Kostova and Roth (2002) also focus on one single company with the purpose of controlling for the organizational culture. As we will see (2.4.), by keeping the services constant, we were able to observe the differences among countries.

We obviously based on the above reviewed literature for the design and structure of our case study. Models proposed by the different authors are quite similar. We will just comment some of them. For example, Huberman and Miles (1998) propose the structure in which we can find: the construction of the conceptual framework—“key factors, constructs, or variables, and the presumed relationship among them” (p.203)—, the formulation of the research questions—which are “not necessarily ‘hypotheses’” (p. 204)—, the definition of the case—including its focus and boundaries—, the sampling, the choice of the different research actions, times and places—which, they suggest, should be made according to theory and not (statistical) representativeness—and the instrumentation required to meet validity requirements. Berg (2007) follows a similar scheme but with a strong emphasis on dynamism: there must be what he calls ‘the spiralling research approach’, which “views theory-before-research and research-before-theory as highly compatible” (p. 23). He sees research as a back and forth movement

between two clearly distinguishable³¹⁶ realms, that of ‘cognitive reality’ and that of ‘physical or sensory reality.’ In this spiral, the different elements or phases of the research—ideas, literature review, design of the project, data collection and organization, analysis and findings, and dissemination—emerge. Likewise, Wolcott (1990) remarks that good qualitative work combines problem setting, fieldwork, analysis, and writing all at the same pace.

Perhaps it is Yin (1994) who describes more in detail how the research protocol must look. He deems a detailed protocol—containing all the tools and procedures to follow—essential for a multiple-case study, and he divides its design in some phases: (1) the general view of the project (with the background information, main issues and relevant literature), (2) the field procedures (preparing the field work with the appropriate documentation, sorting out the sources—such as interviewees—, and working on the access to them), (3) the questions the case must answer to, (4) the data collection and analysis, and, finally, (5) the report (which must have a well identified audience). In our research, phase (1) has been described in the Introduction, in which we explain the reasons and ideas for the project, and in all Chapter 1, which develops the theoretical framework of the study. Phase (3), research questions, has also been placed at the end of Chapter 1 (1.5.). It seemed to us a natural place, because they emerge from what we have seen in the literature review, but, at the same time, must be answered by the empirical research. Therefore, all this Chapter 2 will deal with phases (2), (4) and (5). These will be described in detail in their respective sections: in 2.2. we will describe the setting and justify the choice for it (phase (2)), in 2.3., the selection and making of data collection, in 2.4., we will explain the data analysis (phase (4)), and the results and implications will be shown in 2.5 (phase (5)).

³¹⁶ The distinction helps avoid the dichotomy objectivism-subjectivism, which so often appears related to qualitative research. In an aside, we could say that objectivity should not be taken for granted in quantitative research: the researcher appears and makes choices in all the phases of the research.

2.2. THE SETTING

What about the setting? How to select it? The advice that comes from literature seems quite common-sense: one should select a site that is reasonable and affordable, i.e. accessible and that calls for resources available to the researcher (Berg, 2007, Morse, 1998, Valles, 1997). For example, Berg (2007) further specifies citing the complexity and size of the setting and the researcher's level of expertise as elements to take into account. Morse (1998) insists on securing the access and considering alternatives to the initial design. Valles (1997) highlights that the criteria followed to choose the setting must be made explicit.³¹⁷

The setting we chose—a foreign, 500.000 employees MNC—may seem overambitious in terms of scope and accessibility. However, this researcher had her way smoothed because a first contact had been made time ago, in 2007, when her thesis supervisor and herself decided to write a teaching case for IESE Business School about the Spanish subsidiary of the company, which had excelled in their integration policy after a series of acquisitions. That led to a series of interviews and travels that will be described in the data collection section (2.3.1.) and, definitely, to more contacts that opened the doors to the different subsidiaries that were finally investigated. On the side of economic resources, at the time of the interviews, the researcher disposed of funds for travel expenses. If the scope of the research was too vast for the researcher was something to be experienced, but it also depended on the possibility of making the right questions to the right people. Once again, this aspect will be discussed later.

This is for what regards to feasibility. But what about the opportunity of an MNC as a setting? And why a facility services MNC?

To answer to the first question, we should go back to Roth and Kostova's (2003) work. We already commented on some traits of this paper when dealing with the specific traits of MNCs (1.3.2.1.). Here we will focus on issues more related to

³¹⁷ Note that all these suggestions are valid also for the selection of the sample, which we will deal with later.

methodology. As above said, Roth and Kostova offer three possible reasons for using MNCs as research setting: 1) to describe idiosyncratic traits of MNCs, 2) to validate or broaden existing theory, and 3) to create new theory. Each one of these goals is attained in different ways. The description in 1) needs no further explanation. 2) is possible because the complexity and heterogeneity of MNCs—of internal and external context, and of individuals within—provides a good rationale for generalization. This also stays for case studies: a case study on a MNC has a priori, for its richness, increased chances of generalizability compared to a case on a local organization. Finally, 3), MNCs' distinctiveness can infuse novelty into the theoretical panorama by catering new explanations, conceptualizations or even theoretical models. Regarding the latter, Roth and Kostova (2003) cite a previous paper of theirs (Kostova and Roth, 2002) that introduces new theory on best practices transfer in MNCs and, precisely, we seek to follow the pattern number 2)—i.e. contribute to existing theory—connecting to this kind of research. There, Kostova and Roth focus on a best practice *institutionalization* process and examine the different tensions subsidiaries are subject to on their way to fully embrace the practice. Our research follows the same thread, especially with regard to something they suggest at the end of their paper:

In contrast to the predominant tendency of international research to examine country effects through general cultural attributes, issue-specific approaches to understanding country effects by developing specific country institutional profiles might be a better alternative. (Kostova and Roth, 2002, p. 231)

We will see that our research found some country-specific effects other than cultural differences—the most commonly adduced ones³¹⁸—that account for differences in the use of KT mechanisms by the different subsidiaries.

As for the choice of a facility services MNC, we already explained in the section devoted to service firms (1.4.) that we were interested in inquiring into service firms that neither were KIFs nor did they belong to the group that scored lowest in all the items in Table 3 (see 1.4.3.5.). As before said, we had had previous contact with the company where our field work has been done, and we had collected some information with the purpose of doing research about KM and learning processes there. For the

³¹⁸ For example, Chen and McQueen note how the (Chinese) subsidiary members' absorptive capacity is affected by the geographical and cultural differences with respect to the HQ (in the US).

present research, we could have chosen to focus on integrated facility services (IFS) management,³¹⁹ but that would have meant diverting from actual operations. We were interested in a facility services company precisely because we would be able to compare some services within the same internal context, which offered several advantages from the methodological point of view, as above said. The two services we chose—cleaning and catering—are, as we see in Table 4, a priori different from each other, which allows us to expect differences in the results of our research.³²⁰ It was our initial intention to focus on offices cleaning and school catering, to differentiate them further, being office cleaning the one a priori considered simpler in terms of type of knowledge and skills required. In Table 4 we left the other types of organizations to show the respective place that would correspond to the two service organizations (in this case, divisions of subsidiaries).

Now we are ready for the description of the setting. We will do it in different steps: first, we will briefly present the history of the company (2.2.1.); second, we will examine how the element ‘knowledge’ has been treated over time in this organization (2.2.2.); we will then describe the view of KT from HQ (2.2.3.). We will finally deal with the three subsidiaries chosen for our research: their history, situation in 2012 and how they manage knowledge-sharing processes (2.2.4.).

³¹⁹ Some of the interviewees insisted on this point (Interview 120124). This is because the company was firmly committed to a strategy of strengthening IFS management, i.e. offering the customer a one-stop-shop of a pack of services managed in an integrated way, instead of having them contracted—and managed—separately.

³²⁰ For example, catering requires more theoretical knowledge, and manual, cognitive and social skills than cleaning. Likewise, entry barriers to practice the occupation are higher than in cleaning.

Table 4 Classification of service firms with the addition of catering and cleaning services

COMPANIES	COMPANY CHARACTERISTICS													
	Capital Intensity	HC - related aspects							Institutional aspects of workforce's occupation			Customization		
		Individual					Organizational				Social status		Regulation & barriers	Ethics & norms
		Theoretical/Scientific Knowledge	Practical Knowledge / Expertise				Documents	Routines	Technology & equipments	Products				
			Skills			Judgment								
Manual	Cognitive		Social											
KIFs														
Technology Developers														
Biotechnology	5	5	3	4	2	5	5	4	4	4	4	4	5	2
R&D Labs	5	4	3	4	3	5	5	4	4	4	3	3	3	4
Neo-PSFs														
Consulting	2	3	1	4	4	4	4	3	3	2	3	2	2	4
Advertising	2	2	1	3	5	5	4	2	1	4	2	1	1	5
Professional Campuses														
Hospitals	5	5	5	4	4	5	5	4	4	1	5	5	5	4
Classic PSFs														
Law	2	4	1	4	4	5	4	3	2	1	4	5	5	4
Accounting	2	4	1	5	2	3	5	5	5	4	3	4	4	2
Architecture	2	5	2	4	3	4	5	4	4	4	5	5	4	4
...other...														
FACILITY SERVICES														
Catering														
School catering	3	3	4	3	3	3	3	4	3	3	2	3	3	3
Cleaning														
Offices cleaning	2	2	3	2	2	2	2	4	2	1	1	1	2	1
...other...														
Fast-food chain	2	2	2	1	3	1	3	5	1	2	1	1	2	1

Before starting with the first subsection, we should warn the reader that the descriptions below are based on *our* interpretation of the data we collected—mainly interviews, and written and digital documents. But we used different sources precisely to make up for the subjectivity inherent to any interpretation. In second place, we will focus almost only on knowledge regarding the service operations, i.e. we will not refer to mechanisms and communication channels designed to transfer or report financial data, data related to M&A, sales and other. Thirdly, we will apply a further reduction: to facilitate the reading we will provide an overview of the company and the mechanisms in use. In the analysis section (2.4.) we will go into detail, and we will be more exhaustive in the account of KT mechanisms.³²¹

2.2.1. HISTORY OF THE COMPANY³²²

The company that will serve as our field is ISS A/S, a Denmark-based facility services multinational. It has subsidiaries in Europe, the Americas, Asia and Oceania and it has over 500.000 employees. In 2013 and 2014 it has been named the world's best outsourcing company. Here we will narrate the history of the company and we will leave other relevant data for subsection 2.2.3.

In 1901, Danish entrepreneur **Marius Hogrefe** founded a nightwatch company called Kjøbenhavn-Frederiksberg Nattevagt. At his sudden death in 1904, his widow took over and sold it to several shareholders in 1908. In 1909 the Supreme Court

³²¹ There we will have to justify how we have classified each of them, and also, as far as possible, our perception of how these mechanisms are appraised by interviewees.

³²² The main sources for this subsection and the following one (2.2.2.) are Schmidt *et al.* (2003), Wallengren (2005), Prats and Agulles (2009a) and interviews 080908-3 and 081119. This account will cover only the time since the foundation and the year the data collection was finished (2012).

Attorney **C. L. David**,³²³ as he was known, invested in the company of which he had been member of the board, and became the chairman in 1910. Under his chairmanship, the firm developed many of its cultural traits: entrepreneurship, professionalization, social awareness, learning drive, and international projection. In 1915, David appointed **Philip Sørensen** Director, and in 1917 the company, which was growing, became De Forenede Vagtselskaber (DFVS). In 1931, Sørensen expanded the security business to Sweden.³²⁴ In 1934, at his suggestion, a cleaning company—Det Danske Rengøringselskab (DDRS)—was created: cleaning personnel worked when watchmen left the building, thus filling the span of time during which the facilities were empty. Such a type of service delivery was not usual then and it took some time to take hold but in time it became successful enough to account for most of the group's business.³²⁵

During these first decades and after World War II the company expanded in the Nordic countries. In 1951, the group consisted of DFVS (security), DDRS (cleaning), Danske Securitas (alarm and security devices) and Budvagten (parcel services). Around a decade before, the group had started a series of welfare, consultation and occupational qualification initiatives that were fully running in the 1950s. Over this period, staff shortages in DDRS triggered the introduction of some changes, such as night shifts, rationalisation of work, new machines and chemical products, and wage increases.

³²³ Christian Ludvig David (1878-1960) is well known in Denmark for his career in law and as a businessman. He was also a renowned art collectionist who set up a foundation to preserve and eventually increase his collection.

³²⁴ There his son Erik Philip founded Hålsingborgs Nattvakt, in Helsingborg, which became Förenade Svenska Vakt in 1935. In time, the Sørensen family acquired the Swedish part of the company, which would be rebranded as Securitas (1972) and divided between Erik Philip Sørensen's sons Jørgen and Sven (1981) as, respectively, Group 4 and Securitas. Group 4 would merge with Falk (2000) and Securicor (2004) to become G4S. Both companies, G4S and Securitas, dispute the two first places among security companies worldwide (Schmidt *et al.*, 2003, Wallengren, 2005). Curiously enough, also Falk keeps connection with ISS. It was a Danish rescue company that started in 1906 and became the leader in the country. In 1993 it bought ISS Securitas, who were at the moment the Danish leaders in alarm services. As we will see, ISS was then seeking to focus on cleaning-related activities (Wallengren, 2005). To complete the list of successful connections, a locks manufacturing company, Ruko, was bought by DVFS in 1950 and then sold it to ASSA (1951), which eventually merged with ABLOY (1994) and is since number one in the industry.

³²⁵ DDRS had its first specialised cleaning department in 1939: in a time when TBC, influenza and other diseases were not rare and often deadly, they created a department for telephones disinfection.

In 1960 C.L. David died. Little before, he had remarked the importance of hiring an engineer with vision to further grow the cleaning business. And 1962 brought to DDRS a new CEO, **Poul Andreassen**, then at his mid-thirties, who grew the company both by acquisitions and organically, and he went on with its personnel and technological development.³²⁶ Cleaning services diversified, from offices to industries, to railways and transport in general, to hospitals and other health-related premises, to which maintenance services were added. Special divisions of catering, linen services and mat services were developed. The company opened subsidiaries all around Western Europe. The first country was (West) Germany (1966), followed by Switzerland (1967) and the UK (1969). Brazil was the first American country (1973), with 33 year-old **Waldemar Schmidt** as the Managing Director.³²⁷ The US were accessed in 1978.³²⁸ Innovations were tested in Denmark and the Nordic countries and then spread around. There were also some strategic alliances. DDRS saw several changes of name, and in 1973 it became ISS (International Service System).³²⁹

The second half of the 1980s brought the creation of the environmental services and the rewards and promotion Five Star Programme. In 1993, the ISS University was created to train managers, and ISS opened a new head office in 1994, which gathered around all the training and development activities. Under Andreassen's leadership, ISS had first become a diversified services company and had then gradually focused on what was considered its core business, cleaning, with the motto of becoming "the biggest cleaning company in the world." (Wallengren, 2005, p. 209) That led to the subsequent divestment of the security, linen and other non-core activities.

³²⁶ DDRS had 2.000 employees.

³²⁷ He became the Director of ISS Europe in 1979, and moved this office to the UK in 1989. There, he hired David Openshaw as UK Managing Director, Jimmy Hayes and the rest of the team that were responsible for a sort of re-birth of the cleaning business in the UK. ISS bought Mediclean, company specialised in hospitals cleaning, which in time became leader in the market.

³²⁸ The adventure in USA had to be discontinued in 1997 following financial problems that jeopardised the whole corporation. ISS went back to the US in 2007.

³²⁹ The 1970s and 1980s period was also marked by social unrest—women's and workers' rights groups were very active— and also some problems with the public sector. All these issues made ISS managers aware of the importance of communicating better themselves to the public.

Poul Andreassen left ISS in 1995, after 33 years leading the company: it had grown from DKK 20M to DKK 14G (Wallengren, 2005).³³⁰ The company was listed in the Copenhagen (1977), London (1989) and New York (1994) stock exchange. The new CEO, **Waldemar Schmidt**, launched the strategy *aim2002*, aimed to foster organic growth, margin improvements and tight cash follow-up. The motto was now “ISS—the leading and most innovative international service company” (Wallengren, 2005, p. 209). The HQ premises and the activities associated to them, the ISS University included, were closed due to financial constraints, and the top management team was thinned. Poul Andreassen had given a lot of autonomy to the different divisions and Schmidt sought to instill unity in this diversity by becoming one Group. At the same time, the great change was aiming to specialise not in types of cleaning but in offering a pack of services by customer segments (Interview 081119). ISS expanded to Central and Eastern Europe—being Austria the base—and Asia.³³¹ The company opened in Spain in 1999.³³² As usual, the first steps were acquisitions, with the scope of being not just a cleaning firm but a specialised services one. In 1997, he appointed **Eric Rylberg** CFO.

³³⁰ The workforce had incremented to 140.000 employees. His was not a conventional retirement. After serving in several Boards and a brief excursion into active politics, he died in 2009 at the age of 81. Wallengren (2005, p. 122) summarizes his managerial style with the following terms: “social conscience” and “the Scandinavian management philosophy: respect and consideration for people, training and an informal manner”, to which he added “a firm belief in local management for local markets,” and, therefore, decentralisation. He is portrayed there as one of the responsables for the professionalization of service management in Denmark. This is due, partly, because of his contact with the business world in the US. We highlight these traits because we will see that they explain some of the facts we have observed in the empirical research. In 2008, he stated that ISS still used the MRS (Management Reporting System) he had introduced in the company. He was asked for permission to use it for the strategy *The ISS Way*. (Interview 080908-3)

³³¹ Hungary (1990) was the first former Eastern Bloc country to be entered. Asia was accessed with the acquisition of a company with offices in many countries, being (then British) Hong Kong (1995) the most important. Wallengren (2005) indicates high employees’ turnover and difficulties to find trained staff at all levels as characteristic of Asian markets.

³³² Back in 1971, ISS had made an acquisition jointly with Electrolux (Wallengren, 2005), but the Spanish subsidiary considers 1999 as the real start of ISS as such in Spain. The circumstances of the start will be described later (2.2.4.2.).

In 2000, Waldemar Schmidt left the company³³³ and Rylberg replaced him as CEO. ISS had at the moment 253.200 employees and DKK 28,7G revenue (Wallengren, 2005).

Rylberg presented the new strategy, *create2005* shortly after taking office. He proposed to transform ISS into an IFS company.³³⁴ The services to be provided would be cleaning, catering, office support, property services and security.³³⁵ Now the focus was on customer needs and the way of meeting them. The advantage of the proposal for the customer was obvious: it was easier to outsource if the contact point was one instead of several. It was more demanding for the service company, because it required a wider expertise and communication and coordination between areas that had been so far working in silos. In ISS they viewed their self-delivery as an advantage over competitors who were subcontracting. Regarding financials, the strategy was expressed in an equation: $E=MC^2$, where E was economic value, M was margin, one C was cash conversion and the other was continuous organic growth.

During the almost six years Rylberg was at the helm of ISS, the company faced some challenges, such as the closing of ISS CarePartner (child-care services) in 2002, after three years of struggling to position in the market, and problems with unions in Germany. The 11-S attacks had a negative impact on aviation industry and ISS had to close their Aviation division in 2002. But there were also successes. For example, ISS Mediclean was operating full sail in the UK. The ISS University reopened in 2002 in the new premises at the Bredgade (Broad Street) in Copenhagen (Wallengren, 2005). It also hosted the ISS Academy, addressed to train-the-trainer activities. The company offered now a customised MBA programme to their senior managers. Also in 2002 **Jeff Gravenhorst** joined ISS as CFO in UK.

³³³ He is member of several boards and has lectured at IMD, Switzerland. He has also authored three books regarding management and the service industry.

³³⁴ ISS started reading as Integrated Service Solutions in 2001. Currently, only the acronym is used. The logo had been changed in 2000.

³³⁵ The IFS concept would be graphically expressed as a house, in which the roof, in red, would be IFS, and it would be supported by the different services: cleaning (blue), office support (yellow), property services (orange), catering (green), and security (grey). These colours were kept corporately in the different communications and documents, and we also used them in the data analysis process. With this, ISS ventured into catering and property services and had security back in the business.

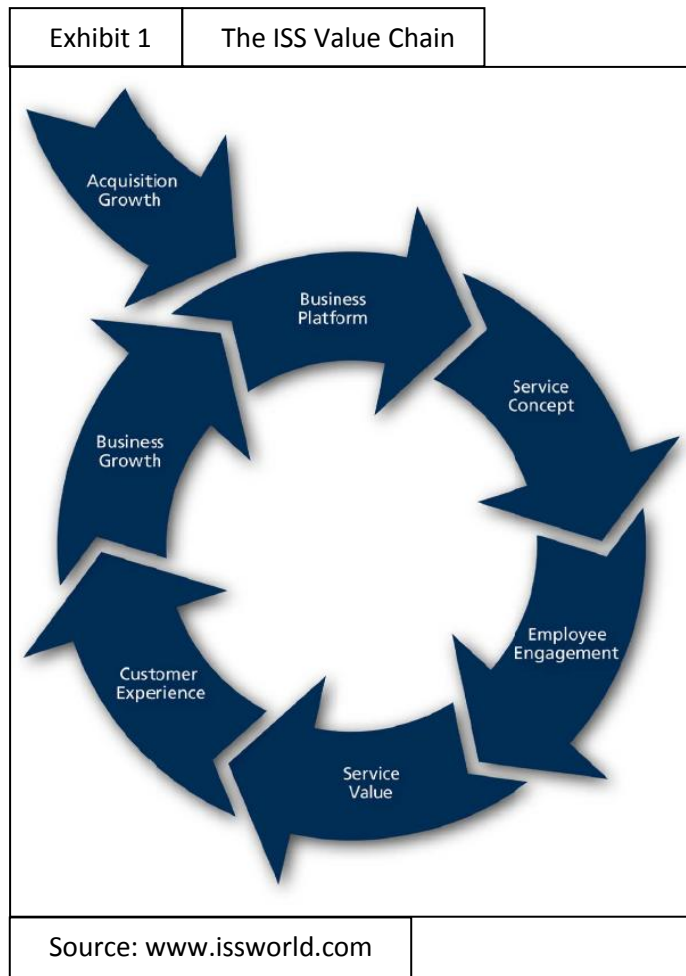
ISS got a corporate code of conduct in 2003.³³⁶ In 2005 ISS started in India. That same year EQT and Goldman Sachs jointly acquired ISS. Just two weeks later, Rylberg presented a new strategy—*Route 101*—, which aimed at reaching a DKK 101G revenue.³³⁷ ISS reached 300.000 employees.

The acquisition of ISS by the private equity partners brought many changes to ISS. Eric Rylberg resigned in 2006, and he was replaced by **Jørgen Lindegaard**. The company had made it to a turnover of DKK 60G. Just one year later, employee 400.000 joined ISS. The investment facilitated a policy of acquisitions worldwide which only stopped in 2009, when the worldwide financial crisis effects began to be felt fully.³³⁸ With the new CEO, a new strategy came: *The ISS Way*, which was launched in 2008. It revolved around “customer focus, people management, the IFS strategy, and a multi-local approach” (www.issworld.com). The strategy was often represented by the ISS Value Chain (Exhibit 1).

³³⁶ It was revised in 2010.

³³⁷ In the Stock Exchange Release 16/05, 14 April 2005, where this strategy is announced, it is remarked that it is a ‘destination plan,’ rather than one tied to a term of years.

³³⁸ By coincidence, the author was in Copenhagen in September 2008, researching on ISS, just the week that Lehman Brothers’ fall was announced by the media. Informants from India admitted that HQ had not pulled the plug completely: in those countries, like them, that were in their early years, very careful and calculated acquisitions were still made, even if they were expensive (Interview 120724-4). This was considered out of question in the UK and in Spain, at least unless the financial international context improved.



Jørgen Lindegaard stepped down in 2010. The company achieved this year 500.000 employees and a DKK 70G revenue. **Jeff Gravenhorst** was appointed CEO and kept on with *The ISS Way*. Just a year later, there was a failed attempt of acquisition of ISS by G4S. In 2012 two more investors joined EQT and Goldman Sachs with a € 500M investment.³³⁹ ISS closed 2012 with 534.200 employees and a turnover of DKK 79,45G. (Table 5)

³³⁹ After 2012, ISS made ready to enter the stock market, which happened in 2014, in what has been considered the largest IPO in Denmark in two decades (www.bloomberg.com). It was nominated the best

Table 5

Key figures and financial ratios

DKK million (unless otherwise stated)	2012	2011	2010	2009	2008
Income statement					
Revenue	79,454	77,644	74,073	69,004	68,829
Operating profit before other items ¹⁾	4,411	4,388	4,310	3,911	4,075
EBITDA	4,956	5,020	5,042	4,182	4,636
Adjusted EBITDA ²⁾	5,264	5,243	5,160	4,779	4,944
Operating profit ³⁾	4,103	4,165	4,192	3,314	3,767
Financial income	217	197	198	223	242
Financial expenses	(2,935)	(3,004)	(2,609)	(2,568)	(2,987)
Profit before goodwill impairment/amortisation and impairment of brands and customer contracts	427	471	1,031	385	494
Net profit/(loss) for the year	(444)	(507)	(532)	(1,629)	(631)
Cash flow					
Cash flow from operating activities	3,855	3,676	4,036	3,732	4,334
Acquisition of intangible assets and property, plant and equipment	(762)	(1,010)	(886)	(897)	(718)
Financial position					
Total assets	53,912	54,996	55,455	54,354	53,605
Goodwill	25,841	27,170	27,747	27,434	27,259
Additions to property, plant and equipment	789	938	861	954	964
Carrying amount of net debt	25,955	29,905	30,623	30,886	29,639
Total equity (attributable to owners of ISS A/S)	5,013	2,070	2,626	2,190	3,498
Employees					
Number of employees at 31 December	534,200	534,500	522,700	485,800	472,800
Full-time employees, %	73	73	73	71	69
Growth, %					
Organic growth	1.7	6.2	3.5	0.6	5.9
Acquisitions	0	0	0	3	7
Divestments	(2)	(2)	(2)	(1)	(2)
Currency adjustments ⁴⁾	2	1	5	(3)	(3)
Total revenue growth	2	5	7	0	8
Other financial ratios, %					
Operating margin ²⁾	5.6	5.7	5.8	5.7	5.9
Equity ratio	9.3	3.8	4.7	4.0	6.5
Interest coverage ²⁾	1.9	1.9	2.1	2.0	1.8
Cash conversion ²⁾	103	93	98	96	103
Basic earnings per share (EPS), DKK	(4.0)	(5.1)	(5.5)	(16.5)	(6.4)
Diluted earnings per share, DKK	(4.0)	(5.1)	(5.5)	(16.5)	(6.4)
Adjusted earnings per share, DKK	3.8	4.7	10.3	3.9	4.9

Note: See page 171 for definitions.

¹⁾ Excluding Other income and expenses, net, Goodwill impairment and Amortisation and impairment of brands and customer contracts.

²⁾ The Group uses Operating profit before other items for the calculations instead of Operating profit. Consequently, the Group excludes from the calculations those items recorded under Other income and expenses, net, in which the Group includes income and expenses that it believes do not form part of the Group's normal ordinary operations, such as gains and losses arising from divestments, the winding up of operations, acquisition and integration costs, disposals of property and restructurings. Some of these items are recurring and some are non-recurring in nature.

³⁾ Excluding Goodwill impairment and Amortisation and impairment of brands and customer contracts.

⁴⁾ Calculated as total revenue growth less organic growth and less net acquisition/divestment growth. Currency adjustments thereby include the effect stemming from exclusion of currency effects from the calculation of organic growth and net acquisition/divestment growth.

Source: AR 2012

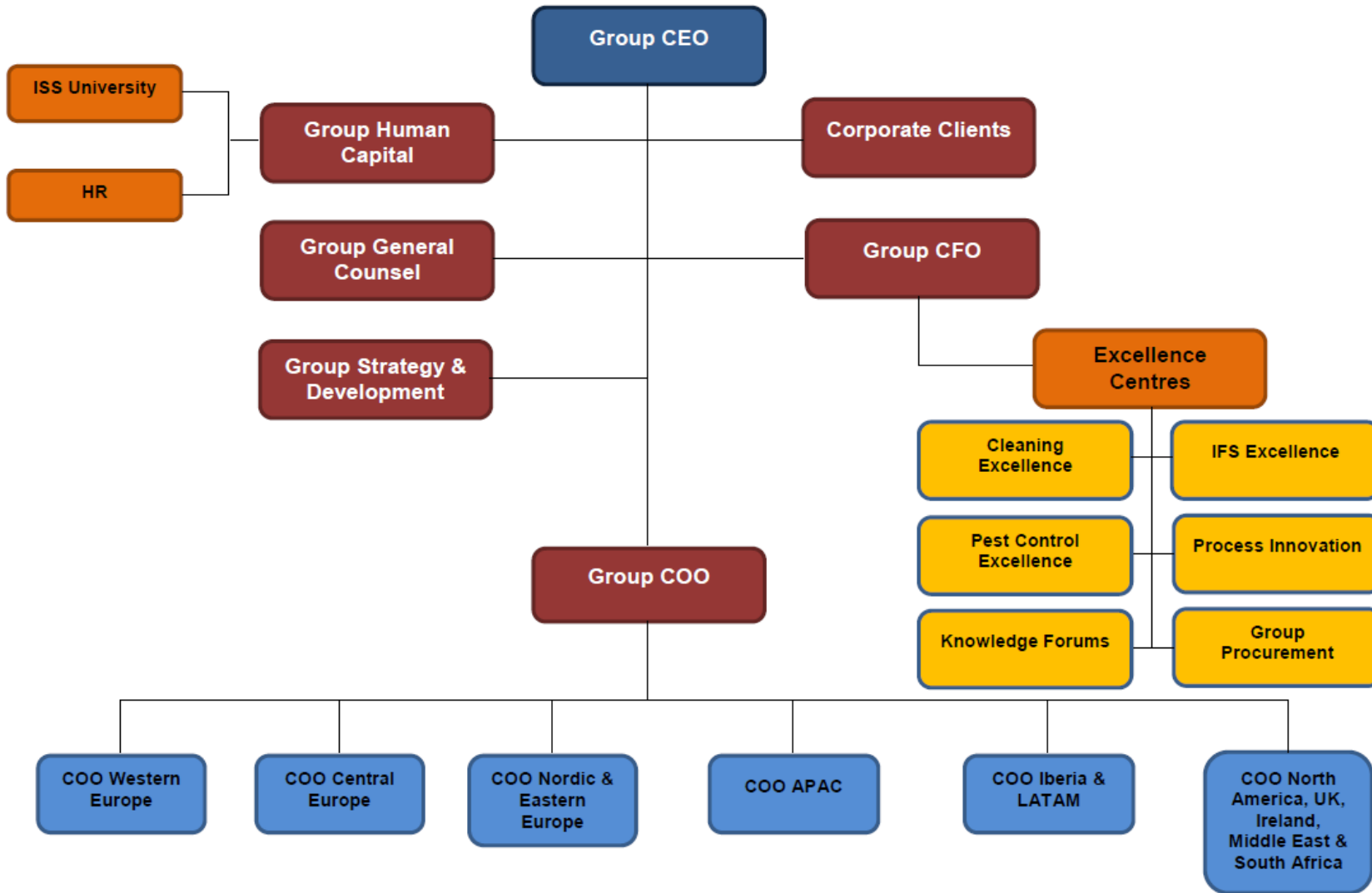
outsourcing company in 2013 and 2014. EQT and Goldman Sachs exited ISS in 2015 (www.businessvaluationtools.com). In 2015 Jeff Gravenhorst was still the CEO of ISS.

ISS was divided into six Regions (Exhibit 2): Western Europe (UK, France, Spain,³⁴⁰ Switzerland, Belgium and Luxemburg, Netherlands, Turkey, Germany, Israel, Austria, Greece, Italy, Ireland, and Portugal), Nordic and Eastern Europe (Norway, Finland, Sweden, Denmark, Iceland, Greenland, Czech Republic, Poland, Slovakia, Slovenia, Romania, Hungary, Estonia, Russia, and Croatia), Asia (Hong Kong, Singapore, Indonesia, India, Thailand, China, Taiwan, Philippines, Malaysia, Japan and Brunei), Pacific (Australia and New Zealand), Latin America (Brazil, Chile, Mexico, Argentina, and Uruguay), North America (USA and Canada), (AR 2012, p. 24).³⁴¹ In December 2012, ISS announced the moving to a new headquarters office at the outskirts of Copenhagen the following year.³⁴² Regional managers had a function of coordination among the countries within the Region. Each country had a Country Manager as its head and his or her management team was responsible for the P&L and the compliance with the operational and ethical standards of the company in front of the Group management team. The structure in every country depended on the level of development of the different services and customer portfolio.

³⁴⁰ The case of Spain and Portugal was particular because of the cultural ties these countries kept with Latin America. For this reason, during a certain time—at least, in 2009, 2010 and 2011—there was a Head of Iberia and LATAM, area which included Spain and Portugal, although at the same time these countries appeared in the performance lists of the Annual Financial Reports as belonging to Western Europe (Cfr. AR 2009, 2010 and 2011).

³⁴¹ That means that we chose for our research two countries of the same Region—UK and Spain—and another belonging to a remote Region—India.

³⁴² It was officially opened by the Crown Prince of Denmark in November 2013. <http://www.issworld.com/en/press/news/2013/11/04/a-royal-opening-of-iss-new-headquarters>, accessed 11/09/15.



According to this, we could use Egelhoff's (1982) typology (see 1.3.2.1.) of MNCs and apply it to ISS in 2012. If the four types were worldwide functional divisions, international divisions, geographical regions and worldwide product divisions, we could say that the structure that corresponds better is that of geographical regions. This configuration has effects on KT processes. According to Egelhoff, this structure "facilitates a high level of all four types of information processing³⁴³" (p.440) between subsidiaries and regional HQ, but not with another region: "the only mechanism for coordinating across regions is the corporate HQ" (*ibid.*). Thus, it is not strange that the knowledge-sharing processes in ISS, as we will see in brief (2.2.2.), emerge from HQ initiatives. In general, organizations with this configuration have numerous and relatively large foreign operations, with a considerable quantity of production. That means that this structure is costly and "requires sufficient size and potential" (p. 454).

If we apply Jarillo and Martínez's (1990) categories to the company we are studying (see 1.3.2.1.), we could say that the organization is between the 'multinational' and the 'transnational' types, and with a strategy that pushes the organization towards the 'transnational' modality. Regarding the subsidiaries, we could say, similarly, that they are between the 'autonomous' and the 'active' type, and they are being encouraged to take a more 'active' configuration. This is the process in the midst of which we made our research and that involves KM and KT to a great extent.

In another vein, the main competitors of ISS in each service—Sodexo, G4S, Securitas, Compass, Rentokil Initial, Aramark—had also entered the FS industry. Each coming from a different speciality,³⁴⁴ had ventured into other areas to complete their offer and they were positioning in 2012. Schmidt, Adler and Van Weering, (2003) study four of them—Securitas, Group 4 Falck (later G4S), Compass Group, and Sodexo (later Sodexo)—, which were in 2003, respectively, first and second worldwide in security and first and second in catering. The question is what brought them to success. The answer is articulated throughout the book: first of all, having long-standing leaders who were even-tempered, resolute and sensible. Second, all of them followed a similar

³⁴³ He is referring to the matrix he proposes of tactical information processing about company and country matters, tactical information processing about product matters, strategic information processing about company and country matters, and strategic information about product matters.

³⁴⁴ Sodexo, Aramark and Compass from the catering industry, G4S and Securitas from security, and Rentokil Initial from pest control.

path: 1) starting from a humble position, 2) the businesses got to an inflection point from which they 3) proactively chose to improve their strategy, 4) they expanded abroad, and 5) they made acquisitions that shaped the industry. We argue that some of these characteristics can be applied to ISS.³⁴⁵ For its first 60 years, two long-tenured leaders governed the company with a clear entrepreneurial vision, and as for the other CEOs this was also characteristic, together with a great accessibility. At the same time, 1) the origins had been humble (a small night watch firm), 2) the turning point, in our opinion, had been the introduction of the cleaning business along with the extant one (security), 3) they constantly endeavoured to constantly improve their business through professionalization of the occupations and management, 4) they followed a clear internationalization agenda and 5) they managed to shape the industry by growing organically and by acquisitions, and instilling their principles into the members of the organization.³⁴⁶

There are other traits that are described and we believe they apply to ISS: “All four companies work predominantly with local managers and teach them how to run the business the ‘Securitas Way’” (Schmidt *et al.*, p. 152) and so on. And they do it by creating a common culture. The tension between standardization through systems and personnel development and promotion is also well portrayed in this book.

With such a long-lived organisation, it was difficult to resist comparing the different phases the company went through with the different managerial approaches that successively appeared in the business scene and finding interesting parallelisms. A good summary is that by Barley and Kunda (1992). There they describe these approaches—“eras of managerial ideology” (p. 365)— in detail:³⁴⁷ first, ‘industrial betterment’ (1879-1900), which seeks to improve labour conditions on moral and

³⁴⁵ Having one of the authors—Waldemar Schmidt—formerly been a member and CEO of ISS, its exclusion from the companies under study was reasonable. The authors include, instead, the evolution of Assa Abloy (see note 324) as a proof that these steps, when consciously followed, lead to success.

³⁴⁶ At the end of the book there is an interesting question about how big a successful company can become without failing. The authors’ advice is to keep a balance between growth and spinning-off non-core businesses.

³⁴⁷ Barley and Kunda do not only describe the different trends but also subject to criticism their respective rhetoric. A similar account, applied to ISS, can be found at Ackenhusen and Ghoshal (1993).

religious grounds; then, ‘scientific management’ (1900-1923), which applies engineering principles to production, seeking a systematic management; next, ‘welfare capitalism’ and ‘human relations’ (1925-1955), which is a sort of revival of the first approach, but more focused on rights, motivation, and satisfaction, with its accomplishment in the collective bargaining system. The next approach is ‘systems rationalism’ (1955-1980), with the introduction of rational calculation in operations and standard procedures. Finally, we can find the approach that emphasizes ‘organizational culture’ and ‘quality’ (1980-current). For example, under C. L. David (1910-1960), it is possible to trace elements of industrial betterment, scientific management and welfare capitalism in his schemes for improving the workers conditions and qualification as well as the effort to professionalise and systematise cleaning. Without leaving these goals, with Poul Andreassen (1962-1995) systems rationalism came but also total quality management and other principles that were spread in the US. He aimed to professionalize management itself. With Waldemar Schmidt, Eric Rylberg, Jørgen Lindegaard and Jeff Gravenhorst, along with a close eye on financials, a strong emphasis was made on organizational culture and customer satisfaction through quality and employee engagement. Once again, what has been gained with the predecessors is kept along with new ideas.

2.2.2. HISTORY OF KM IN THE COMPANY

Given that our study focuses on certain KM processes—the sharing of best practices across the organisation—we considered important to see how the organisation had managed operations-related knowledge previous to our research.

As said, we will focus on operations-related knowledge. Since the beginning of the company there was an interest in both establishing a body of knowledge and instilling it in the employees. In 1915 there were only watchmen in the company, and C.L. David, along with Philip Sørensen, created a watchman’s school with teachers, a defined

syllabus—report drafting, police training, police dog training, self-defence (including jiu-jitsu techniques) and physical training—, and a final examination.

The creation of DDRS, the cleaning company, required the development of systems to calculate cleaning force ratios and rationalize cleaning times. As a consequence, efficiency principles were applied to cleaning procedures. As well as health and hygiene lessons in the 1930s, cleaning workers had designed a special clog for them. During this period, the security branch researched in technology for alarms and other devices. Following the steps of DFVS, DDRS created in 1941 a cleaning school that worked twice a year, with subjects such as notification of damage, new materials, cleaning theory, security issues and personal hygiene. They also had an examination. “Poul Keld [DDRS Director] and Philip Sørensen had also realised that modern cleaning was a science in its own right. Contemporary offices with delicate and fine interiors demanded professional and very careful cleaning” (Wallengren, 2005, p. 55). The school issued its own textbook.

In the decade between 1945 and 1955, the cleaning company developed several cleaning machines, such as their own model of polishing machine. They accumulated enough knowledge to create a Development Department in which polishers, ladders, trolleys and sweepers were designed. The Department also continued the research on rationalization of work procedures. The laboratory that had been created to face the shortages during World War II ended up manufacturing detergents (and even a cream to protect the employees’ hands). This initiative brought considerable savings and ensured quality. Prices could be made lower for customers and wages could be improved with all these measures.

Poul Andreassen’s arrival to DDRS made all but change these works. As said, he was decided to address scientifically not only cleaning but the management of cleaning itself, which became the core skill of the company and allowed it to diversify the specialization. Thus, his measures both promoted organizational and technological development. Knowledge creation by experimentation in both fields was typical of these times. The school was closed but different local schools were open: “in the early 1960s, the [Danish] cleaning workers were, therefore, trained in subjects such as cleaning studies, cleaning services planning, materials and accessories, machinery and social counselling and hygiene” (Wallengren, 2005, p. 110). Training and making

employees reach a higher level of expertise were considered key for a greater public respect for cleaning jobs. Andreassen set up several partnerships aimed at knowledge development: for example, he kept a close relationship with Stanford Research Institute to foster R&D, and he made an alliance with Electrolux to jointly create cleaning companies abroad.³⁴⁸ Some of the initiatives related to management R&D were not successful: for example, the Research Council created in 1972 with the scope of gathering scientists and technicians from several universities and institutes became too focused on research on management. The creation of ISS Management (1973-1979) as a way to systematically disseminate managerial knowledge around the company was too theoretical and got stagnant in paperwork. It was also too costly—it took up to some 20% of total profits. In the development of managers he borrowed from the GM model (from Sloan), and also invested in an AMA course for his managers. He established the yearly meeting—the Top Management Conference—as a tradition still in use in ISS. The expansion to the public and private health sector was attributed to the knowledge and expertise gained through these initiatives.

The 1980s followed in the same fashion. In 1986, the Five Star Programme for supervisory staff was created. As above stated, it was a training programme in modules with the scope of internal promotion (Interview 080908-3). The Programme started in Brazil and was disseminated to USA and then Asia and Europe.³⁴⁹ In 1993, the Quality Institute—which was created a year before to develop and evaluate quality processes—merged with the Centre for Service Management to constitute the ISS Development Centre, with the ISS University at the core. The aims were management development, service development and knowledge sharing, and it worked at all levels, inviting professors to top-range universities, such as Harvard. The University also worked as a tool for enculturation of newcomers.

As above said, with the arrival of Waldemar Schmidt, the University was discontinued. The first Centre of Excellence mentioned in Wallengren's (2005) work is in 1998: it gathered knowledge built in Czech Skoda factories and transferred it to Slovakia and Thailand. Also in 1998, an M&A Department was created to build criteria and standard procedures regarding acquisitions. They used a classification in different

³⁴⁸ Electrolux had the machines and contacts and ISS the cleaning expertise.

³⁴⁹ Wallengren (2005, p. 180) remarks that “the Scandinavian markets were excluded, as there was no tradition there of awarding badges of rank.”

sizes (S-XL) depending on the value of the candidates. In time, the Department also dealt with integration and other internal issues. All these initiatives were supported by the corresponding IT tools, which were becoming more sophisticated with time.

With Eric Rylberg the ISS University re-emerged in 2002, with the Advantage programme (for managers of all levels who have been recently hired or promoted to managerial positions) and the ISS MBA. Attached to the University the ISS Academy was opened. It fostered country-based training—using both international meetings or visiting the different subsidiaries—on standard procedures and administrative tools. The Facility Management System (FMS), an IT tool to implement a FM (Facility Management) plan, dates back to this same year. In 2003 ISS established a service partnership with the IT company CSC: ISS delivered all the auxiliary functions to CSC (the elements of the IFS contract) and CSC took over the management of the IT systems ISS used worldwide.

During the second half of the first decade of the 2000s, with Jørgen Lindegaard at the helm of ISS, a new knowledge-sharing initiative addressed to foster standard levels of quality across the organization took its first steps. As we will see, this initiative had a mixed reception and was revised and relaunched later. In 2009 the company started the online publication of a series of studies and white papers which condensed the expertise achieved by ISS in different areas.³⁵⁰ The series went on when Jeff Gravenhorst took over.³⁵¹

At the time the data collection was conducted (2012), the programmes in the University and Academy were in full function. In 2011 several of videos about the Company had been made, one of which won a marketing prize.³⁵² Some IT tools—such as SimISS or eMonitoring—had also been created around this time to support the operational improvements that were applied to the services. Other KM tools were in use: for example, knowledge forums, seminars, innovation fairs, manuals, the Talent Programme, operations videos and so on. This list is almost coincident with that

³⁵⁰ The complete collection can be found at the Learning Zone on the web www.issworld.com (see 2.3.2.2.).

³⁵¹ The latest documents were published in 2014.

³⁵² Subsequent safety videos were also awarded in 2013.

provided by Davenport and Prusak (1998) and it is, on the other hand, common practice in any organization that seeks to share knowledge.

After this summarized account, we can affirm that the company had a clear interest in the creation and transfer of knowledge over its history and that it aimed to achieve it through different mechanisms. They will be explained in the next subsection (2.2.3).

2.2.3. KNOWLEDGE-SHARING PROCESSES IN 2012: THE HQ PERSPECTIVE

Around 2008, ISS had launched a series of knowledge-sharing initiatives. There was a special need for this at the moment because the company was starting a series of IFS global contracts.³⁵³ That meant that the company was bound to deliver a service with the same quality standards worldwide (Interviews 080911, 081001, 080904). Countries still enjoyed a great autonomy, but the need for alignment was getting imperative. In 2012, they were being spread across the organization. Therefore, this isomorphism process, using Kostova and Roth's (2002) concepts was not coercive or mimetic—which is a response to uncertainty— but normative, i.e., it consisted on adopting those practices that were appropriate to the environment. Of course subsidiaries felt spurred by HQ to adopt the practices, but at the same time they understood that this was what the organization required for the new times (Interviews 100311-2, 1203013, 120419-2, 120607).

If we desired to make a snapshot of the knowledge-sharing processes that were going on in the company in 2012 we would need to understand them in relation to the structure of the company.

³⁵³ In 2008, the biggest one was with HP. While the researcher was in the UK in 2012 the contract with Barclays was being signed in a different office. They were two among several others.

In Exhibit 3 we can see this structure in a simplified way. In it we have in orange what belongs to the Group level, in yellow the Regional structure and in white, blue and green what belongs to each country. As above said, the blue and green colors have been used following the corporate system to refer, respectively, to the structures of cleaning and catering.

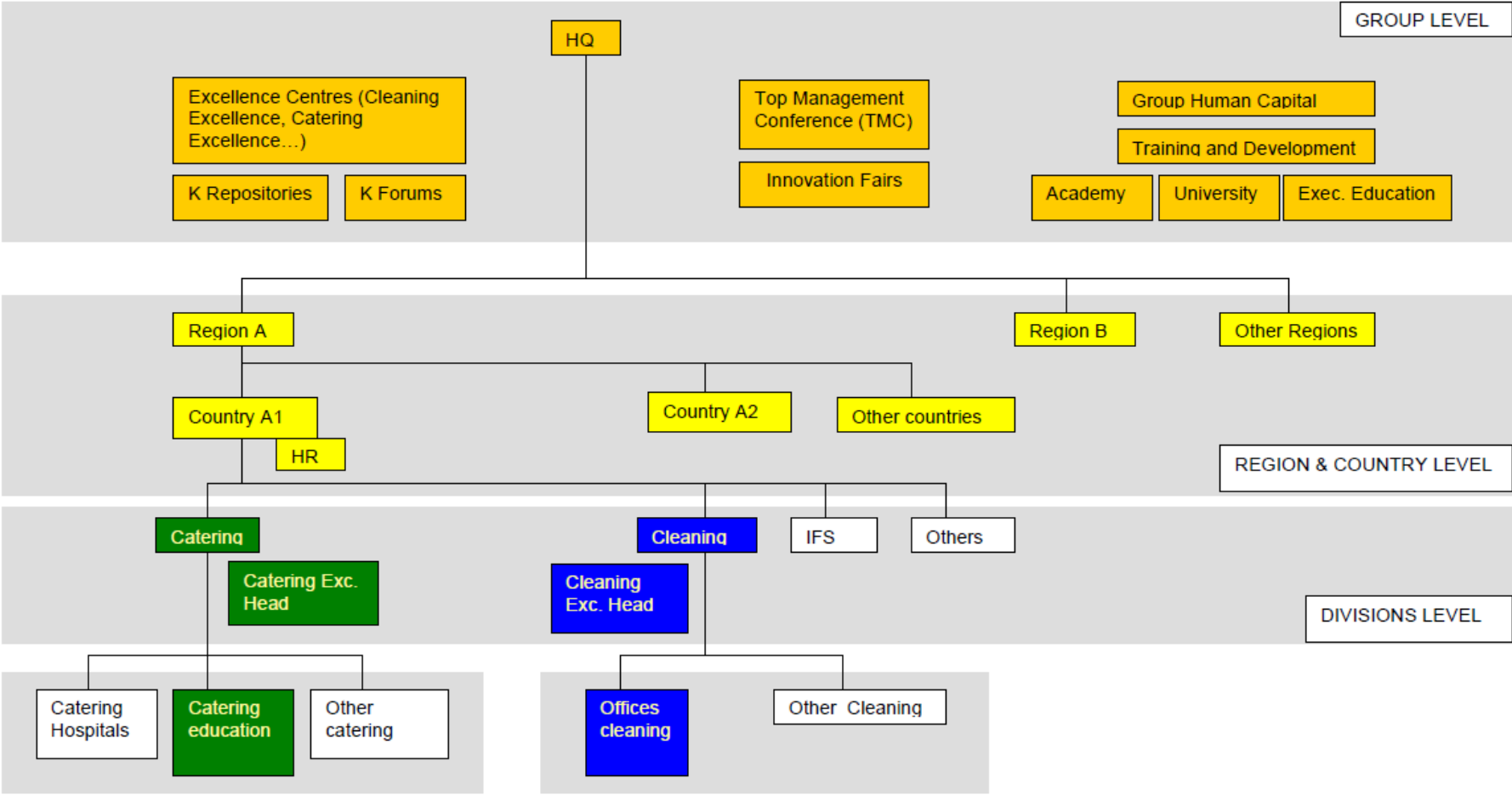
We will now proceed to explain the exhibit. At the group level, the company had established a series of mechanisms to share knowledge across the organization. The first and most obvious one was the **Top Management Conference (TMC)**, which was already a tradition in ISS. There, the HQ managers shared information with all the regional and country management teams about the performance of the company in the previous year and about the main goals. The information was aggregated but some countries were commented on in detail because they had excelled in some indicators or because they had experienced some challenges. All figures and numbers had been designed in a way that they could be easily understood by everybody as well as they were good indicators.³⁵⁴ Top performers were mentioned and awarded. There was also a communication of the main objectives in the short and medium run.

The TMC had a clearly strategic focus, but it also allowed for plenty of **networking** between the participants (Interviews 120611-2, 120612, 120724-1, 120326-1), and it also included an **Innovation Fair**. In it, several innovation projects from all the services³⁵⁵ were presented to the participants, who could discuss them with the creators themselves. This mechanism had been positively received by all who attended the TMC (Interviews 120313, 120326-1, 120326-2). For example, in the brochure of the Innovation Fair of 2012, we can find, among others, presentations about cleaning standardization in Norway, the creation of a local innovation fair in Turkey, or matrix synergies for IFS in Spain.

³⁵⁴ There was a consensus among the interviewees who had attended a TMC about the clarity and straightforwardness of the different interventions (Citations: Interviews 120326-2,120724-3).

³⁵⁵ Innovations in functions such as finance planning were also included in the Fair.

Exhibit 3 Structures and levels involved in KT processes



This is a simplified version. In some countries (i.e. UK), divisions are more complex (each is an IFS for a different customer segment: i.e. Hospitals, Defence), but the end of the chart is always similar. In these cases, the Head of Cleaning Excellence may be different for each different cleaning speciality. Something similar happens to catering.

The Group Human Capital team was in charge of all the training and development programmes. They included the **executive education** for the managers—such as the Talent Programme—and the courses issued by the **ISS University**—such as the Advantage Programme—and the **ISS Academy**—like the course on the tool SimISS. These courses not only provided teaching on their respective contents but they offered, again, a good occasion for networking that was well made use of (Interviews 120322, 120326-1, 120724-1).

Regarding the University, as said, it imparted management courses in partnership with different universities, such as the MBA with Henley or an annual meeting for Country Managers in IMD. Some of the programmes were personalised. We also mentioned above the Advantage Programme. The Academy covered different levels in the company, from senior to middle managers, and was focused on the teaching of best practices through e-learning, workshops and individual work. The subjects were very diverse: for example, on planning, IT tools such as the SimISS (for cleaning rates calculations), and the management of IFS contracts (d-document Adv40-5). Some of the programmes were provided in the HQ but if the country was big enough, trainers travelled to the country and taught there. They would train those who would become trainers in turn for their local colleagues. The programmes had standard structures, like those of the Lean Six Sigma Black Belt certifications, with a final exam and a certification. Then, there was a follow up on compliance. With this, a cascading effect was intended (Interview 120124, d-document 120322).

As a related element, we can find the **Excellence Centres**, which were led by a Head who, at the time of the interviews, reported to the Group CFO.³⁵⁶ Regional COOs reported to the Heads of each Excellence Centre, such as Cleaning Excellence, IFS Excellence, Security Excellence and Catering Excellence (which were both starting), Process Innovation and so on. The scope of the Excellence Centres (or Competence Centres) was to disseminate standard best practices and develop competences throughout the organization. In the case of Cleaning Excellence or Catering Excellence, there was a Group owner. In every country that subscribed to the process—and all were encouraged to—a Country owner was appointed (e.g. Cleaning Excellence manager).

³⁵⁶ The Head was Søren Kongsbak. The position used to report to the Group COO, whose place was vacant because he—Jeff Gravenhorst—had been promoted to CEO in the interim.

We will see in detail how this structure worked in-country. Entering an Excellence process required a formal commitment by the country management team, given the investment in resources—changes of structure, new training, new equipment, new IT tools and the like—that it involved, and a side-by-side collaboration work between the local and the group teams to tailor the programme to the specific needs of the country. All this was done through the training provided by the Academy. The Cleaning Excellence site, which could be accessed by the researcher, showed a vast document that contained all the best practices, with entries corresponding to different themes and specialities (e.g. how to clean an operating theatre). That posed the problem of accessibility and user-friendliness, which was under study at the time. The idea was to design something Wikipedia-like (Interviews 120124, 120322). This possibility was viewed as highly desirable by other informants (Interview 120419-1), some of whom suggested a more extended use of social networks (Interviews 120419-1, 120611-1). It also contained a list of key contacts (d-document 120322), but they acknowledged the need of constructing a sort of ‘yellow pages’ that were, again, manageable (Interview 120322).

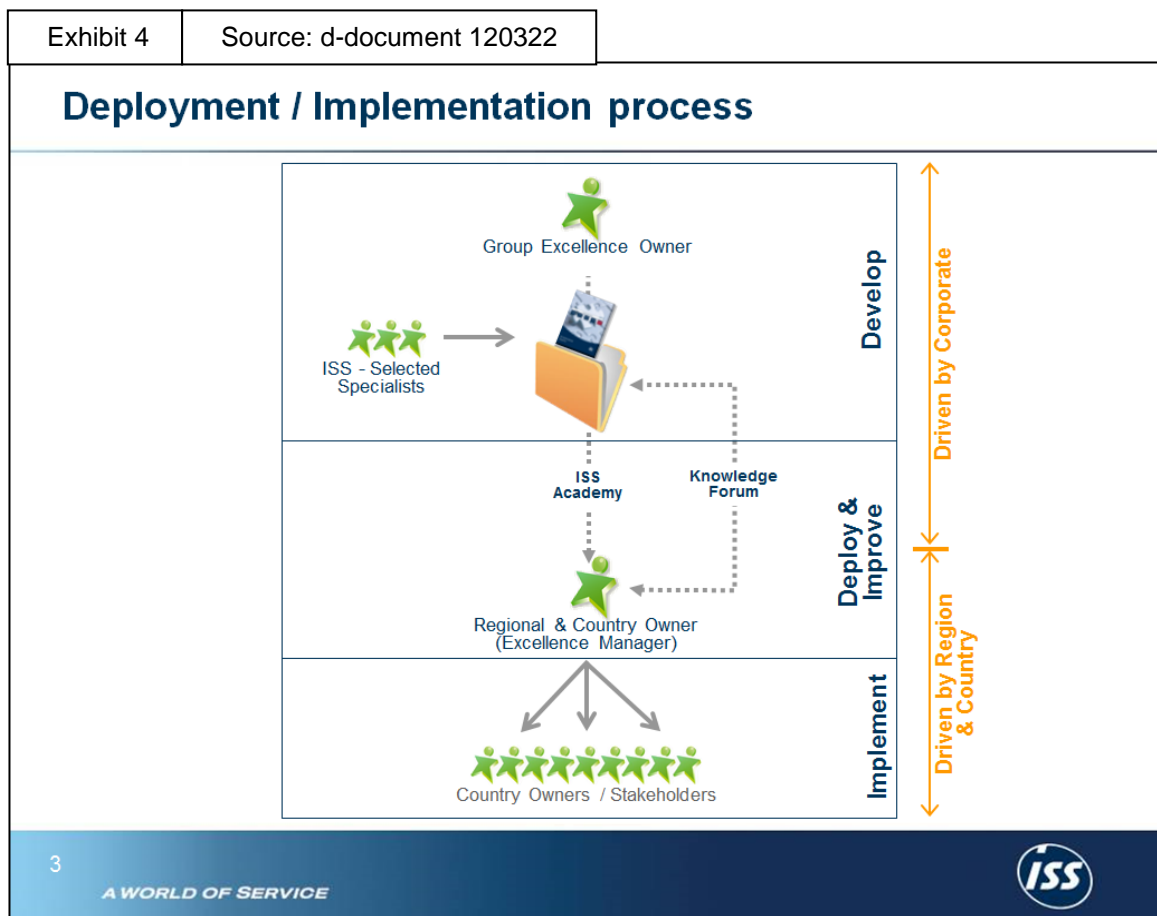
The Head of Excellence Centres also coordinated the **Knowledge Forums**. These forums were communities of experts in which best practices were shaped, discussed and implemented. The groups were constituted depending on the areas of interest—e.g. trains cleaning, or procurement for catering, or hygiene standards for catering—and they met physically, via virtual meetings and they used also virtual sharing spaces through Microsoft SharePoint Team Rooms.³⁵⁷ In the Knowledge Forums, participants worked on documents and manuals, some of which were in preliminary stages, or on ideas that needed to be nailed down. They provided to the company lines of improvement or new aspects to study (Interview 120322). Participants in the Knowledge Forums were selected because of their expertise or because they were learning how to implement a particular best practice in their country. As we will see, geographical distance and language were also other factors (Interviews 120124, 120326-1, 120326-2, 120725-2).

³⁵⁷ A great deal of emailing—and even phone calling—took place among the Forum participants as well. In some cases, they visited each other’s sites (e.g. interviews 120313, 120326-1, 120326-2, 120608-2, 120611-1).

The flow of knowledge was the following (Exhibit 4): a group of selected experts on a particular subject who did not belong to the company were invited to work on it. From the discussion and knowledge-sharing a preliminary document regarding best practices emerged. Then a group of in-house experts was called to complete the task of customising it to the organization. A series of workshops followed in which a bettered version of the document was completed in a way that allowed for further modifications.

Our ambition is not to use two years to get something perfect—it's to get something fairly quick, version 1. [...] It's maybe not best practice, it's good enough practice. [...] We're not writing it down so that we can't change it, quite the opposite: we write it down so that we *can* change it. (Interview 120124)

It was then disseminated through the Knowledge Forums and, when it was approved, through the Academy programmes. All the process was aimed to be subject to constant feedback by those who applied the processes locally.



These three different aspects—ISS Academy, Excellence Centres and Knowledge Forums—belonged to the same initiative, which had started around 2009. The beginnings had not been easy. Some informants recalled that the first Cleaning Excellence dissemination attempt had not been successful because it was too rigid and did not allow for the countries’ diversity, and they acknowledged that now the initiative had corrected this by far and become quite attractive and flexible (Interviews 100208, 120313, 120419-2). Another important aspect was that the company partnered with institutions such as business schools to design the programmes and provide teachers.

All these processes were supported by a series of **IT systems**. Some of them were obviously communication channels, such as the Microsoft-supported global mailbox or the aforementioned SharePoint program to facilitate the sharing between the different members and that had required the reinforcement of the global intranet, which allowed for the opening of discussion forums as well as the uploading of documents and directories. Other, such as the SimISS calculation system for cleaning, or the FM System, were data-processing tools for the operations but they contained information on the current state of the business and facilitated worldwide benchmarking.

Several years before,³⁵⁸ ISS had launched an **annual staff survey**, which they encouraged subsidiaries to join. Some of them had achieved a high response rate (Interviews 120419-1, 120419-2, 120612, 120724-5).

In addition, the company used **expatriates** as a way of transferring knowledge, but it was not made in a systematic way but depending on the needs (Interview 120124). Finally, **external contacts** were important. For example, FM periodic meetings—such as the ones of the IFMA³⁵⁹ or the EFMC³⁶⁰—allowed ISS HQ managers to discuss their business with colleagues in the same industry. Contacts and collaboration with vendors were also ways to learn and improve operations (Interview 120124). Other mechanisms will be mentioned in the analysis part (2.4.).

³⁵⁸ One interviewee recalled that it had been around 2008, but whether they had started locally, before the worldwide initiative, was not ascertained (Interview 120419-2).

³⁵⁹ International Facility Management Association.

³⁶⁰ European Facility Management Conference.

From this description, it can be derived that both formal and informal knowledge-sharing mechanisms were in use and, at the same time, they appear to belong to a wide range of types of interactions. A closer examination and the application of the criteria established in 1.3.3.3. will help us in the analysis section.

On the other hand, if we apply to this corporate initiatives the categories proposed by Kostova and Roth (2002) regarding the *phases of institutionalization* of a knowledge-sharing process—pre-institutionalization, semiinstitutionalization, and full institutionalization, we can preliminarily say that we are in the second stage, where “the practice is fairly diffused and has gained some degree of normative acceptance, but it has a relatively short history” (p. 216). This is something we can deduce from the view of the HQ team that leads the processes just described.³⁶¹ We will see in the analysis that this overall view can be refined, because the institutionalization had not occurred identically in the three cases we will examine.

Kostova and Roth (2002) also propose certain *patterns of adoption* of a best practice that differ in the degree of implementation (i.e. putting into practice) and internalization (i.e. understanding and assuming the fundamental principles). According to this, we may find *active* adoption when both implementation and internalization are high. On the contrary, we may find *minimal* adoption when both indicators score low. When employees show a low level of implementation but a high level of internalization, we find *assent*, which is what usually happens when the organization has a low capacity to implement the practice. When they do implement the practice but do not embrace it internally, we find *ceremonial* adoption, and this is typical of a working environment in which rules are perceived as coercive. Viewed from the HQ point of view, we have not perceived lack of internalization in the different individuals we interviewed, and with this we can discard ceremonial and minimal adoption. We will see in the analysis section (2.4.) that the three countries investigated had *actively* started the adoption but experimented different degrees of difficulty in the process.

³⁶¹ The HQ team are well aware of the obstacles the subsidiaries find against engaging in any of these processes. Lack of time or resources are not the least of them. The team in Group Excellence Centres stress the need to *sell* well the process to the subsidiaries, so they can see the advantages, which sometimes are not immediate.

2.2.4. KNOWLEDGE SHARING PROCESSES IN 2012: THE SUBSIDIARIES PERSPECTIVE

Knowledge management projects are more likely to be led by the IT department [...] than by human resources [...], marketing [...] or operations [...], and are often built around some kind of intranet, shared database, or groupware software that allows people to communicate with one another, share ideas, and engage in discussions. (Cabrera and Cabrera, 2002, p. 688)

This sentence does not prove entirely true in all cases. As it will soon come out, the KT processes started and were led differently in every country we investigated. In the UK they started by a series of changes led by the IT team. But the route does not seem the same in the other countries. In India, it seems more a matter led by HR and in Spain more by operations. The story is not simple in any of them, and it needs to be told more in detail. In this subsection we will examine each case, and we will do it in chronological order, i.e., starting from the oldest to the newest one.

The reason behind choosing these three settings is the possibility of a **comparison** between three subsidiaries. Two of them are a priori expected to have more in common between them—both are European—than each with the third one. This similarity is also expected to work as a background that allows for finding some differences. Regarding the third, it is precisely its expected distance from the two others what may help us find whatever similarities there are with the other two. Also a priori, we expect cultural differences to affect the way knowledge is transferred in each of them (and, if it is the case, between them). To this purpose, we can recall what was said about cultural factors affecting KT in MNCs (1.3.2.2.): there we cited the works of Bhagat and colleagues (2002) and Gouveia *et al.* (2003, 2011), who used the combination of the dyads individualism (perceived independence from the group)-collectivism (perceived belonging to the group) and vertical (perceived sense of hierarchy)-horizontal (perceived homogeneity). According to them, we have been able to find how the countries that appear in our study were categorised: Danish are considered horizontal individualists (which fits well with the entrepreneurial spirit and the emphasis on equality), Indians are vertical collectivists (the caste system is still guiding an important part of social relationships but, at the same time, there is a strong sense of being part of

a very singular collectivity), British are vertical individualists (which accounts for the emphasis on work ethics and also on *savoir-faire*),³⁶² and, finally, Spanish are classified as horizontal collectivists (there is a sense of equality and the importance of social bonds) who are slowly evolving to individualism (Gouveia *et al.*, 2003, 2011). We summarized Bhagat *et al.*'s (2002) propositions in the following three:

1) when source and recipient differ in both dimensions, KT will be most difficult; 2) KT between two vertical individualist units or two horizontal individualist cultures will be easier when the transferred knowledge is explicit and independent; 3) KT between two vertical collectivist or two horizontal collectivist organizations is expected to be easier if the knowledge that is transferred is tacit and systemic. (1.3.2.2., p. 179)

Thus, we could expect, for example, that the UK and India—which share at least the ‘vertical’ category—or India and Spain—which share ‘collectivism’—should transfer knowledge between them more easily than UK and Spain. Likewise, those that have one common trait should show more similarities in the way that they transfer knowledge in general. Just reviewing the following sections (2.2.4.1., 2.2.4.2., 2.2.4.3.) we will have a preliminary grounds to test if these cultural mechanisms work as above stated. The same happens with the following excerpts: “We expect vertical individualists to be more comfortable in transferring and receiving knowledge that can be easily codified and stands independent of the organizational context” (Bhagat *et al.*, 2002, p. 212). And: “Collectivist cultures are noted for their propensity to absorb and transmit tacit information” (*ibid.*). But to test these ones and have a further confirmation of the others, we will have to wait for the analysis (2.4.).

³⁶² These three categorisations appear at Bhagat *et al.* (2002).

2.2.4.1. ISS UK: THE LONG-DISTANCE RUNNER

ISS UK has accumulated a wide experience in the service sector and managed to remain at the top both in the internal market and in the global organization. We will here review briefly the history of this subsidiary and then have a look at the two services we will study: offices cleaning and education catering.

HISTORY AND GENERAL OVERVIEW ON KNOWLEDGE-SHARING IN ISS UK

Wallengren (2005) dates the origins of ISS in the UK back in 1969, with the acquisition of Commercial Cleaning Services Ltd. However, it seems that the company really took off in 1989, when, as above said, Waldemar Schmidt—who had moved the Regional office of ISS Western Europe to London—contacted David Openshaw³⁶³ and Jim Hayes,³⁶⁴ who had been working at Initial since 1974, with the intention of hiring them (Interview 120419-2). And so he did. This same year, ISS acquired Mediclean, which operated in the healthcare sector and, at the same time, the cleaning business in other segments started. The company grew steadily³⁶⁵ and, following the corporate policies, in due time it walked the path to IFS.

In 2012, ISS UK had 44.611 employees and a revenue of DKK 8,79G, being the first in revenue in the entire Group (AR 2012). It was a very mature company, and operating in a mature environment. In some of the services, such as cleaning and health care IFS, ISS was leader. In others, like Defence, it was well positioned, and it was starting in catering, both in fine dining³⁶⁶ and in education.³⁶⁷

³⁶³ David Openshaw was the CEO of ISS UK until 2009, when he became Regional Director for North America, UK, Ireland, South Africa and Middle East (AR 2009). In 2012 he was still in this position (AR 2012).

³⁶⁴ He had held different positions in the cleaning business and in 2012 he was gradually retiring as the Head of Cleaning Excellence in the UK.

³⁶⁵ The changes in the public sector introduced by the Thatcher government were highly beneficial for the outsourcing industry, because the public sector opened its doors to contracts with private companies.

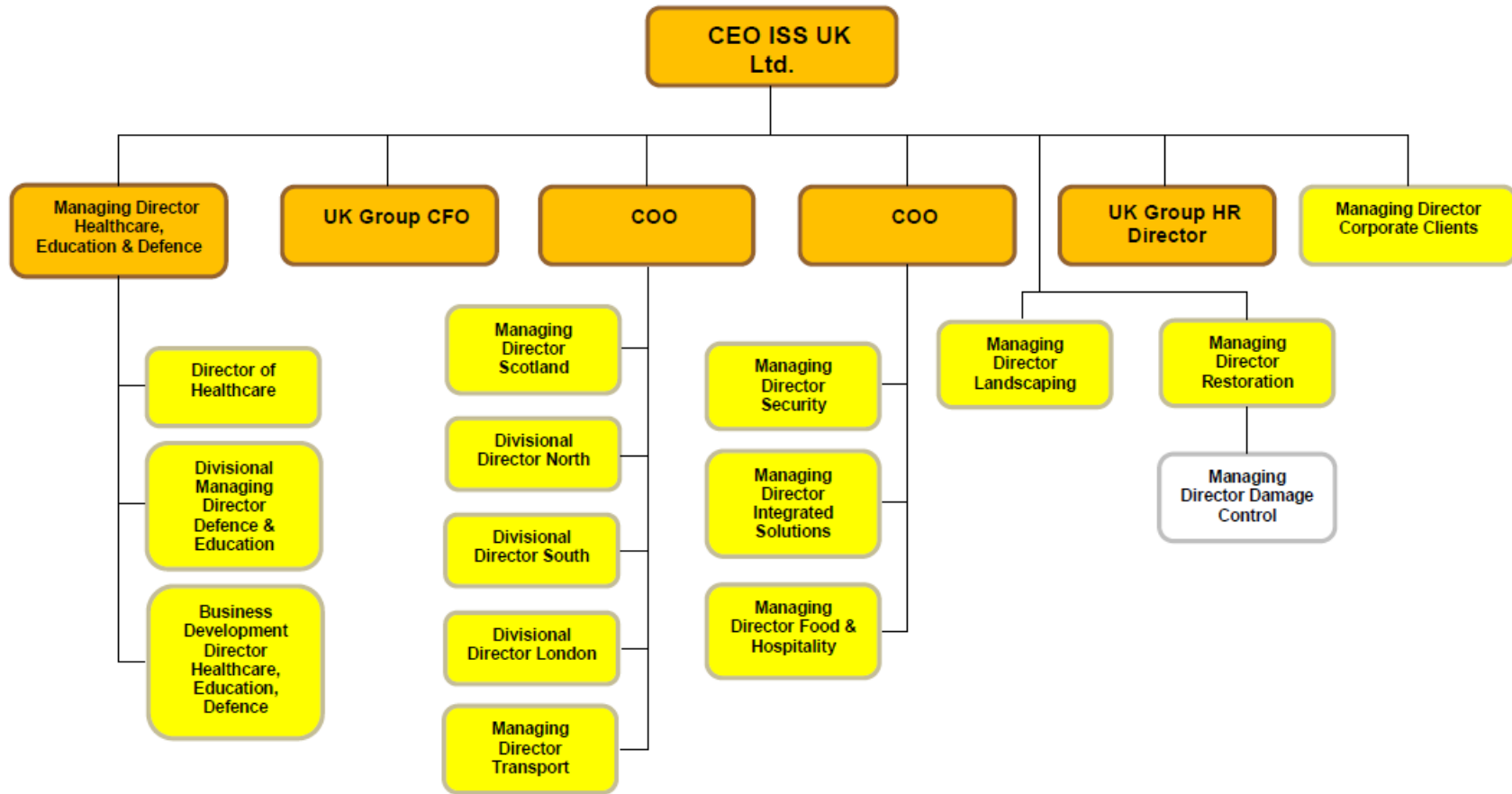
³⁶⁶ The acquisition of Eaton Fine Dining in 2004 was the milestone (Wallengren, 2005).

³⁶⁷ The first school catering company was acquired in 2008 (Interview 120511-1).

The structure it had in 2012 (Exhibit 5) is typical of a period of transition, and showed IFS businesses—such as Healthcare or Defence—, along with geographical divisions—e.g. Scotland and London—along with single services—like Landscaping and Restoration.³⁶⁸ One of the main challenges was that for many ISS was still a cleaning company, and that did not facilitate it being accepted as capable of offering other single services or IFS contracts (Interview 120612). The changes in the public sector introduced by the Thatcher government were highly beneficial for the outsourcing industry, because the public sector opened its doors to contracts with private companies. This phenomenon was still going on, but, on the other hand, the firm had still to fight against the deep-rooted conviction in the public opinion that identified private services with bad quality as opposed to public services (Interview 120611-2).³⁶⁹

³⁶⁸ This layout has effects on some services, for example, the existence of catering specialized in hospitals working in parallel with educational catering or catering for defence.

³⁶⁹ This is due to the dialectic public service vs. economic interest, which counts with a long-standing tradition in the Anglo-Saxon world.



- ISS UK Board and ISS UK Management Board Member
- ISS UK Management Board Member only

There was another interesting trait of the UK subsidiary, and that was the close **relation of the company with the HQ**. Apparently, ISS UK worked as a sort of training site and springboard for Danish top managers.³⁷⁰ In fact, Waldemar Schmidt, as we have seen, had been ISS Europe Director since 1979 and moved this office to London in 1989, where he hired the team that was the basis of the current ISS UK. He became later ISS CEO (1995-2000). David Openshaw, who was CEO of ISS UK in (1989-2009) became then Regional Director.³⁷¹ Hendrik Andersen was UK CFO since 2005, CEO since 2009 and in 2011 Group CFO.³⁷² Finally, Jeff Gravenhorst was CFO in UK in 2002-2005, he became Group CFO in 2005, Group COO in 2008 and CEO since 2010. (AR 2006-2014, Interview 120419-2). In addition, there was frequent contact with HQ managers, who often visited the UK offices.³⁷³ Some managers were of the opinion that when the company went public again, it would enjoy the financial freedom to go on with the acquisitions policy, and considered that their belonging to a PE had been a necessary step but hopefully to end soon (Interviews 100311-2, 120419-2).

Regarding **knowledge-sharing**, the growth and structure of ISS UK had made it difficult to share knowledge across divisions, especially those under different COOs. (Interviews 100311-2, 120419-1, 120419-3, 120611-2, 120612). The standardisation process was viewed as a balance between entrepreneurship and alignment. All informants agreed in that steady steps were being taken towards KT and that it would be beneficial for the company, especially now that they were undertaking global contracts. One already consolidated step was the use of a common language in financials (Interview 120419-1). Another was the creation of a unified Sales Team for the whole ISS UK (Interviews 120419-1, 120419-3, 120611-1), which also sent to customers the message of ISS as an IFS brand, and not as a conglomerate of service providers (or,

³⁷⁰ Our interpretation of this fact is that it was related to the relevance the subsidiary had in relation to the whole organization (first in terms of turnover).

³⁷¹ In 2013-2014 he was interim CEO in ISS USA, before retiring.

³⁷² He was Regional COO of EMEA since 2013.

³⁷³ Indeed, the informant was left with the impression that the Regional structure was not as relevant as direct contacts with HQ, at least in the matters that were discussed, i.e. regarding KT processes.

simply, as a cleaning contractor.³⁷⁴ In fact, the firm had recently (2010) been into a rebranding process, which was also requiring from employees a higher identification with the brand (Interview 120611-1). In terms of actual knowledge-sharing, the first requirement was double: a) the willingness to share, and, firstly, b) the *need* to do it.

“I think that for us to give out good quality information people that are receiving it have got to want to hear it. So meeting somebody at the TMC who’s got a specific need and a specific moment in time when I’ve got lots of information I can give them works, because I’ve got the information, they need it, [...] they’re gonna use it. (Interview 120611-2)³⁷⁵

Neither the will to share was to be taken for granted, nor was the wish for learning new procedures, especially by long-term employees. This was also related with the existence of the TUPE (Transfer of Undertakings Protection of Employment) regulation, which implies the assumption of the former employees of a new contract.

Well, in some of our larger contracts, you know, we might be transferring over 1.000 people [...] on one day. [...] We have a plan and we’ve done it before, but yes, it’s quite a challenge, and reality is that although they’re all transferring in on day 1, they won’t all be ‘ISSed’ on day 1” (*ibid.*).

And here all the transition and **training** plans played their role. Managers and supervisors had a training plan which contained courses such as an ‘Accident Investigation Workshop,’ ‘Behavioural/Competency Interview Skills,’ ‘Leading by

³⁷⁴ “I truly believe that segmentation is not about aligning services, it’s about aligning the customers. And the problem you’ve got with all these different people [interacting] with our customer is that it sends a very confusing message about ISS” (Interview 120611-1).

³⁷⁵ This statement had a context: the interviewee was comparing what we could call ‘open’ KT mechanisms to those with a close structure and purpose, such as seminars with a specific theme:

If you set up a seminar, some people will do it for industrial tourism, some will come along with the best of intentions but won’t actually learn anything or take anything away, because they’ll say ‘Well, that’s all very well but we don’t do it like that in Mexico’ or wherever, so I’m not sure of the value of that sort of thing, to be honest.

Another informant remarked that ISS was the only company he had worked in that had forums and other mechanisms of knowledge-sharing (120612).

Example,’ a ‘Trade Union Workshop’ and ‘Corporate Responsibility—The ISS Way.’ The Nine corporate Leadership Principles³⁷⁶ were at the basis (d-document 121220-2).

In terms of **knowledge-sharing with other countries**, ISS UK was mainly a knowledge provider for other countries (Interview 120611-1)³⁷⁷ in their same Region, which at the moment included North America, UK, Ireland and South Africa, they had contacts with Ireland (Cleaning Excellence), and the US (IFS), but also outside the Region, for example, with Australia (cleaning), Spain (catering), Singapore and India (for healthcare) (Interviews 120419-2, 120724-1, 120611-1, 120724-3, d-document Adv40-9), and they were present in the implementation of worldwide projects, such as the global mail platform or the customer experience survey (Interviews 100311-2, 120724-1). Some interviewees thought that sharing knowledge inside the country should be a priori easier than with other countries but it sometimes seemed the opposite (120611-1, 120611-2).

ISS UK had also set up a **graduate programme** that was positively considered by informants. It consisted in hiring recent graduates and designing a personalised training programme in which they rotated in different positions with the prospect of remaining in the firm once the programme is completed. The participants’ degrees were varied: psychology, management, engineering, and so on. Similarly, formal vocational training programmes for young people and former convicts were also going on (Interviews 120419-1, 120419-2, 120419-3).

In all these knowledge-sharing initiatives, **ICTs** had played a relevant role since the beginning.³⁷⁸ It all started in 2004. The Group had encouraged the subsidiaries to move into IFS and other service lines like catering, security and maintenance. Therefore, ISS UK acquired Coflex, a small IFS firm with 22 employees with excellent systems that were to be disseminated through all the buying firm. Their IT Head became IT Head in

³⁷⁶ “In ISS we put the customer first. In ISS we have a passion for performance. In ISS we encourage innovation. In ISS we treat people with Respect. In ISS we lead by example. In ISS we lead by empowerment. In ISS we develop ourselves and others. In ISS teamwork is at the heart of our performance. ISS is one Company with shared values, one brand and one strategy.” (d-document 121220-2)

³⁷⁷ However, ideas taken from the Netherlands were mentioned (Interview 120612).

³⁷⁸ In fact, the first time we asked for some names to interview regarding *knowledge* management processes (2010), we were addressed to the IT Head.

ISS. He found out in arriving that ISS was not particularly into technology and there even was no intranet.³⁷⁹ So the change came with three projects: (1) a common business platform: “so everybody have the same operating system, the same PC model, the same support from the helpdesk, and so forth” (Interview 100311-2), (2) to integrate all the acquisitions in the common platform, and (3) “the introduction of SharePoint as a knowledge-sharing tool” (*ibid.*). Of course, this could not have been possible without having the HR Department into it. SharePoint was used in all training courses since every employee’s day one in the company. In second place, it was sales teams, who were also using it (Interview 120419-3). Something as simple as having the same presentations all around the territory worked in favour of the unified brand image that ISS was striving to convey.

Besides this, by 2012 there was an extranet for clients and some access to intranet for suppliers, in addition to the introduction of videoconferencing. Then, the challenge was handing over SharePoint to an owner in each service, which was being done gradually, and the creation of Team Rooms in all of them. Another success of the IT team was the negotiation with Microsoft and collaboration with HQ in the launching of the common global mail platform. The IT team controlled support systems such as the CRM (customer relationship management), a new system for tracking people in the services and the development of a new data warehouse.

THE CLEANING SERVICE IN ISS UK

Here we will address mainly offices cleaning, which is the basic one.

Being cleaning the first business to be established in the UK, it is not strange that straightforward cleaning represented 25-30% of the total business in the UK and the cleaning in other services—such as Defence and IFS—added, it was around 40-45% (Interview 120419-2). The division considered that the main competitor in cleaning is OCS. “There aren’t many companies, there’s only us—there’s one or two others who can do similar things but at that top end, [...] in terms of being able to self-deliver a range of services across the world” (Interview 120419-1).

³⁷⁹ This is not strange. In 2000 there still was no Group intranet (Wallengren, 2005).

Regarding employees, 60% of them were full-time employees and there was a 6% of monthly turnover. The business was divided geographically, in Scotland, North, South, and London. The London division was considered the ‘face’ of ISS cleaning in the UK—given the great deal of corporate offices in the capital—, and, after a period of a certain stagnation, it had undergone a considerable improvement (Interview 120419-1). In addition, there was also cleaning integrated in Healthcare, Defence, Transport, hotels and Integrated Solutions.

Relationships with unions were usually smooth, unlike in other divisions, such as transport. However, there were still some goals to be achieved in terms of employees’ welfare, such as obtaining a life insurance for all of them.³⁸⁰ In general, training and employee engagement were viewed as directly related, both for white and blue collar employees. Regarding the former, besides the TMC there was a UK Conference, with a similar format. The Advantage course had also been mentioned (Interview 120419-1). Regarding front-line employees, there was an emphasis on the right equipment, the right time and space allocation and safety issues (Interview 120419-2). Short videos were starting being produced. The organization provided basic courses with a mix of practical—e.g. ‘Basic Cleaning Skills’, ‘Body Fluid Spillages & Sharps Procedures’—and classroom-based units—e.g. ‘Customer Care & Quality Assurance’, ‘Environmental Awareness (reducing carbon footprint).’

In offices cleaning, **knowledge** was quite formalised. One interviewee considered that although there were cultural differences, this kind of job was 90% standardisable in-country and globally (Interview 120419-2). The Cleaning Excellence had been going on for around four years. First, they did not like the way it was proposed to them, but then the ways and contents changed, with a much more practical approach.³⁸¹ The team was already constituted, with a group of four people that would end being of around seven people, who paid regular visits to the sites. They also counted on graduates from the Graduate Programme. But the challenge at the moment was implementation and a lot of effort was put here. The plan was getting the big contracts into Cleaning

³⁸⁰ One interviewee stated that the customers that understood better the need of fair salaries and insurances of different kinds were PSFs (Interview 120419-2).

³⁸¹ One interviewee jokingly said that he had been looking for reasons not to implement it and he had found none (Interview 120419-2).

Excellence by the end of the year.³⁸² Some problems had been individuated: one was lack of time, another was resistance to change,³⁸³ and, finally, there had been some misalignments with the sales team.³⁸⁴ Clients also needed to be educated in the new contracting system, based on output specifications, rather than on number or hours or frequency of cleaning.³⁸⁵ Notwithstanding these difficulties, the advantages of Cleaning Excellence were clear: it reduced labour, cut costs and saved hours. It also improved the employees engagement through training and empowerment.³⁸⁶

There were some employees of the cleaning division participating on the corporate Knowledge Forums, and also in other Cleaning Excellence initiatives. One informant thought that the materials generated by some of these forums were very extensive (Interview 120419-1). They had fully incorporated the SimISS.

ISS UK also had in-country knowledge creation and transfer. For example, they counted on a Centre of Excellence, which was the McLaren HQ in Woking—near the ISS House, the ISS UK HQ. There they had a state-of-the-art facility where they tested all the technological and procedural innovations and where they welcomed colleagues who came from all over the UK and abroad to learn. Among the innovations, they were testing a time and attendance control system that worked with biometrics (fingerprints), another one to monitor work itineraries, which had been introduced in hotels but would

³⁸² One informant remarked that this also worked as a sort of self-selection. Those who did not collaborate had left the organisation (Interview 120419-1).

³⁸³ “Whilst cost is important to us, we realise that you can’t be successful without having your people do it. ‘cause our biggest asset is our people. I mean I *hate* the term ‘human capital’ [...] [it] is a *disgusting*—but if we can get our people to do it, the rest is easy.” (Interview 120419-2) The goal is, therefore, to have people *want* to embrace the concept.

³⁸⁴ Apparently some of them promised customers a relationship quality price that was then difficult to meet (Interview 120419-2).

³⁸⁵ In the opinion of one interviewee, although ISS encouraged a broad margin of autonomy, some issues should be made compulsory to speed the implementation process. Among them there was the use of the time and attendance system, certain cleaning equipment, and clear-cut sales contents).

³⁸⁶ “I mean, international plan [...] is that we deliver the optimum service in a contract and... best practices is continually evolving but in a standard cleaning operation it’s making sure everybody comes in and goes on time in their place of work, that they have all the tools and equipment they need and obviously you treat them like human beings [...] but it’s the other stuff: they work in the most efficient manner, they know what they’re doing, they’re trained—not just told ‘This is what you’ve got to do’—in the sense you need to incentivise them I believe, and to come up with their ideas.” (Interview 120419-2)

eventually be used in other settings, and a quality monitoring system, which was linked to a monthly standard reporting format (Interview 120419-2).

The SharePoint site was already functioning for cleaning. The first meetings to work it out had taken place around 2010 and in 2012 90% of the systems related to Cleaning Excellence were developed and working. The site was also used as a control tool, for bidding (sales), documents sharing—all the documentation was being made electronic (Interview 120419-2)—and communities and networks were made visible. As per the adoption of these systems, one informant estimated that it had to be around 60-70%. Cleaning employees were the ones using SharePoint more, although there was still some reluctance, especially among older generations (Interview 120419-3).

Interestingly enough, it seemed that contacts with other divisions who also had cleaning were non-existent—unless some occasional look at the intranet—, except for the IFS division, where they provided the workers, and the training and procedures. The other divisions, such as Healthcare or Transports were too specialised and had their own procedures and Cleaning Excellence (Interviews 120419-1, 120419-2).

They had different feedback mechanisms, such as the ‘Our People’ survey, for employees and the customers’ survey. The former had reached 50% participation³⁸⁷ and was being considered very useful. There was also a mailbox for suggestions at the site. Both surveys and financial results were the main ways of measuring their performance (Interviews 120419-1, 120419-2).

Other sources of knowledge and best practices were informal personal experience and contacts with clients, contract managers and peers in other countries (Interviews 120419-1, 120419-2). Regarding the latter, the Head of Excellence Centres in HQ sent personnel from other countries to learn how they managed cleaning of hotels and other procedures, and also visits from the UK to Ireland (to help implement Cleaning Excellence) and the US (to harmonise cleaning into IFS) were mentioned. Even an informal travel to Australia was the occasion of knowledge-sharing (Interviews 120419-1, 120419-2).

³⁸⁷ The goal for the following year was 60%.

THE EDUCATION CATERING SERVICE IN ISS UK

Comparing catering to other services, one interviewee stated: “Fundamentally they’re people businesses whereas we are people in the food business. So we are 50% people-50% food, if you like [...] whereas in cleaning, or security, it’s 80% people and then 20% maybe technology, etc.” (Interview 120611-1)

Although we will focus on catering in education, we can compare it to other catering services, such as catering for companies or in the healthcare segment. As for catering for companies—the Food and Hospitality division—, it was an about £ 60M business, which represented the biggest catering business in ISS, along with Nordic countries (Interview 120612),³⁸⁸ whereas catering in education had grown from £ 8M in 2008 to 28M in 2012 (Interview 120611-1). It all had started with the acquisition of a small schools catering company, and then they expanded from 120 schools to 400. Geographically, they covered 50% of the country, basically London and the South, and they were starting in the North and West.

It seemed that the three branches—Healthcare, Education and business and industry (B&I) catering— represented three different levels in a scale of standardisation and also regarding food processes and skills of the employees, being corporate dining the one that rated highest in skills. Regarding food processes, corporate dining emphasized fresh food and avoiding industrial processes, central production and dictated menus. In one of the interviewees’ view, “we’re far more aligned to Education rather than Healthcare. Healthcare they use the catering element as a mechanism for the rest of the services in hospitals. So it’s just one element of everything they do in the hospital. Education is purely about the food side, as are we.” (Interview 120612) The reason for the split that can be seen in the organizational chart of ISS UK (Exhibit 5) is mainly the divide public

³⁸⁸ However, they represented only around 7% of the turnover in ISS UK. One interviewee stated that ISS was the fifth worldwide food provider, but paradoxically it was still known in many circles as a cleaning company (Interview 120612).

sector (Education, Defence, Healthcare)-private sector (B&I),³⁸⁹ in which the first is on the left side of the chart and the second is on the right side.³⁹⁰

Therefore, the three catering businesses followed different strategies—given the differences between their clients—but they did have agreed to share the same food provider—3663. Education worked with the same marketing firm as Healthcare—Green Pea—, and Healthcare, corporate dining and some units of Education used different versions of the same program for menus and costs calculations—Saffron.³⁹¹ Education operated exclusively with on-site kitchens and little technology, and with a strong emphasis on local and British products. That meant that most of the knowledge was in terms of personnel training and skills, with customised solutions for the particular school they were serving (Interviews 120611-1, 120612).

The following words can help contextualise the **panorama** of the schools catering industry in the UK:

In the UK, over the years, school meals has been turned into a commercial enterprise, so if it paid for itself you could run it. Only recently, in the last five years, when Jamie Oliver—Jamie Oliver, a celebrity chef in the UK—made a big fuss of the school meals in the UK, [and] got the UK government at the time to put some money in. (Interview 120611-1)³⁹²

That was part of a broader trend in the UK towards more awareness about nutrition, food, and food provenience that had moved caterers from competing for the cheapest offer to more quality-driven standards. For these reasons, the business was both highly government-guided and culture-driven. In the UK 40% of children had lunch at school (Interview 120611-1).³⁹³ In areas with a high immigrant population, menus had been

³⁸⁹ In Education they considered that they needed to gain more reputation and references before venturing into the private education sector. On the contrary, corporate dining stood away from the public sector because they tended to view food as a commodity.

³⁹⁰ “Why it’s split out—in my personal view, I don’t think it should be split out, in terms of I think we should be all one catering company but still with different segments.” (Interview 120612)

³⁹¹ Healthcare used Saffron Spice and the Food and Hospitality division use Saffron Zest.

³⁹² The excerpt ended: “Now, with austerity, that money’s gone. So it all depends on the government at the time and how much money they’re willing to invest.”

³⁹³ In Spain, it was 25% for Spanish children and 31% for children of foreign origin (CECU, 2005)

adapted to their cultures, with cooks of the same origin. This had increased the serving of meals.³⁹⁴

As it can be seen in the organizational chart (Exhibit 5), Education operated under the Defence and Education subdivision. One interviewee remarked that there were some similarities between both, especially because ISS Defence provided services mostly to training establishments, with 17-18 years-old trainees. (Interview 120611-2) At the time, the Educational sector almost always made separate tenders for the different services,³⁹⁵ whereas Defence contracts were multi-service or more similar to IFS. In 2012, Education had been awarded their first University contract. The four other subsegments in which they had divided the segment were primary education, secondary school, colleges—all three in expansion—and the private sector, which still had not been entered.

Education considered that the creativity of their work had allowed them to grow 25% every one of their three first years. When ISS underwent the rebranding process, to eliminate all the acquired companies' names and transforming all into ISS (2010), they experienced some difficulties in introducing themselves as a catering company, and, therefore, they adopted a new logo and a food-related motto: 'Feeding Hungry Minds,' with their own website. They had different looks for different ages and their proposal to the schools was: "Let us help you teach about growing and eating good food and nutrition, and we'll do that in a way that's bespoke to your children." (Interview 120611-1), that meant that they promoted a series of initiatives and materials³⁹⁶ to teach children about food growing (gardening) and cooking.

Regarding personnel **qualifications**, they had been represented in a pyramid in which different levels—from catering assistant up to cook, kitchen manager, area support manager, operations manager, regional operations manager and divisional director—were showed along with the qualifications they required. Each level included

³⁹⁴ In a London area, they went from 7.000 to over 12.000 in three years, and from 25% children choosing school meals to 60%. They also addressed other diversity issues, such as allergies and other food specifications, like *halal* and vegetarian.

³⁹⁵ This trend was starting to change (Interview 120611-1).

³⁹⁶ They had created a periodic comic called *Food Force 5* about specific food groups. It also had some animated episodes on the web (Interview 120611-1, document 120326-2).

the ones below it (d-document 120613).³⁹⁷ That meant that, although the company did provide training, it also relied in already qualified employees.

In the interviewees' opinion, the **Catering Excellence** main components—the Catering Service Framework and the Knowledge Forums (one per year)—seemed ideal for a country that was starting with catering, because they were providing the basic concepts and standard procedures, but they were too generic for the level of expertise in UK. They expected more specific catering developments, similar to those of cleaning, to be created in time, maybe by segments (Interviews 120611-1, 120612).

As above said, **IT** was not very much in use: only the Saffron program for the big operations but not for the small ones.³⁹⁸ They were exploring the possibility of introducing tablets to control kitchen work. In general, catering was not employing SharePoint too much: they preferred to arrange informal meetings, personal exchange and teamwork (Interview 120419-3, 120611-1). Networking and knowledge-sharing focused activities were valued. Also corporate activities, such as the Talent Programme were used as occasions for ongoing exchanges.

Relationships with HQ were fluid: apparently the Copenhagen team relied especially on the Healthcare, Food and Hospitality and Education sections, and they were pretty much involved in shaping the group strategy.³⁹⁹ There were also exchanges with other countries: a travel to Spain to help the catering service and learn about some Education projects that were going on was mentioned (Interviews 120611-2, 120326-1). Malaysia also visited to learn from Education.

However, **internal sharing** among the different catering businesses was not as frequent as it could be. The divisions were rather focused in their own businesses and sometimes some signs of the NIH syndrome were detected. The common procurement team consisted of 4 people of the three branches (Interview 120611-2). There were regular meetings at the level of top management, but not at lower levels.

³⁹⁷ For the four lower positions, NVQ Levels 1, 2 and 3 were successively required, plus other specific training (d-document 120613).

³⁹⁸ Corporate catering used Saffron Zest, plus Trade Simple for the orderings and another system for administrative issues (Interview 120612).

³⁹⁹ It transpired from the conversation that they participated in the initial experts meetings that helped designing worldwide policies and documents.

They **measured** the success of their work by the number of school meals. Being new, they had not been following up too tightly the level of compliance of the operations with what had been created for them at country level, but they were starting to become more regimenting while keeping flexible (Interview 120611-1).

2.2.4.2. ISS SPAIN: GROWING BY ACQUISITIONS

Although being quite young—only 13 years—ISS Spain was already experienced and well positioned in Spain. As in the first case, we will review first the history and main traits of the subsidiary and then we will turn to the services of offices cleaning and schools catering.

HISTORY AND GENERAL OVERVIEW ON KNOWLEDGE-SHARING IN ISS SPAIN

The same as in ISS UK, there was a first entrance of ISS in Spain through a joint acquisition—at 50% with Electrolux—of SAEL. It was 1971 (Wallengren, 2005).⁴⁰⁰ It also seems to have finished at some point, because the next news we have about ISS Spain as such is of an engineer who had been working in a Nilfisk distributor—Joaquim Borràs—and was approached by Waldemar Schmidt as employee number 1 in the new project in 1999. After a brief stay in Denmark, he was given the money and entitled to acquire the companies he considered more fitting for the Group (Interview 071106). And so they did, starting by cleaning companies and then adding pest control (2003), landscaping (2005), maintenance (2006), support services, and catering (both in 2007).⁴⁰¹ They were a total of 48 companies in only 9 years (they stopped buying in

⁴⁰⁰ Thus, Spain is mentioned among those present in the inauguration of the Regional office in London in 1989 (Wallengren, 2005).

⁴⁰¹ Of this series of acquisitions, the most important was that of UNICA, which was bigger in revenue and number of employees than ISS Spain. The managed to acquire and integrate the new company in a few months and became leaders in cleaning in Spain (Prats and Agulles, 2009b).

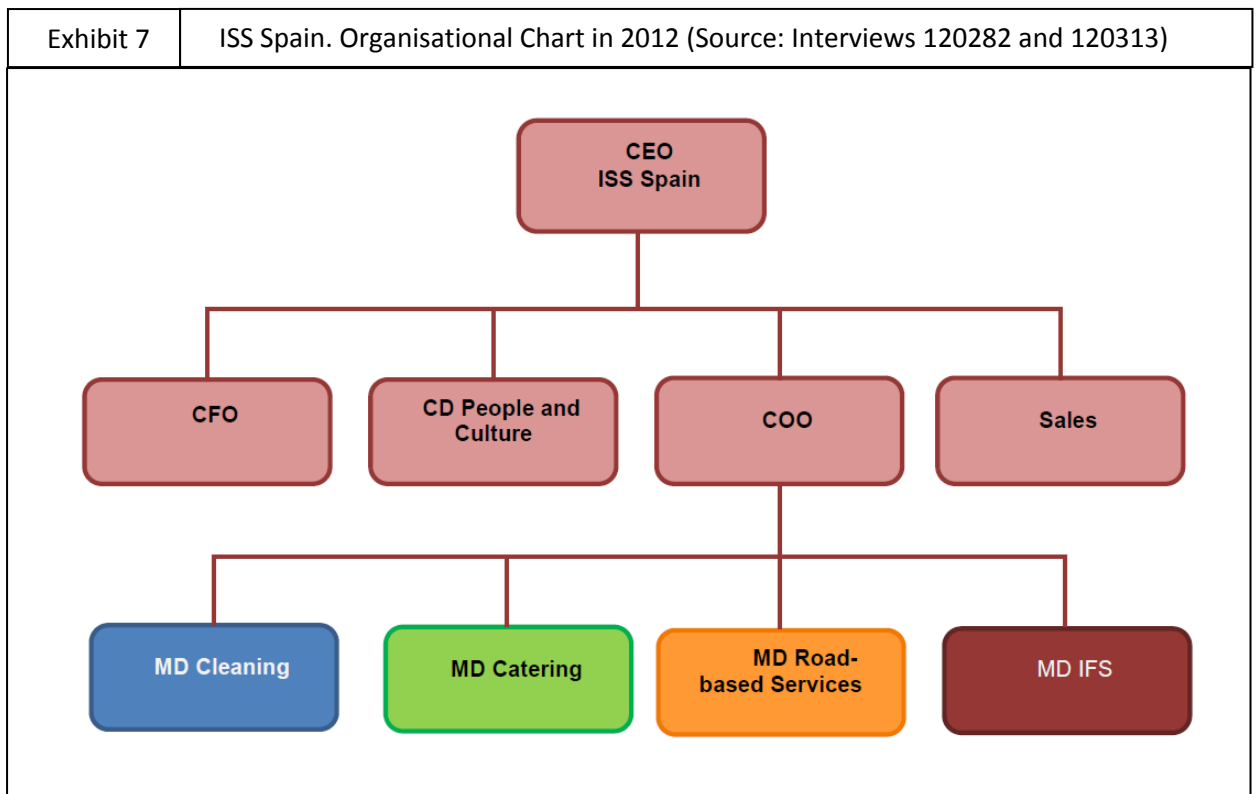
2009). The complete list can be seen in Exhibit 6. This earned them quite a reputation in the Group as experts in integration. (Prats and Agulles, 2009a)

In 2012, from one employee, ISS Spain had gone to 29.316, with a revenue of DKK 4,41G, which placed them in the fifth position in terms of revenue (AR 2012). The Spanish HQ were in Sant Cugat del Vallès (Barcelona).

Ano	Empresas	Zona geográfica	Limpieza	Serv. Técnicos	Serv.Auxiliares	Catering
1999	Limpezas Duero	Soria	Limpieza			
	Linamar	Navarra	Limpieza			
	Higiene Industrial	Nacional	Limpieza			
	Grupo Neca	Cataluña	Limpieza			
2000	Asnets	Madrid, Levante, Castilla-León	Limpieza			
	Novonet	Baleares	Limpieza			
2001	Airport Cleaning System	Nacional	Limpieza			
	Sael	Cataluña	Limpieza			
2002	Tabar	Galicia	Limpieza			
	Costa Verde	Asturias	Limpieza			
2003	Calsa	Aragón	Limpieza			
	Grupo García	Castilla-León	Limpieza			
	PCI	Madrid		Control de Plagas		
	Garayalde	Navarra	Limpieza			
	Garayalde	Baleares	Limpieza			
	Cosmo Industrial	Cataluña	Limpieza			
	Desma	Baleares		Control de Plagas		
2004	Serdesa	Cataluña		Control de Plagas		
	Oprocon	País Vasco		Control de Plagas		
	Alitecnic	Cataluña		Control Plagas e Higiene Ambiental		
2005	Grupo Unica	Nacional	Limpieza			
	Doya	Madrid		Control Plagas e Higiene Ambiental		
	Quimicoll	Baleares		Control de Plagas		
	Happy Verde	Madrid		Jardinería		
	Hidroplant	Cataluña		Jardinería		
	Net y Bien	Madrid	Limpieza			
2006	Limpezas Kasa	Cataluña	Limpieza			
	Merusa	Cataluña, Sevilla, Navarra		Mantenimiento integral e instalaciones		
	Coalfer	Asturias		Mantenimiento integral e instalaciones		
	Limpiberia	Madrid	Limpieza	Mantenimiento técnico		
	Grupo Clisa	Madrid	Limpieza	Control de Plagas		
	Sertema	Madrid		Mantenimiento técnico		
	Ecolocontrol	Andalucía Oriental				
	Grupo Coinsfri	Madrid				
2007	Indulisa S.A.		Limpieza			
	Nadese	Navarra	Limpieza		Serv. Auxiliares	
	Grupo Óptima	Baleares	Limpieza		Serv. Auxiliares	
	Mainsa	Madrid, Andalucía, Cataluña		Mantenimiento técnico		
	Airsol	Canarias		Control de plagas		
2008	Grupo Rocha	Nacional				Catering
	Naturdes	Levante		Control de Plagas		
	Pedro Moral	Cataluña		Jardinería		
	Ciape	Levante, Cataluña, Madrid, Aragón		Control de Plagas		
	RV Catering	Castilla Leon, Valladolid, Madrid, Levante				Catering
	CTS	Andalucía, Madrid		Control plagas		
	Gastronomía Mediterránea S.L.	Levante, Cataluña, Madrid				Catering
	Limpezas Masan, S.L.	Levante	Limpieza			
	Grupo Limpu	Asturias, Madrid, Aragón, Andalucía, Galicia, Cataluña, Norte	Limpieza			

The main trait of ISS Spain was its splitting into **Business Units**, which happened when they reached € 20M in revenue (Interview 071106). The idea was aligned with the group strategy of having as many profit centres as contracts, having people accountable at all levels (Interview 081119).⁴⁰² Each Unit had a manager at the top, with one or several Labour Managers, one or some Service Managers—this is how Supervisors were called in Spain—and a Customer Service Manager who reported to him or her. If the unit grew, other figures could be added (Interview 071106). This decentralized organization distinguished ISS from other competitors such as Aramark and Compass (which was going back to centralization) (Interview 120326-2).

The country **structure** was a matrix service/geography: there were several Division Directors by services, but then Business Units inside them were organized geographically (e.g. Exhibit 8). The IFS Division had been recently added to the other ones (Exhibit 7).



⁴⁰² Keeping Units that size allowed to remain close to employees and customers—which was considered part of ISS DNA—and it also opened a promotion and development way for junior managers (Interview 071106).

This structure affected the way best practices were shared. For example, regarding the eventual development of in-country Excellence or Competence Centres, there were two possibilities: (1) each single-service Division had their own Centre and the IFS Division drew expertise from each of them for each of its integrated services, or (2) ISS Spain had Competence Centres detached from the structure that catered to both single services and IFS (similarly to the global Excellence Centres created in HQ) (Interview 120326-1).⁴⁰³ In contrast, they had moved procurement down the line and now each division had its Head of Procurement, which had helped in the rationalization of purchase.

In terms of revenue, Cleaning was the biggest division, both in revenue (€ 428M) and number of employees. Catering was 12,5% of the firm's revenue, but 8,3% of its employees. Pest control was even less labour-intensive (Interviews 120326-1, 120326-2, d-document 120326-3).

With the *The ISS Way* strategy they were feeling more follow up from **HQ**, with more mandated elements, such as the administrative procedures packs (for the back-office), but in a collaborative way. Spanish members considered that having the support of a bigger organization was positive, and that the standardisation and knowledge-sharing initiatives was a need (Interview 120326-1).

Ara és que és lo que necessites. I ja no només des d'un punt de vista comercial ser molt agressiu, sinó que després—ara ja som tan agressius comercialment perquè ens toca ser-ho—[...] hem de tenir unes operacions que siguin capaces de medir temps, de tenir un bon control, i de tenir unes bones implementacions i un bon seguiment de tot. (Interview 120326-1)

The changes had also affected to the permissions and decision-making policies, with more restrictions, but the control and measurement IT tools and policies were

⁴⁰³ On discussing this, an interviewee acknowledged that, for Spain, it would make no sense that IFS had its own Competence Centres (one for each service) and then each single-service Division their own. He admitted that in the UK this worked because each IFS division had enough critical mass to duplicate structures (Interview 120326-1).

considered appropriate.⁴⁰⁴ Their implementation forced the integration of units that were not already fully 'ISSed', which was especially needed in catering. In any case, their relationship with the Head of Excellence Centres and his teams was fluid.

In ISS Spain, they were aware that in-country **knowledge-sharing** was not easy and that they sometimes reinvented the wheel, thus they were working in different initiatives to improve transversal communication (Interviews 120326-1, 120326-2). This required the involvement of top and middle managers, and also the way to pass the information on to the front line. One initiative at country level was a periodic **Division Directors meeting** where they took some time off together and discuss ideas and the strategy (Interview 120313).⁴⁰⁵ Another was the **Unit Managers Convention** (documents 100315-1 to 6), in the latest of which they had asked every Director to present an innovation. They had also detected interesting ideas from **other countries**, such as India (RARE) and Australia (HERO), which contained ways to detect innovations and suggestions from front-liners (Interview 120326-1).

Other exchanges were mentioned, especially with Latin American countries (Chile, Brazil, Argentina)⁴⁰⁶ and Portugal and France (helping all of them in improving their organizational structure). They also supported Mexico (special diets and school catering). With the UK they had shared materials on educational catering, and they had had support from the UK (catering-retail, IFS, hotels cleaning). They expected to learn from Nordic countries (standardization, hotels cleaning). Norway (hospitals) and Sweden (IFS) were also visited. Exchanges with Australia and Turkey (food hygiene) occurred via the knowledge forums (Interviews 120218, 120313, 120326-1, 120326-2, 120419-3).

Cleaning Excellence was already fully implemented in some Business Units and starting being implemented in the rest. The Catering Excellence process was beginning. Therefore, ISS Spain followed the Operations Process Framework and other tools from the Cleaning and Catering Excellence projects. Knowledge forums were often

⁴⁰⁴ Although the style in ISS was not imposing but initiative was encouraged, an informant view that sometimes dictating certain products or equipment was necessary (Interview 120607).

⁴⁰⁵ In the latest one, they had set four areas for best practices: organization of Business Units, new customer segments, the implementation of a planning and tracking system, and cost control.

⁴⁰⁶ These contacts were prompted by the Regional organization.

mentioned, as well as the TMC and the Innovation Fair inside, which they considered useful but, at the same time, thought that it required a little bit more of refinement. The SharePoint was mentioned as a reporting tool. (Interviews 120218, 120313, 120326-1, 120326-2, 120419-3, 120607, d-document 120326-4). Although the use of communication technologies was not the most relevant in daily operations, videoconferencing was starting to be used more frequently (120316-2). Other forms of virtual meetings were more frequent.

Finally, Spain had recently joined the staff survey, still with modest but growing results (Interview 120326-1).

THE OFFICES CLEANING SERVICE IN SPAIN

The history of the Cleaning division in ISS Spain is as old as the company itself, which did not stop acquiring cleaning companies over all its acquisitions period (1999-2009). The two most influential acquisitions were that of NECA, in 1999, and that of UNICA, in 2004. The first provided the company with the structure it still had in 2012 and the focus on people. With the second, the company spanned all Spain and acquired a modern and recognizable image, becoming the leader in Spain.

We will first take a look at the situation of the cleaning service in the Spanish **market**. Personnel-related costs represented the 85% of the total budget (while in catering, they may be around 50%). In addition, in Spain the budget for indirect costs was very low, compared to that of Nordic countries, which explains that, while the latter reached higher profit margins, their final turnover was similar to that of Spain (Interviews 100208, 120326-1). This had to do also with the demand from the market: clients were slowly starting to appreciate value-added cleaning. In any case, ISS managers sometimes felt that they were going ahead of the market. This panorama had been changing since the crisis hit hard the country: it forced service companies, clients and suppliers sit and work together on costs reduction and increase efficiency. Even eventual labour issues⁴⁰⁷ were becoming easier in this new landscape. At the same time, it gave ISS members an additional reason to fully embrace the change processes that were being fostered from HQ.

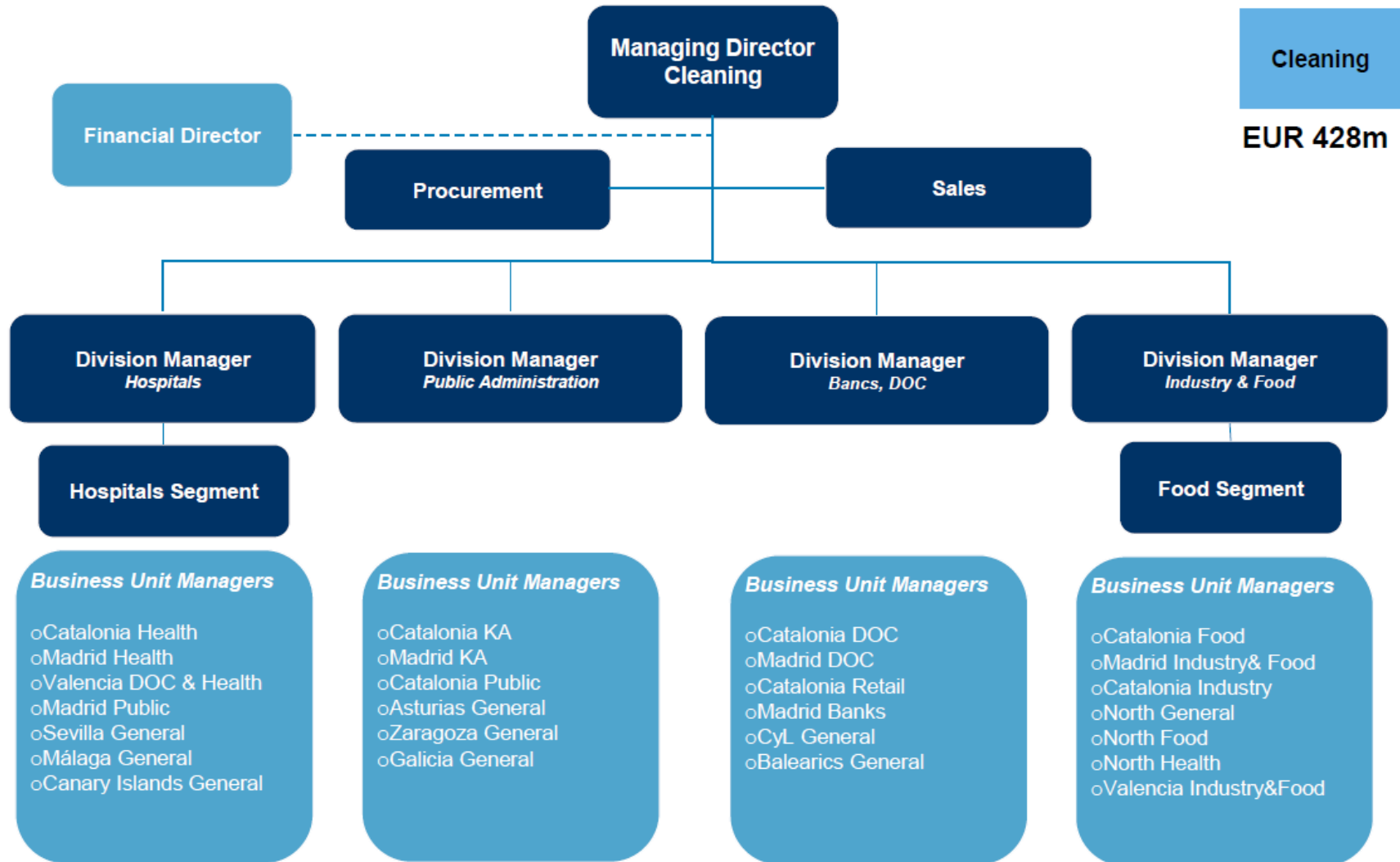
⁴⁰⁷ Relationships with unions had been usually smooth (Prats and Agulles, 2009a).

The **structure** of the Cleaning division was as follows (Exhibit 8): there were four Directors by segments and then the Business Units that were mainly geographically distributed. The organization was in a change process and, as the four Division Managers were rather focused on the bottom line, the MD wanted to add in due time a fifth one: the Technical Director, who would be in charge of all the Cleaning Excellence-related issues, procurement, quality, and training and with technical managers for every segment.⁴⁰⁸ By the moment, this function was being performed by the Procurement Director because of budget constraints. Hospitals and the food industry areas required a highly specialised attention. They also detected a great need to standardise in procurement (Interviews 120326-1, 120607)⁴⁰⁹ and the cleaning operations itself (Interviews 100208, 120326-1) but by the moment they did not have an implementation team and expert supervisors were assigned the task.

⁴⁰⁸ In short, the Technical Area would work as an Excellence Centre for cleaning, something that some countries such as Switzerland, Sweden or Denmark had already achieved.

⁴⁰⁹ Given that margins were so low, they had to cut costs in procurement (Interview 100208). Two years later, finding multipurpose products and unify them was still a challenge.

Organisation chart – Cleaning



Apparently, **knowledge-sharing** was not easy because of the experts' isolation and dispersion, thus, they were starting to individuate them and make a who-knows-what list. They were also using the internal online newsletter—the *Tuppernews*—to publish best practices, with the contact of the author.⁴¹⁰ However, there was some resistance to share and the perception of a lack of time and economic resources. Others did not see the need to incorporate the new systems.⁴¹¹ In terms of participation in Group activities, language was also an important limitation. Knowledge-sharing activities would be also assumed by the Technical Area (Interviews 120326-1, 120607).

Cleaning Excellence had started early in Spain (ca. 2008), but in a rather mandated way, which had evolved towards a richer and more collaborative way between HQ and the subsidiaries (Interview 100208).

The implementation of the SimISS system had posed problems because it did not adapt to the complexity of Spanish labour agreements (for cleaning, they were more than 100). They were using a system to control the payroll—ApIEs—and trying to make it interact with the Group system. Corporate administrative tools were compulsory and, if adapting to them was not easy, they expected them to become more user-friendly on the one hand and more routine on the other. Lack of time was the main reason for not consulting the materials in SharePoint (Interview 120607). As for other IT systems, they were planning to introduce an adaptation of GMAO [Gestión de Mantenimiento Asistido por Ordenador] to cleaning operations (Interviews 120326-1).

Interviewees mentioned having participated in the ISS Academy and University courses (Interviews 120326-1, 120607). The TMC and the Innovation Fair—which had improved over time—were considered a good source of contacts (Interview 129326-1).

Specifically for cleaning, some contacts were reported: they had individuated the Nordic countries and the UK as their main references in standardisation and also hotels cleaning. The only inconvenient was that the complex structure in the UK sometimes made it difficult to find the right counterpart. Many contacts were informal. They had

⁴¹⁰ A more complete experts network was not feasible by the moment due to availability issues: sometimes an operation could not dispense with an expert who could go to advise elsewhere.

⁴¹¹ Humorously, one interviewee said that first the excuse not to join was 'This works in Denmark but Spain is different,' and then it was 'You Catalans are different from us. This works just in Catalonia'. Thus, exchanges across the country were very much encouraged and also formally arranged.

supported in the organization of the cleaning operations in Chile, Brazil, Mexico, Argentina and France.

Regarding **training**, ISS Spain had adapted themselves to the lack of resources to provide training to front-line employees, especially those who had come along with a new contract.⁴¹² The approach was quite hands-on. The contents of training had been richer in Health and Safety than in operations, and courses were tailor-made and on the Unit Manager's demand or, eventually, clients'. As the goal was moving Cleaning Excellence from being an exception to becoming routine, they had managed to gather a core of trained people who would train the others and distributed training—mainly on the Cleaning Excellence procedures—in two poles: Barcelona and Madrid. The Barcelona pole had already a team of trainers on SimISS and another on operations (the 'supertrainers'). Madrid had already started with the SimISS team. The implementation of Cleaning Excellence in a contract or a Unit was something negotiated and required persuasiveness to get ISS members and clients into it. What worked better was the exchange with managers who had already introduced it, by using pilot centres,⁴¹³ and live demonstrations. One thing was clear: people only search when in need (Interviews 120326-1, 120607).

THE SCHOOLS CATERING SERVICE IN SPAIN

Catering services in ISS Spain were far more recent than the cleaning business, but this was a common situation in the Group, which had pushed the diversification strategy in the early 2000s. They also had a special history because the companies that had been acquired—especially Grupo Rocha (2007)—had a clear educational component in their schools section, even more pronounced than that of the UK Education business. The integration of the catering service into a company that had many mechanisms shaped for the cleaning business was not easy. The HR country manager took over temporarily the Division until the integration was settled down and then he passed it on to a new Director who really knew the business and who was hired for this purpose (Interviews 120326-1, 120608-1).

⁴¹² One interviewee compared the training department in Switzerland, with 12 members and the one in Spain, with one person in 2010 (Interview 100208).

⁴¹³ Although they did not consider them still at this level, they could be tagged as Centres of Excellence.

Compared to other services, catering was seen as a specialist business that needed to be managed down-top and not the opposite. The ISS Value Proposition for catering showed food hygiene and innovation as the specific development areas for catering and these were the ones being promoted in Spain.⁴¹⁴ Procurement was better handled with the new structure and, unlike the cleaning Division, they already had established a modus operandi with IFS in which they put their personnel and expertise and the IFS Division paid a fixed monthly fee. They were also working on segmenting the business by customers (Interviews 120326-1,120326-2). The catering business only had one central kitchen. All that needed industrial processing⁴¹⁵ was purchased from selected suppliers.

Their competitors were Clece, Eulen, Sodexo, Aramark and Compass-Eurest. When asked to define their differential trait, one interviewee said, referring to Education: “Competitors prepare very nice offers for the tenders but then many don’t deliver. We do. It is in our DNA” (Interview 120608-1).

The business was **structured** in a way similar to that of ISS cleaning, but at a much smaller scale, with only five Business Units: Health and Corporate Catalonia, Education Catalonia, Centre, Levante and North (d-document 120401).

Regarding **catering in education**, cultural differences with other countries were important: Spanish lunchtime was longer and more appreciated (Interviews 120608-1 and 120611-1). Due to these characteristics, the sector had evolved in Spain: on the one hand, school canteens had gradually professionalised; on the other hand, school lunch supervision had also changed. What had first been performed informally by some pupils’ mothers now had been taken over by qualified personnel, not only supervising lunchtime but also providing support and educative activities to the children before the afternoon block of classes.⁴¹⁶ All these activities were regulated by the Spanish government but also every autonomic community had different laws (Interviews 120326-2, 120611-1 and 120611-2).

⁴¹⁴ Regarding the first, they were helping on the definition of the group standards. Innovation was sought through new techniques and also a different approach: local products, waste control and so on.

⁴¹⁵ Special hospital diets such as texture modified diets or diets for parenteral nutrition were mentioned.

⁴¹⁶ They had broadened the offer to summer camps and after-school/extracurricular activities.

A joint venture with a company that provided exclusively educational services was at the origin of the introduction of these services in the company that would be later acquired by ISS (Interview 120608-1). For schools, they a surname had been added to the ISS label: it was called ISS Activa Educacional, which offered both services—meals and activities—or either separately. Personnel training and also the required qualifications⁴¹⁷ were adapted to what was more similar to two businesses working in collaboration than a single one: Business Units were single but they each had two different operations directors, one for each service. This structure, which seemed less efficient, resulted in more earnings due to the combination of expertise (120608-2). IFS contracts for schools had not arrived to Spain—tenders used to be diversified—but they were convinced that it would come in time, because some schools started showing interest (Interview 120608-2). The expansion of the business was from Catalonia to the rest of Spain and the type of clients also showed this difference: only public schools in Catalonia, more private in the rest of Spain (Interviews 120326-2, 120608-1).

Their focus in leisure time was clearly educative, because they worked together with the centres' educative projects. Regarding the food business, they considered themselves very good in addressing food specifications such as intolerances, allergies and other requirements: they had up to 15 different proposals (Interview 120608-1).⁴¹⁸ At the time of the interviews, the Spanish government had issued a decree on packed lunch to facilitate children this system.⁴¹⁹ They considered that it would not affect the business and that families would not save so much because food was only 20% of the service they offered and parents still would have to pay for all the other aspects: supervision, tableware, premises, the conservation and distribution of packed lunches and so on, not to mention nutritional issues (Interview 120608-1). They also had managed to reduce food waste (Interview 120326-2).

⁴¹⁷ The dining branch embraced the different professional categories typical of these kind of businesses: cooks, dieticians, and other personnel. For the activities branch, different education-related qualifications were required—leisure time supervisor certifications, English certifications and even Education degrees (Interview 120608-1 and d-document 130627).

⁴¹⁸ In this issue, they had evolved from trying to make the meals as similar as the other children's to celebrating the difference by providing them other menus and teaching them how to deal with their difference. Their expertise came from the exchanges with the Healthcare branch.

⁴¹⁹ It was popularly known as the 'tupper[ware] decree.' Its aim was to give an alternative to families with economic difficulties to pay for children's meals at school.

Regarding **knowledge-sharing processes**, they had already created their own operation manuals and they were now working on their value proposition⁴²⁰ through meetings with the Unit Managers (Interview 120326-2). In Education, they considered that they had amassed a good expertise in elaborating menus and dealing with diversity, but they saw the need to share much more. For example, they expected to interchange knowledge from Catalonia and the rest of the territory. Some best practices were already being shared⁴²¹.

In the interviews, different stances of **training** were mentioned: first at managerial level—for example, on the Nine Leadership Principles or on the value proposition⁴²²—but also to the front-line—e.g. a programme to improve motivation to improve sales in retail (Interview 120626-2). More specifically for the Education business, kitchens personnel went all through a training programme once they joined. The educational services personnel were hired with already the qualification needed.⁴²³ They had such a demand that they could carefully select candidates (Interviews 120608-1, 120608-2).

Some **Catering Excellence** elements appeared also in the conversation, although never specific to the Education branch. The first **Knowledge Forums** regarding catering had taken place two years before (2010), all of them on hygiene. From them a best

⁴²⁰ An important element of the the value proposition was the NOSE [Needs, Outcomes, Solutions and Evidences], which was being used in all the Group as a working device.

⁴²¹ One of their best practices was the use of a ‘travelling notebook,’ in which the supervisor sent information to the parents about how the children had dealt with their lunch and also a trimestral report (Interview 120326-1).

⁴²² For the latter, the Country Sales Managing Director had adapted the training from HQ to Spain and conducted the course himself. He started by the sales and marketing teams and then went on with sales agents and Unit Managers of all Divisions, all mixed.

⁴²³ Interviewee 2: I més aviat estarien sobre-formats per a la feina que fan que no pas...

Interviewee 1: Jo mai diria sobre-formats. Jo crec realment —és que jo m’ho vaig creure— que no podies posar qualsevol davant d’un grup de nens i que una persona amb grans capacitats havia de tenir uns recursos en formació per a entomar... (Interview 120608-1)

Public subsidies on training had been drastically reduced, which was another reason not to hire people more or less capable and provide them with the qualification but select them beforehand. Thus, from 6-7% of trained people, they had moved to 80-odd% of people with the required qualifications for leisure activities, and the rest were people with some education-related studies or degrees.

practices manual for all the Group had emerged.⁴²⁴ More recently, there had been some meetings regarding the value proposition, with a preliminary document (d-documents 120326-1, 120326-2). These participations indicated that the Spanish Catering Division was considered in the Group as holding a considerable expertise. The meetings took place once a year, plus some webinars. One interviewee expressed his wish to be able to send more personnel to these meetings, once their English improved. The use of SharePoint was also mentioned, as well as the follow up they received from HQ, e.g. in the form of reminders of pending documents (Interviews 120326-2, 120608-2).

Regarding other **IT tools**, the CRM system they used had been developed in Spain. For menus and purchases, although they knew about Saffron, they were trying to adapt FSMax.⁴²⁵ The conviction was that the business should be controlled from the units (Interview 120326-2). Unlike cleaning, in catering they had not received compulsory administrative tools to support the different phases of the business. Standardization in catering was viewed as different: they could establish best practices in hygiene, retail or restaurants and canteens management (Interview 120608-2), but not in the same levels of detail as the cleaning business.

The **TMC** was considered very well organised and excellent for networking,⁴²⁶ which was facilitated by the carefully mixed composition of work teams. The attendance of clients was also considered positive. However, the **Innovation Fair** was considered in need of more structuring and also more selection of the proposals: given the corporate emphasis of evidence (from the NOSE principles) and measurement, perhaps only already tested innovations should be presented.⁴²⁷ At the same time, the Advantage course was also much praised, to the point that one interviewee was planning to send more managers to do it (Interview 120326-2).

In the first interviews, relationships **with HQ** were directly with the Head of Excellence Centres, the Catering Excellence Head position was vacant.

⁴²⁴ It contained all the stages of HACCP [Hazard Analysis Critical Control Point]. The meetings took place in Brussels, with Turkey and Australia taking the lead.

⁴²⁵ They were still testing it three months later (Interview 120608-2).

⁴²⁶ Contacts with UK were established there.

⁴²⁷ These suggestions were made in comparison to a competitor that held similar meetings.

There were **contacts with other countries**. They had shared materials mainly with Education in the UK (Interview 120326-2, 120611-1). The Spanish team did like the magazines and comics prepared there and wanted to translate them into Spanish and distribute them in the country. Regarding educational activities, they saw that UK had a different focus on education, more related to food itself, rather than leisure time: they did provide the materials but not personnel for these activities (Interview 120326-2, 120608-2).⁴²⁸ Some colleagues of this country had previously visited Spain to help on the retail business and had taken some ideas from Education. The Spanish team were planning to visit the UK again to see what they were doing on procurement (Interview 120326-2). They had met with the Mexican team to transfer them knowledge about schools and especial diet requirements in corporate dining (Interview 120326-2). The relative scarcity of effective sharing regarding school meals with other countries was attributed to cultural differences (Interview 120608-1).

2.2.4.3. *ISS INDIA: A COUNTRY OF COUNTRIES*

With 1.252G inhabitants, 3,29M Km², 29 states and 27 recognised languages, India can be well considered a “country of countries,” as some interviewees expressed (120724-1, 120724-2, 120724-5, 120725-2). Just these traits already suggested that we could find many differences between ISS India and its European counterparts. We will follow the same outline as with the UK and Spain, but paying attention to the particular context the subsidiary was in. In India we collected very few data on the schools catering business because it was still starting and of very small proportions.

⁴²⁸ This difference had a reason. In words of a British informant:

We are hot on the heels of America in terms of their obesity rate, particularly amongst the young, and many young children are not learning at home basic things like where food comes from, how to use knife and fork, sitting down on a table and eating. So almost that ‘parenting’ if you like, is being transferred into schools and then it’s the—we call them head teachers—the teacher in charge of the school, some really believe that their responsibility includes pastoral care, and others say ‘No. My job is to teach English and Maths and Science and Geography. I’m not here to teach children how to use a knife and fork.’ And it’s—so then what is UK policy then becomes regional policy, then becomes individual school policy. (Interview 120611-1)

HISTORY AND GENERAL OVERVIEW ON KNOWLEDGE-SHARING IN ISS INDIA

So it started in 1999 and we had a phenomenon business growth and by 2005, I think it was in month of May when I had a consultant with two Danish people walking into my office. [...] It was a really surprise, because I had no clue whatsoever. (Interview 120724-4)

What started in 1999 was Cleantec, an IFS business that was built around cleaning. Jolly Kochery had been successfully creating several service companies: catering, cleaning, guesthouses, technical services and so on. Cleantec was a pioneer in modern equipment and procedures. It started with offices and then they added other segments, such as pharmaceutical, manufacturing and retail. The company had experienced a 80%-90% annual growth (Interview 120724-1). The negotiation with the ISS representatives was completed and ISS India was created. The CEO spent a time in Spain to learn how the operations were run there. The acquisition did not represent any shock in the company: all systems and processes remained the same (Interviews 120724-1, 120724-4).⁴²⁹ Another positive trait was autonomy:

You have freedom to operate the way the country operates. And that is one key element for success of ISS. [...] That is something which is very very good in ISS. That they establish a very strong local country management team and that they are able to understand, build the business to the local needs and run it to the global requirement. Yeah". (Interview 120724-4)

Among the members of the initial team were Stanly d'Britto and Ashwini Wallawalkar, who were still in the company in 2012. After the acquisition, they purchased 12 more companies until they completed all five 'pillars' (cleaning, catering,

⁴²⁹ Regarding the transition to ISS, one interviewee said:

You know, we were already following lot of good practices over here. Then ISS came in and when we started realising [...] 'Oh, you see, you know, whatever we follow over here, more or less this is what ISS management are across the world and even knowledge-sharing is gonna be—We adopt the same thing'. Only thing is they have more robust systems, more documental procedures and paper work, and the whitepapers, which is good for us to really enhance our knowledge. (Interview 120724-1)

security, support services, property services) and the ‘roof’ (IFS) of the ISS house. To them, they added the Guest House⁴³⁰—management of apartments for business travellers—and Home Care services (2011). The latter started to provide high-end residential clients of the Pest Control service with an additional pack of services for their residences (Interview 120724-1, *ISS News India*, Jul 2011).⁴³¹ The latest 2-3 years the organic growth had been around 30% (Interview 120724-1). From the initial 2.200 employees, it reached 53.871 employees in 2012.

ISS India was the second largest subsidiary, just after ISS Indonesia. It had a revenue of DKK 1,04G, which placed it in a middle position in the ranking of countries by revenue—the last with a four-digit number (AR 2012). It had its HQ in Mumbai, the largest city and economic capital of the country. A difference with other subsidiaries was that in India the largest Division was Security. This was because of the acquisition of the 49% of SDB Cisco—the third largest security company in India—, which represented an addition of 25.000 employees to an ISS India that had 20.000 employees (2010) (*ISS News India*, Oct 2010). In second place, there was the Facility Services—which included almost all the cleaning—and Catering was third (just under 15% of the total revenue) (Interview 120725-2). The IFS as such had been incorporated five years ago (Interview 120724-1).

Such a growth brought about sometimes a lack of integration, which had repercussions on the way operations, training and HR processes were conducted across the organization. In 2010, the company hired Ashutosh Labroo as the HR Head and he and his team gave a boost to a series of procedures that should be standard all over ISS India (Interview 120724-5).

Besides the geographical and linguistic diversity, there were cultural and also regulatory differences—such as different labour laws in the different States—across

⁴³⁰ Guest houses were a very common alternative for Indian companies whose managers needed to travel across a vast country and wanted to avoid the high hotel fees. Some of them even built their own guest houses in key locations and then outsourced their management.

⁴³¹ These estates, because of their extension and valuable furnishing, were not easy to clean and maintain more so given the scarcity of well-trained staff in the country. Most of these customers were double-income families who wanted to see in their homes the same standards that they found in the corporate facilities they worked in. The Home Care Division was planning to extend itself to second residences, operating especially at the beginning and the end of the holiday season (Interview 120725-1).

India. It would seem that we are falling in the cliché if we mention here the caste system, but without any prompting from the researcher⁴³² it was brought up as a major issue, mainly for the cleaning business, although it was officially abolished (Interviews 120724-3, 120724-4, 120724-5). Other difficulties were the absence of government regulations in the service market—which eased the emergence of informal enterprises that did not follow the most elementary labour, hygiene and other rules—the large numbers of uneducated or low-skilled people who were employed in these jobs, the scarcity of social benefits⁴³³ and protective laws,⁴³⁴ the lack of culture of quality in customers,⁴³⁵ and a persistent corruption in the public administration⁴³⁶ (Interviews 120724-1, 120724-2, 120724-3, 120724-4, 120724-5, 120725-1, 120725-2, 129725-3). As expected, the company had also developed expertise on people management during

⁴³² Knowing that it was a sensitive issue, the researcher waited to see whether it was spontaneously mentioned and how it was dealt with. We will address it later.

⁴³³ There were organizations that did not pay the statutory Provident Funds and attracted candidates with their slightly higher salaries. G4S was found in 2013 guilty of not paying the funds to 10.000 employees. The possible acquisition of the ISS Group by G4S had been seen with much concern by the Indian team (Interview 240724-4). In ISS, besides these Funds, they had introduced an Employee Benefit Fund, to which all contributed with a proportional fraction of their salary and which all could resort to in the case of a major adversity. The system was made transparent to everybody. To bring candidates to accept these conditions was a task of education in long-term prevision (Interviews 120724-3, 120725-2).

⁴³⁴ This is what one interviewee said regarding the fact that many companies pay just minimum wages, becoming thus unfair competitors:

So I see that has happened now, a big shift, and the minimum wages is also going up and up every year so—which is a good thing, because I’m a firm believer that we not—with just minimum wages is only a guideline by the Government that you cannot employ anybody below these wages, but *nobody just said that ‘This is the only wage there should be’* [he is raising the voice][...][same volume] I’m a firm believer that this should be *a living wages*, that he or she and the family should be able to live (Interview 120724-4)

⁴³⁵ In ISS India they referred to the need to ‘educate’ the customer in this. For example regarding the cleaning service: “You need to get into a kind of different model that’s this service concept based model, ok?, where instead of having the desired head-count—or a number of people—[you have] the output to be measured—You want output? We will give you the Output Guarantee” (Interview 120724-3).

⁴³⁶ “I’m sorry to say that there is a lot of corruption [...] needless to say, yeah?, and it is very easy to get by. For—that’s why you’ll see a lot of private entrepreneurs that manage to do business because [...] only you need to pay and just get the license. So there’s nothing to *enforce* it, to say ‘You need to follow this process’ (Interview 120725-2).

all this time: they had faced such a diversity of problems that their solutions could be highly generalizable (Interview 120724-5).

The HR Department had devised different **development and career paths** for the different levels of the company. They all have been designed according to the Nine Leadership Principles. They had the TITAN programme for promising junior white-collar employees (Interview 120724-4, d-document 120725-11).⁴³⁷ All the other ranks had specific **training** for their jobs in special Training Centres—fully-equipped buildings for induction and basic training—or in the Training Bus—a bus adapted as a classroom to reach remote places where there was no formal training centre. They also underwent on-the-job training, using a skill matrix.⁴³⁸ Training had to overcome the language and culture differences, sometimes with the use of an interpreter. The HQ training videos were re-made with Indian workers and facilities⁴³⁹ (Interviews 120724-1, 120724-2, 120727). The HR department had also launched the RARE (Reward, Appreciation, Recognition, Engagement) programme that included a series of rewards,⁴⁴⁰ engagement,⁴⁴¹ and **communication activities**. The latter have a special

⁴³⁷ This and other training and development programmes for managers were created because initially almost 70% of the hiring of higher ranks was external as opposite to internal headhunting and promotion (Interview 120725-5).

⁴³⁸ Those who completed this programme became trainers. On-site training takes place before or after their shift.

⁴³⁹ These are the reasons for the adaptations:

It's always good to show our front-liners the videos of how the other countries, the developed countries, people do [...] each task: or washroom cleaning, [...] or whatever vacuuming... but they will get more thrill [the] moment they see their Indian colleagues doing it, you know? [...] I like to say that instead of looking at the processes [the worker] will look at how fair that person looks like, ha ha!—So that becomes a kind of problem, so what [...] we have done is we have made it as Indianised as possible. And this becomes so very very attractive (Interview 120724-1).

⁴⁴⁰ Sitaara, Star Supervisor, Go-Getter, Kamali Ki Team, and On-the-Spot Awards. Except the second, they were for all levels (Interview 120724-5, d-documents 120725-6, 120725-10).

⁴⁴¹ They were, with different periodicity: Pat on the Back, Daily Prayer, Birthday Celebration, Picnic, Leadership Café and Coffee with Jolly. The four first were for all levels, the fifth for Supervisors and middle managers, and the sixth for all managers. The daily prayer was held in all the sites: all employees left their work and gathered for an inter-confessional prayer. They were standing in silence while a religious song—'Itni Shakti Hamein Dena Data'—about the value of work and staying together played. It was viewed as an motivational activity in such a highly religious country as India. The song was very

relevance for our research, because they included the cited *ISS News India*, and a **monthly meeting** where all supervisors and workers gathered by branches with a fixed schedule that included not only the typical announcements and complaints sections but also the sharing of best practices and technical novelties.⁴⁴² Finally, the CEO issued an inspirational monthly communiqué, which was translated into the different languages and reached all sites (Interviews 120724-4, 120725-1, d-documents 120725-6, 120725-11, email 121102).⁴⁴³ Another scheme was the constitution of the *mitra* [friend]: the figure of a welcoming colleague—usually candidates to supervisor—who welcomes new recruits during the first days in the job.⁴⁴⁴ Given the context of the country, HSE (Health, Safety and Environment) training was considered also essential. All the HR processes are done according to a Performance Management System with measurable indicators, goals and deadlines.

Indian interviewees considered that many things could be **shared in-country**, such as leadership principles, integrations, transitions or training. The Country CEO himself had conducted a cross-country training on the ISS Value Chain, which involved him visiting all the operations and meeting large groups of employees (Interview 120724-1).

We have seen how their knowledge-sharing practices were closely related to HR processes. Regarding **global knowledge-sharing**, they saw opportunities cleaning in the pharma and food-processing industry. For catering, food handling, storing and hygiene requirements were also possibilities, but the actual cooking was too tied to culture. In

popular and also played in some schools before classes started. The researcher had the opportunity of hearing it twice, the first being along, the second, an interview was interrupted for it (Interview 120724-5, 120725-1, d-documents 120725-6, 120725-10).

⁴⁴² For example, suppliers could come and demonstrate a new product or machine. An informant stated that employees—who used to be very respectful with higher ranks—, were quite outspoken in these meetings, which guaranteed the success of the meetings. The rewards before mentioned were granted there (Interview 120725-1, email 121102).

⁴⁴³ Some competitors were interested in the RARE system, and one interviewee stated:

I told you about the attrition of as high as 70% [back in 2010]; today in my country no region has a monthly attrition about double figure, everything is below 10%. In many months it goes as low as to 4%, which I don't think in 2010 was a figure I ever heard [of]. Today, 2012, we have [an] attrition of as low as 5 or 6% in a month, at times, which I think is [a] commendable achievement of a process like RARE. (Interview 120724-5)

⁴⁴⁴ The first 100 days were considered crucial for employees' retention.

these two services, expected global standards were the same. For technical services there was plenty of field, because equipment were similar all around the world. Finally, for security and IFS there were also many things that could be learned (Interview 120724-4). The TMC was positively considered, especially for networking, but the Regional (APAC) meetings were cited as real knowledge-sharing opportunities (Interviews 120724-, 120724-5). They felt that these countries had more in common. Examples of this sharing were: the Competency Framework, that had been created in India and adopted by all the Region; travels to Indonesia, where they had learned from their training facilities and practices; Singapore and Malaysia for the healthcare and pharmaceutical branches, and the hiring of an Indian manager from ISS UK to manage Healthcare. The UK had also provided support for the Customer Experience Survey. In general, the UK practices were considered excellent but needed of much adaptation. (Interviews 120724-1, 120724-2, 120724-3, 120724-5) Relationships with HQ and Regional managers were reported as frequent and cordial. The global reporting system was fully adopted.

Regarding **the relation with the Government and public administration**, on the one hand some new laws regarding wages and also hygiene standards for catering companies had been passed. ISS India felt in advantage, because the corporate standards they were following and that seemed a drawback in terms of earning contracts were now their credentials (Interviews 120724-1, 120724-4, 120725-2). They were collaborating with the government in the first outsourcing moves that were to take place in the transport sector (Interview 120724-4).⁴⁴⁵ They also had an on-going collaboration with the MORD (Ministry of Rural Development) in a training and qualification programme that enabled candidates to work in the security, pest control and housekeeping industries (Interviews 120724-3, 120424-4).⁴⁴⁶

⁴⁴⁵ The Indian government had traditionally controlled many spheres of the economic activity and infrastructures of the country. The panorama was changing, first with the laws that opened the market to foreign investments in the 1990s, and now, first talks about outsourcing some services were happening. The first sector affected was the extended Indian railway network (Interviews 120724-4, 120724-5).

⁴⁴⁶ The aim was to help the rural population that were anyway migrating to the cities in search of a living and who often fell prey of any kind of abusive work conditions by providing them with a qualification and a prospect of a decent job. Candidates who were considered eligible were offered a job in ISS and, in

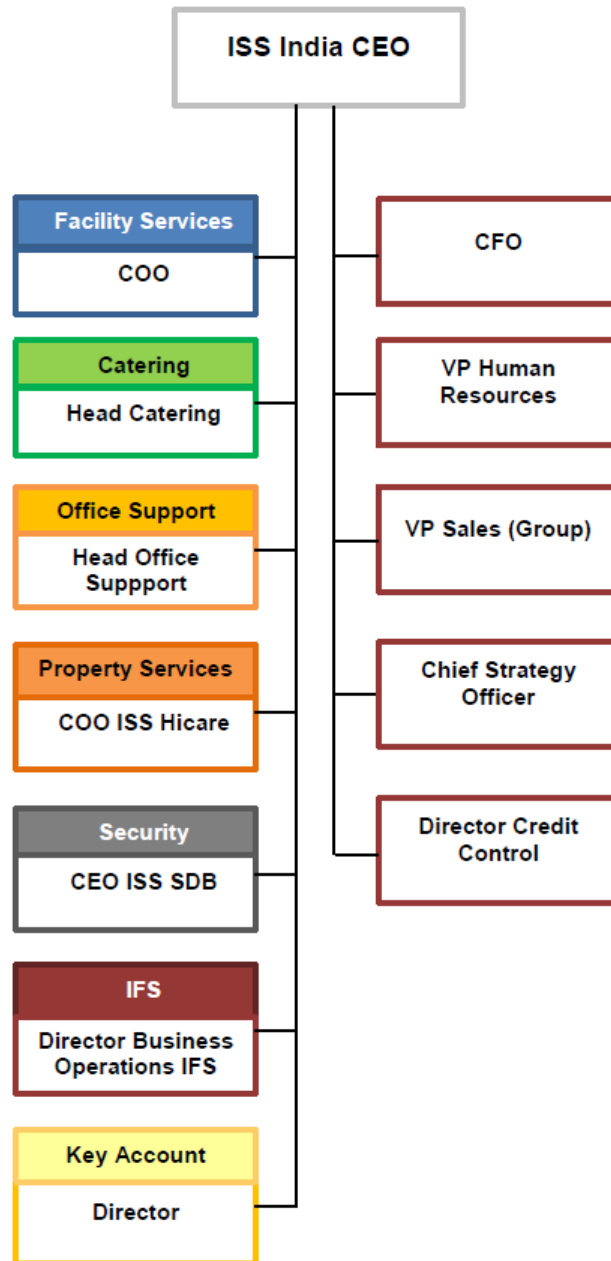
When asked about the **position of ISS India in the market**, interviewees considered that in terms of quality and standards, ISS India had no match, but they had two types of competitors in financial terms: the noncompliant small companies, and big companies—such as GLL Partners, CBRE, and Knight Frank—that offered facility management but by means of subcontracting and that also dealt with properties. In any case, they saw the Indian market as plenty of possibilities (Interviews 120724-1, 120724-4), but, at the same time, they anticipated a shortage of manpower, because new government provisions were improving the situation of rural population. Thus, they needed to invest more in qualification (Interview 120724-4).

The subsidiary had a two-legged **structure** (Exhibit 9): on the one hand, there were the Business Line Heads, and on the other, the Corporate Function Heads. Down the structure, Divisions—or Verticals, as they were called in India— were divided geographically.⁴⁴⁷ As it can be seen, they distinguished between what they called Facility Services, or housekeeping, which held mainly all the cleaning services and whose COO was the responsible of Cleaning Excellence,⁴⁴⁸ and IFS, which was the full pack. Each Head was responsible for the P&L, with an HR, Sales and Finance heads reporting to him or her. Their aim in the future was becoming different IFS segmented by clients (similarly to the UK) (Interview 120724-1).

any case, they had a certification and an education regarding their rights (Interviews 120724-3, 120724-5). See data at <http://www.nrlmskills.in/ProjectDetails.aspx?stat=O>, accessed 11/10/2015.

⁴⁴⁷ We will see an example later.

⁴⁴⁸ This is why blue was assigned to it.



Source: d-document 120730 (Adapted)

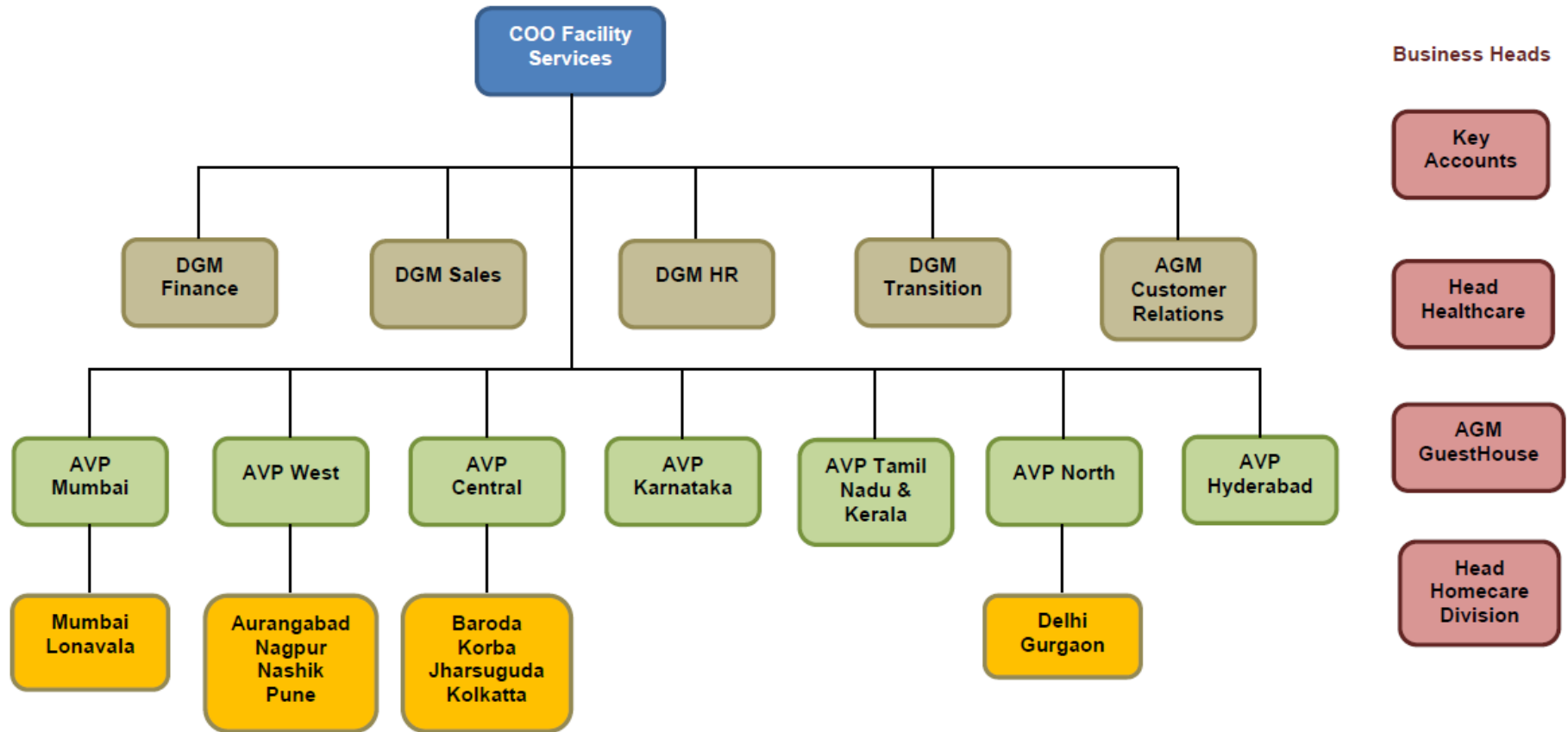
India's population is a mix of very well prepared people and uneducated people who live under the poverty line. The company had all levels of **personnel** and sought to professionalize what were seen as menial jobs (mainly security and cleaning occupations), which makes training both essential and more arduous than in other countries (Interviews 120724-2, 120724-5).⁴⁴⁹ The response rate of their employees' survey was almost 100%.

THE OFFICES CLEANING SERVICE IN INDIA

The cleaning business was around 80% of the FS operations. 5% of its costs was materials and the rest was manpower (Interviews 120725-1, 120725-2). We can see that the **structure** (Exhibit 10) was mainly geographical, in regions that covered all the Indian geography. Mumbai had such a volume that it stayed separated from the West region. To serve global clients, such as Barclays, the corresponding manager was supported by a member of the Country team.

Competitors were pressing hard. In local markets ISS were between the three first, and in some (Mumbai, Bangalore) they were the first. There were a few big firms that also applied modern systems—Sodexo, G4S and OCS were mentioned—, but then they had a lot of local, very cheap, non-compliant vendors who competed in price but with poor systems. There were no entry barriers in the housekeeping market. Regarding big organisations, these were perceived as having a considerable power distance with comparison to ISS India (Interview 120624-1).

⁴⁴⁹ “If I tell the person ‘Your hygiene should be very good, your grooming should be excellent because you are representing our company [...]’, but the surrounding that he sees—you know, his office may be like a 5-star hotel, but the area from where he comes to work is from a slum, so for him that ‘hygiene’ is totally a different thing” (Interview 120724-2).



Source: d-document 120725-3 (Adapted)

They had a 95% of customer retention. **Customers** were 95% satisfied with the service, as it appeared in the Customer Experience Survey: it highlighted responsiveness, the existence of best practices and creative proactiveness.⁴⁵⁰ Some clients, such as Bharti Airtel and some large BPOs were happy to pay more for more quality, but ‘educating’ clients against other service providers was still a task (Interviews 120724-1, 120724-3). In general, the market was not mature for output-based contracts, but in ISS they saw them to increase soon because of (1) upcoming manpower shortages, (2) some customers were already demanding having less personnel in the facilities, and (3) in ISS they had the aim of paying better wages. That was already happening with some clients (Interviews 120724-3, 230724-4). All the transition phases were specified in the Site Quality Manual, which contained all the information on the site: its facilities, legal and customer requirements, agreements and specifications on personnel, equipment and so on. It also specified all the work routines (by job categories) and their periodicity (Interview 122125-1, d-document 121221-2).

Regarding the **workforce**, the description we made of ISS India’s employees corresponds also to that of cleaning workers: most of them were little educated, and the employees turnover had to be controlled through diverse mechanisms, especially within the first three months. For this purpose, they had the *mitra* (buddy) system totally implanted and working. They also had all the benefits for the employees we have explained before (Interviews 120724-1, 120724-3, 120724-5).⁴⁵¹ In one of the documents received, we could see the work distribution of an FS contract: there was, on the one side, housekeeping (including pantry services) and cleaning, and, on the other side, technical services and, finally, office support (d-document 121221-2). Cleaning personnel were most of them men (20 housemen for 2 chamberladies), and the same for pantry services (all stewards and pantry boys). The back-office team paid surprise visits to the sites to supervise. They also did it during the night shifts, and this brought the problem of covering the holidays period. (Interview 120725-1)

⁴⁵⁰ One customer highlighted quick response and professionalism as their traits (Visit 120725).

⁴⁵¹ Two employees interviewed —a cleaner and a supervisor—had left ISS after seven years of working there and took all the savings they had made through the company—this is a possibility they have after several years in the company. The cleaner bought a house. The supervisor specified that he had worked in another service company in the interim but was not happy with the way work was organised. Both went back to ISS. (Visit 120725)

The subjects of **knowledge management and knowledge-sharing** appeared mixed with HR and operations, but they were also directly addressed in the conversations. Regarding managerial work, one interviewee said:

Absolutely, we need to keep it [knowledge transfer] as simple as possible, ok?, and the kind of services which we provide is not a rocket science at all but, yes, [...] there is a kind of consistently innovations required, there is consistently some improvements required and this comes be it as a process or be it as a product. (Interview 120724-1)

Thus, innovations were selectively introduced.

As for front-line employees: “Nobody would like to be a cleaning person throughout their life,⁴⁵² this is an entry job, but at the same time we strongly believe that cleaning is not a menial job. It is a science and it has to be taught” (Interview 120724-4). Regarding this, there was the perception that some Group processes were more appropriate for developed countries and simply did not fit in India, because of the levels of pollution and other environmental problems, labour laws and other issues that have already been explained. An important peculiarity of the Indian subsidiary was the challenge of the caste system, especially in the North of the country: cleaning was seen as a job for lower castes, and especially all which regarded to washrooms. It was the cause of 50% of new recruits quitting during the induction training. (Interview 120724-3, 120724-4, 120724-5). The issue was addressed in a professional way:

So it was a real, real challenge: How do we break [the barrier]? We started educating people, that ‘Cleaning is nothing which is dirty about it. In fact, we are doing a great job because others can then work in a clean environment [...]. So if you do it is a very very important role what you play in any organisation, because any organisation to be successful has to have a very very good and clean environment’. But then second challenge was: [...] To the certain areas is ‘OK, we can do it’, but when it came to washroom—[...] This was another big issue. They will—boys and girls come to work, [...] they want the job, but they will say ‘We will do all the other cleaning—offices cleaning and everything—but we

⁴⁵² Some internal paths were described, such as moving into catering or technical services, the promotion to supervisory or higher jobs, especially for those employees who get of age (Interviews 120724-4, 120724-5).

will not clean the washroom’. Then we had to get back to them and say ‘No. There’s nothing wrong in doing that. We are not telling you to go and clean washroom with your bare hands. We’ll provide you all the tools, we provide you all the safety vests: gloves, apron, shoes, and everything, and we have the equipments to do that in a professional manner’. So I would say that yes, we have done—we managed to break that mental barrier of cleaning up the washroom as part of the daily job, but still today that’s a challenge. (Interview 120724-4)

We said above that **training** was crucial given the employees’ background; now we see that it was also necessary to break ancestral prejudices. In addition, all cleaning workers were full-time employees, both by law and because of customers’ requirements, so they worked in three eight-hour shifts. This required from them to perform a multiplicity of tasks along the day, and, therefore, the skills to do them. Tasks were stipulated on the site manual.⁴⁵³ Supervisors were the ones in direct contact with clients and received their requests and complaints (Interview 120725-1, Visit 120725).⁴⁵⁴ They also had the function of detecting standing out workers, both in terms of promotion and rewards. Experts were also built through on-site specialised training, depending on the aptitudes of employees (Interview 120724-1). We have also explained how training materials such as videos were adapted to the country. The training in rural areas in collaboration with the MORD was mentioned regarding cleaning.

One top manager interviewed had participated in the Academy courses (for SimISS), in the Advantage course and he also was selected for the Global Talent Programme, along with other 50 managers. Other ISS University courses he had taken were the ISS Leadership Programme, and the IFS Master Programme (Interview 120724-1). The TMC was very positively considered as a source of contacts and knowledge about the Group and other countries operations.

⁴⁵³ All the employees interviewed (two supervisors and three cleaners) described their daily routine which corresponded quite well to the documents we later received (and that were from other facilities), which shows the effectiveness of their training (Visit 120725, d-document 121221-2).

⁴⁵⁴ In some cases, customers addressed the Project Manager. Non-stipulated or extra activities had to be formally required and paid accordingly (Visit 120725).

HQ and **Regional managers** were reported as accessible and quick in their responses. Visits from these two teams were also mentioned. A weekly news alert was sent from the HQ to all the Country top management teams, and they had copied the idea in-country. As for the Region, they also reported visits to and from the Region HQ. Although the APAC Region consisted of economically and culturally **different countries**, they shared with Malaysia, Singapore and Hong Kong for cleaning in specific settings (pharma or hospitals). Contacts were made directly with peers or through Regional managers. They also received consultations from the HQ and Regional teams regarding potential global customers.

More concretely about the **Cleaning Excellence**, there was a person appointed as Head of Cleaning Excellence in India, which had been adapted to the country, as said. Existing knowledge in the Academy and the Cleaning Excellence sites was used to leverage creativity in India, and also to have some reference points, and the approach seemed quite pick-and-choose. This information was reported as easy to find (Interview 120724-1). The Group Operations Process Framework, however, was well reflected in the Site Quality Manual, as well as they followed the other global standards along the customer lifecycle. They also submitted the Monthly Management Report and other group-level standard paperwork (Interviews 120724-1, 120724-3, 120725-1, documents 120124, 121221-2).

After having extensively studied the **SimISS** and other Cleaning Excellence programs, the Indian team reached the conclusion that they could not be applied to India: in the country, criteria were not hours but the multiplicity of tasks performed. That had led to the need of creating a Planning and Costing Team, who customised the costs calculation to the sites, personnel, State labour laws and agreements and other requirements. They had a system called CCB Track Sheet that made the calculations, which they considered an ‘Indianised’ SimISS (Interviews 120724-1, 120724-3).

Internal KT channels were training, the monthly supervisors meeting—which was considered key—, the news alert, and a great deal of personal meetings and calls. For example, for services cross-selling, the regional head should address the corresponding vertical Head (Interviews 120724-1, 120724-3, 120724-5, 120725-1).

As tools for **feedback**, the TMC was considered one, given that it included an assessment of the situation of the country.⁴⁵⁵ They were evaluated by the HQ twice a year—they applied the global Performance Management System—and received feedback, and they had a quarterly audit with the Regional team. The surprise visits to sites and communication with supervisors—especially in the monthly meeting—were different ways to take the pulse of the operations. They also had the employees’ and customers’ surveys (Interviews 120724-1, 120724-3, 120725-1).

THE CATERING SERVICE IN INDIA

Like in the other subsidiaries, we will here describe the situation of the Catering service line in ISS India, and then, more specifically, education catering. We will just anticipate here that the latter was starting with very few operations (some colleges and one school, with prospects of more to come).

The catering business was characterized by the importance of both the costs in food and the interaction with customers. In ISS India it was developed in the South (1.500 employees) and the West (1.200). In the East, it operated under the FS line. They catered to different segments: manufacturing, IT,⁴⁵⁶ healthcare—they run two big hospitals in Mumbai—, and educational organizations. Some of the clients were quite large organizations (3.000-4.000 people) (Interview 120725-2). In other cases, they were catering in business campuses: e.g. in Pune, they had a central kitchen that provided for 20-odd businesses in several IT business parks (Interview 120725-3).

They had both on-site and central kitchens. Given the weather—especially in the monsoon season—and traffic conditions of the country, delivering every day on time

⁴⁵⁵ They had been encouraged to improve cash collection and the Indian team had created a system to reward compliant clients, and decided to get rid of relapsing morose ones. The reward was to issue them a certificate according to which a tree had been planted on their behalf. The initiative was aimed to fight against desertification and it was made extensive to all the employees who wanted to collaborate. It was made in collaboration with a local NGO (Grow a Tree) (Interviews 120724-3, 120724-4).

⁴⁵⁶ They wanted to get away from the manufacturing sector because it provided very low revenues and it entailed many problems with unions, which were highly politicized in India, and they did not get the expected revenue (Interview 120725-3). Apparently, the IT market was also saturated (Interview 120725-2).

was a logistics prowess. To this, peculiarities of Indian cuisine made the operations in this country quite different from the European ones.⁴⁵⁷ First of all, they mostly served vegetarian menus, unless they were asked otherwise by customers (Interview 120725-2). There was no cold food, and, in the case of central kitchens, meals were cooked and then transported and served in a span of three hours. No food was pre-cooked, frozen or preserved and all cooking was predominantly manual—therefore it required large numbers of personnel—and on open-flame stoves. Steam was also used. In hospitals, kitchens were on-site and they worked in collaboration with the hospital’s dieticians. In general, the incidence of allergies and intolerances was considered to be so low in the country⁴⁵⁸ that especial diets were not addressed, with the exception of hospitals, where dieticians were coordinated with the medical team. In India, they calculated that 60% of the cost was material, 20% for manpower, and the rest for transport⁴⁵⁹ and equipment. “Here, what keeps us going is the volumes. We’re basically dealing with huge numbers in terms of... the real cost of a meal is very low here. [...] Here the cost of a meal is less than a dollar” (Interview 120725-2).

The Indian subsidiary faced some **challenges**. The first was employee retention. They had to keep salaries very tight, because they complied with internal and country labour requirements, unlike other competitors. The second was procurement: prizes were very volatile and they could not make agreements for more than three or four months.⁴⁶⁰ This had led them to invest in food storage (Interviews 120725-1, 120725-2).

But the main source of challenges was the **market**, which was a highly de-regulated market. The three international peers were ISS, Sodexo and Compass but the remaining 80% were private entrepreneurs that majorly did not follow SOPs. That made it difficult for ISS to get customers to accept a higher price in exchange for compliance. Only five-star hotels followed some kind of HACCP, not even hospitals. This panorama

⁴⁵⁷ Interviewees considered that maybe in some sites in China, Singapore or Malaysia they could find some similarities (Interview 120725-2).

⁴⁵⁸ This was attributed to the high immunization of Indian population and the properties of some ingredients.

⁴⁵⁹ They outsourced the meals transportation.

⁴⁶⁰ Droughts and other circumstances had frequently impact on prices and quantity and quantity of raw material.

was to change radically because of the recent Food Safety Act, which would include all businesses dealing with food—manufacturers, packers, caterers—and it intended to provide mandatory guidelines for them. The peculiarity of this law was that eventual penalties would affect not only the businesses themselves but also companies that had contracted their services. Only a few companies were to be prepared for these changes and in a position of setting up standards, and ISS was to be among them. Sodexo was their most direct competitor⁴⁶¹ with the difference that they did not have central kitchens.

The areas for future expansion were the healthcare sector and schools. To enter a new market good references were essential. Thus, it was necessary to earn a good first contract, manage it well and then use it as the reference. That was what they had done with hospitals: they used to have no experience in the industry⁴⁶² but they had become a reference point and there were more potential clients in the horizon.

Regarding the corporate **knowledge-sharing processes**, one interviewee stated:

So the Catering Forum—what I wanted to find out is: we may not be able to replicate what has been done in Europe *exactly*, because we don't have the infrastructure or we may not have the right tools to replicate exactly the same system, but I would like to see if there are 10 processes what I can extract and implement or get it customised for my business, which in turn becomes a good selling point for me to my clients. (Interview 120725-2)

Therefore, he had recently started collecting information.

Regarding **relationships with other countries or HQ**, relationships were more within the Region. No-one from catering had attended the TMC. Singapore was viewed as the reference point for catering in hospitals, and. A visit from an Israeli expert who

⁴⁶¹ In fact, the two hospitals catering businesses—which included a restaurant, a café and inpatients' meals—had been taken from Sodexo (Interview 120725-2, Visit 120726).

⁴⁶² It was not only the risk of the daily operation of a high-hazard site but the transition itself. Interviewees narrated how in a site they had to select the personnel—there had been many personnel-related issues with the old contractor and only 20% made it through the process—, incorporate new people and processes and keep the operation running without end-users' noticing. In just one night they had to do the change (Visit 120726).

had been Head of Catering Excellence, had been useful to prove the differences between India and Israel on the procedures and equipment used to run central kitchens.

Unlike in cleaning, catering hired already skilled workers, but they were **trained** in complementary issues that configured the ISS way of working. Contents were discussed with the Chief Learning Officer (form HR). They included interaction with clients (communication skills, grooming), hygiene (dealing with food) and market model specifics. The diversity of languages was also considered a challenge for training, but the reception was positive: it was made compulsory but attractive. With it also differences in background were levelled.

SOPs were already documented and compliance was controlled by an internal audit. The documentation included the Zero Total's Policy, with all the basic general dos and don'ts of the service line. The catering business used a common platform for financials, reporting and costing, but more hands-on issues were considered specific to each cultural area. The platform had been designed in the South and recently introduced in the West. It was also used by the management team to have up-to-date information and a panoramic on the operations. One of the managers mentioned the project of having a complete team, instead of just one person in the country R&D team, to give a boost to the business and personnel development.

The same path that was being followed for the expansion in the hospitals sector was being walked for **catering in schools**. ISS India already provided catering to several colleges in the South—one with 1.100 students—and a ICSE (Indian Certificate of Secondary Education) school in Mumbai (with around 1.100 more 3-15 year-old students). The owners of the school had other two schools and it was probable that they started working there also. To these, other schools in Pune and Mumbai were to add.

Before moving to the description of the data collection, if we go back now to the introduction to this subsection (2.2.4.), we can see with this preliminary overview that the considerations about cultural categories we cited there may be perhaps too simplistic. For example, finally, there was much more sharing between Spain and the UK than between any of them and India. In addition, we are not interested just in the quantity of interactions but their type and if the differences are not only between

countries but among services. In the next section we will describe in detail how the inquiry was conducted.

2.3. DATA COLLECTION

Once the setting described, it is time to address how the data of this research were collected. Here we will explain what methodological literature has to say about data collection in general (2.3.1.), the main types of sources that can be used (2.3.2.), and, finally, we will deal with ethical issues (2.3.3.). In the latter, we will only talk about the potential problems we could encounter in our actual research. In the other subsections, in addition to what methodological literatures says and what we have applied to our research, we will propose a few examples, taken from the literature that has been reviewed in Chapter 1, to which our research shows some similarity.

2.3.1. DATA COLLECTION METHOD

Yin (1994) highlights the difficulty of case studies regarding data collection: “data collection procedures are not routinized” (p. 55) and inferences “must be based on *convergent evidence from witnesses and physical artifacts* as well as some unspecifiable element of common sense” (p. 58, emphasis added). He also explains that data collection requires a preparation: it needs the right skills⁴⁶³—being a good questioner and listener, adaptive and flexible (“very few case studies will end up exactly as planned” (p. 57) understanding the issues at stake and taking an unbiased approach—,

⁴⁶³ Morse (1998) explains the way to acquire some of these skills: diligent observation, conceptual work, determination and persistence are some examples.

training and managing the eventual research team,⁴⁶⁴ setting a clear protocol for data collection and, finally, establishing a pilot.

Another trait of case studies is that analysis and data collection often overlap (Eisenhardt, 1989, Morse, 1998). Thus, data collection is not a mechanical task, but a productive one: “during this phase, out of confusion, order and understanding *emerge*” (Morse, 1998, p. 74, emphasis in original), and there is a constant feedback data-theory. One way of doing this is taking note of apparently irrelevant issues, or asking often oneself about the learning that has occurred after the collection of certain data. That allows seeing if it is necessary to add up more data sources. Observations need to be as rich as possible, but also keeping always a control of the process (Eisenhardt, 1989).

We can relate these preliminary insights with the way this dissertation was developed. Regarding the *skills* required, it is not up to the researcher to judge if she has them. The *protocol* followed corresponds to the work agenda for the dissertation, in which a part of the literature review was done before the data collection started,⁴⁶⁵ which happened in second place, overlapping at the end with the second part of the literature review. At the end, the analysis was made, in combination with more literature review, to arrive, finally, to the writing of the whole text (which included a reduction of the initial theoretical work, which was submitted as the research project of the Master (Agulles, 2011)). From this description it transpires that the mentioned feedback theoretical reflection-data collection did happen. As for the use of a pilot, this researcher had the materials of a teaching case before mentioned (Prats and Agulles, 2009a, 2009b). There, some interviews had already been made and materials had been collected with the purpose of further research on knowledge transfer and learning. They also had been very useful to have a grasp of the company that was to be researched, its structure and practices.

Yin (1994) enumerates what he calls the six sources of evidence: documentation, archival records, interviews, direct observation, participant observation and physical

⁴⁶⁴ Yin (1994) adds some instructions for team researches, which are more complex to manage but also have the obvious advantage of allowing for more ambitious researches (see also Eisenhardt, 1989, Morse, 1998). We will not address this subject because of the nature of a doctoral dissertation.

⁴⁶⁵ As it will be later described, for the data collection, the decision on the setting, the methods, the people to be interviewed and the schedule of the interviews, the interview protocols, and the search for documents were all made in a way that attempted to keep order and completeness.

artefacts, and then he proceeds to describe each. Likewise, in the introduction to the third volume of the work they edited on qualitative research, Denzin and Lincoln (1998a) list all the data collection mechanisms that will then constitute the chapters of the book: interviews, observation, artefacts/documents/records, visual methods, and personal experience methods. Just to add a third example, Berg (2007) talks about interviewing, focus groups, ethnographic research, action research and unobtrusive data collection measures. We have decided to group them following the already cited (2.1.1.1.) Valles's (1997) proposal of the three main ingredients of social research: **conversation**, **documentation**, and **observation**. We will explain them separately in the next sections (respectively, 2.3.2.1., 2.3.2.2., and 2.3.2.3.)⁴⁶⁶ and, as Valles prescribes, we will explain the reasons for our choice regarding each of them.

In any case, no serious research relies only in one of these mechanisms, but usually different data collection strategies are combined to seek triangulation (Eisenhardt, 1989, Morse, 1998). Precisely this is the first of the three **principles of data collection** that are explained by Yin (1994): the use of diverse sources to achieve triangulation (which can be sought regarding data, investigators, perspectives or methods).⁴⁶⁷ The other principles are: the creation of a database—it may adopt the form of notes, a series of documents, tabular materials and narratives—, and finally, maintaining a line that unites research and conclusions, based on evidence which must be revealed over the research, and called 'chain of evidence.' The latter is similar to the audit trail recommended by Morse (1998). This author also insists in the importance of using data which are appropriate for the research.

Therefore, the use of multiple data sources is widespread, and here we will only provide **one example**: that of Tsoukas and Vladimirou (2001), who, in the second phase of their research conduct unstructured and semistructured interviews in combination with documents review and nonparticipant on-the-job observation. Not only this but the purpose of their research was to look for evidence on how the subjects used a series of tools—e.g. computerized corporate database, printed documents describing practices, and informal knowledge-sharing through stories—to manage knowledge. Not only is the sought evidence found but also evidence on how subjects use their own cumulative

⁴⁶⁶ The order represents the relevance they have in the present research.

⁴⁶⁷ Regarding triangulation, Morse (1998) recommends resorting to secondary informants but advises against multiple raters.

experience to solve a series of problems.⁴⁶⁸ We can here highlight the similarity of our research to this one: we wanted to grasp the preferences of the members of three different subsidiaries and two different services in terms of KT mechanisms. Preferences are better captured through personal—if possible, face-to-face—interviews. At the same time, we had to use different sources, i.e. interviewing only one representative of each unit would not be enough. But not only this: we would have to add other sources: documents, internal and public (e.g. the company web, news about the company in other media), physical and digital, and, if possible, personal observation. And this is what we did. Following with the research principles above enumerated, we developed a database with the main KT mechanisms, another one with notes on the interviews, and another one with the main documents we used, plus the notes of the observation activities. The ‘chain of evidence’ we expect will become clear along this entire chapter 2.

2.3.2. SOURCES

We will describe in this subsection each of the types of data sources, grouping them, as said, according to Valles (1997). Each of the three sections—conversation (2.3.2.1), documents (2.3.2.2.), observation (2.3.2.3.)—will, in turn, be divided into the following: first, a brief review on methodological literature about these data collection mechanisms, then some examples of authors using them and, finally, among all the different possibilities, what we chose and how we proceeded about it.

⁴⁶⁸ One of the conclusions is “Through experience and their participation in a ‘community of practice’ (Brown and Duguid, 1991; Wenger, 1998), operators develop a set of diagnostic skills which over time become instrumentalized, that is to say, tacit” (Tsoukas and Vladimirou, 2001, p. 987).

2.3.2.1. CONVERSATION-BASED DATA COLLECTION MECHANISMS

LITERATURE ON CONVERSATIONAL DATA COLLECTION

We will start by the most basic way of collecting data: when we want to find out about something, first of all, we can *ask* someone. In other occasions, it is through an exchange of views, or through oral stories, how we get to collect the needed information. Thus, the different conversation-based data collection mechanisms could be grouped into **interviews**, and **group conversational methods**.

We will address first the latter. Among them, we can find *focus groups* (a—more or less guided—group conversation focused on one theme), *brainstorming* (group ideas pouring, usually with creative or problem-solving purposes), *Delphi methodologies* (a structured experts meeting in which they answer certain questions by rounds and feedback each other about their answers), and *natural* and *formal field group interviews* (which differ in that in the first the researcher joins a conversation spontaneously formed on the spot where subjects are and the second are arranged in a place, also in the research field, but with certain conditions, e.g. it is free from distractions (Fontana and Frey, 1998).⁴⁶⁹ Regarding focus groups, Berg (2007) explains that “using this approach, researchers strive to learn through discussion about conscious, semiconscious, and unconscious psychological and sociocultural characteristics and processes among various groups” (p. 144). Group methods are useful to obtain contextual information, develop hypotheses and new insights, detect potential research matters and so on (Berg, 2007). Of these data collection strategies, unless two people are considered a group—in which case, we could consider some interviews as formal field group interviews—, we did not use any. We considered that we needed to receive a more straightforward response about the questions we had in mind, and that this only could be attained through one-on-one interviews.⁴⁷⁰

⁴⁶⁹ Valles (1997) adds to them the *biographical methodology*, but we think that this item does not fit in this classification. In our opinion, ‘biographical’ refers to the contents of the interview, and could be also referred to one-on-one interviews, or some written, graphic or audio-visual documents.

⁴⁷⁰ At least, this was our intention, although some interviews involved simultaneously two interviewees. In the introduction of his paper, Starbuck (1993) explains how interviews manage to capture the outliers,

What about **interviews**? “Interviews are an essential source of case study evidence because most case studies are about human affairs” (Yin 1994, p. 85). The functions of interviews are various: Valles (1997) cites discovery, measurement, exploration, contrast and deepening.

There are diverse **types of interviews**. The basic distinction is that between *structured/standardised* vs. *unstructured/unstandardised* interviews. There is also the intermediate category of *semistandardised* interviews (Berg, 2007, Fontana and Frey, 1998).⁴⁷¹ In the first case, the interviewer controls all the conversation, and questions are fixed and formally structured. The extreme form of these interviews, in which answers are totally closed, falls outside the field of qualitative studies, because these are the questionnaires used in quantitative surveys (Valles, 1997). On the contrary, unstructured interviews, also called *in-depth interviews*⁴⁷² have open-ended questions, the order of which is totally free, and the researcher is entitled even to add or obviate whatever questions he or she feels necessary. Here the conversation is intended to flow as spontaneously as possible.⁴⁷³ In semistandardised interviews, questions are more or less open-ended and they can be re-ordered, with the possibility of adding subsequent clarifications or probes (Berg, 2007).⁴⁷⁴ Therefore, there is flexibility, although not to the degree of that of unstructured interviews.

Yin (1994), who takes the point of view of case studies, states that the most common type of interview used is the one with open-ended questions, and that “you are more likely to be following a certain set of questions derived from the case study protocol” (p. 85).

the surprising traits, and the mechanisms of thought of people, which generalizations and averages do not. And they need to combine this with being well aware of potential manipulations and contradictions.

⁴⁷¹ For some reason, Fontana and Frey (1998) introduce here another type of interviews, which are *gendered* interviews, in which the gendered nature of questions and also interviewer and interviewee’s genders are the main element. We will not consider this issue: it is true that the gender of those taking part in an interview and some questions may have special repercussions on the data collected but, on the other hand, it does not fit with the criterion used to classify the other interviews.

⁴⁷² Valles (1997) notes how popular this term has become.

⁴⁷³ Fontana and Frey (1998) somehow equate them to participant observation. Valles (1997) calls them *informal conversation interviews*.

⁴⁷⁴ Apparently both Valles’s (1997) *interview guide approach*, in which the interviewer follows a list of themes, and *standardized open-ended interviews* fall into this intermediate group.

Another relevant issue is the **kind of questions** that can be asked in an interview. Berg (2007) provides interesting insights on the topic. Regarding the information we are seeking, we can ask *essential* questions (which address the main subject of the research), *extra* questions (that are spread in the conversation in order to triangulate the information on the essential subject), *throw-away* questions (which really do not add to the contents but are aimed to establish a good rapport with the interviewee), and *probing* questions (seeking to obtain additional data). He also adds on the **way** interviews can be made: concretely, he addresses telephone interviews and also computer-assisted interviewing. Berg considers that in these two kinds of interviews, the lack of visual cues facilitates interviewees' candour.

The way interviews are registered is also relevant: taking notes is totally different from recording them with a device. In the latter case—which allows for a greater leeway to the interviewer and a richer subsequent analysis—, permission must be granted from the interviewee. A clear plan for transcription must also be previously established. In any case, recording an interview is not a substitute for an attentive listening, much on the contrary (Yin, 1994).

A final question regards the **interviewees' selection**. The first consideration, which has already been mentioned, is that it is important to count on several informants, or at least, additional data sources that may provide complementary information (Yin, 1994). How many interviewees' is the ideal number? Berg (2007) remarks that in quantitative methods probability sampling and representativeness are major issues. In qualitative issues, to comply with those requirements is not always possible; therefore, researchers often use nonprobability samples. In this case, "Efforts are undertaken (1) to create a kind of *quasi-random* sample and (2) to have a clear idea about what larger group or groups the sample may reflect" (Berg, 2007, p. 43). *Quota samples* also resemble those of quantitative research: they originate from a list of attributes required and determinate their proportion in relation to the proportion they show in reality. Sometimes, the sample is a *convenience* one. Such a limited specimen is considered by Berg useful only to capture preliminary information. In other occasions, researchers use *judgmental or purposive samples*, i.e. they select certain individuals who possess certain traits of interest. On the latter, Valles (1997) comments that certain methodological approaches reject what they call *elite interviewing*, because they consider it inherently vitiated. On the contrary, Valles says, there is nothing to object to looking for and interviewing the

experts on some subject, because they can provide the richest information. In other cases, the elite is a hierarchical one, i.e. interviewing top level informants as the key that will open the door to the researcher towards lower levels or unpublished information. Finally, Berg (2007) cites *snowball sampling*, in which respondents successively refer the researcher to other respondents.

Illustrations of the use of these data collection methods, especially interviews, had been spotted during the literature review. In all them, learning- or KT-related phenomena are investigated. We will show here just a few examples that share many traits in common, even regarding the number of people interviewed.

For example, Inkpen and Crossan (1995) wrote about learning in JVs, and to do this they conducted semistructured interviews with 58 senior managers—most of them Presidents or General Managers—or 40 JVs. Because of their position, they were considered *key informants*. Hong and Nguyen (2009) researched on knowledge-embeddedness and KT in MNCs from the point of view of host countries, and they collected data mostly through 19 interviews in four companies. In all of them, they interviewed the CEO and several local managers. Dyck and colleagues (2005) inquired about OL, namely, about knowledge creation and KT through a close follow up of the complete cycle of production of a new car model. In five different stages of the process, they interviewed 20 employees of three different subunits. The interviews had open-ended questions and were recorded and transcribed, and were complemented with a questionnaire. The authors also describe how they guaranteed the *trustworthiness of data*: first of all, their internal validity (credibility)—e.g. through a long-lasting relationship with the setting and triangulation—, secondly, their external validity (transferability)—e.g. through detailed description of the organization and quasi-literal transcription of interviews—, and, in third place, their reliability (dependability)—e.g. selecting a purposive and theoretical sample and rigorous data management. They note something which is interesting for our research: that tacit knowledge is less mentioned in interviews because it is difficult to express.

Sandberg and Pinnington (2009) sought to detect the increase of professional competence in PSFs. To this purpose, they selected 24 interviewees, to whom they added six more. They used in-depth interviews, to be complemented with secondary (corporate) data and supplementary observations. Interviews were considered the

primary source of data, they were dialogue-based and clarifying questions were added. Maritan and Brush (2003) examined the transfer of a new, complex work practice and the effects of heterogeneity in it. They accumulated 30 hours of semi-structured interviews to people involved in the process. Similarly, Chen and McQueen (2010) studied KT related to different experience levels in knowledge recipients, again, by semistructured interviews to 19 people, adding to it the review of documents and participant observation. Dinur *et al.* (2009) wanted to capture the impact of similarity on international intra-firm KT, and they used semi-structured interviews with at least three key personnel of each of six companies from the point of view of source, recipient and corporate members. In this case, notes were taken instead of recordings. Finally, Uzzi and Lancaster (2003) describe how they made 26 in-depth interviews with a total of 26 hours to research on relational embeddedness and learning. Ethnographic observation was added. They chose 11 Chicago banks and investigated managers-clients relationships. “While the 26 cases can claim but moderate representativeness, they build on previous work in related areas and contribute a plausible basis for new theory” (p. 385).

We also found interesting descriptions of *what was asked* from interviewees. For example, Inkpen and Dinur (1998) in a paper on KM and JVs collected data about certain knowledge-related connections through the interviews: the sharing of technology was captured by detecting meetings, visits and agreements; the interaction JV-parent company was also identified through visits and tours. Personnel transfer and strategic integration were also inquired. Dinur *et al.* (2009) detected the prominence of critical context variables by asking for the most important (i.e. first mentioned) ones.

Some of these ideas came from quantitative research. For example, Foss and Pedersen (2002) in their research about the role of sources of subsidiaries’ knowledge and organizational context on KT in MNCs, to capture KT, asked respondents to what extent their unit had been useful to other MNC units in a series of tasks. And to detect knowledge coming from networks, they inquired about the impact of various external organizations—customers, suppliers and so on—in the development of subsidiaries’ competences. Hansen *et al.* (2005), to study the phases and networks of knowledge-sharing between organizations, measured, among others, intersubsidiary network variables, and transfer network variables. In the first, Hansen and colleagues included the size of the network (number of intersubsidiary relations), the strength of the

relations (their frequency and closeness) and the perceived competition (with respect to direct contacts and the focal team). Transfer network variables were, again, perceived intersubsidiary competition, the strength of the dyadic transfer relation, and the tacitness of the knowledge transferred (i.e., the degree of documentation, proportion of written explanations, and type of indications). The latter item is difficult to capture, and Dyck and colleagues (2005), in the quantitative section of their research, tried to do it by the degree of *influence* co-workers have on each other.⁴⁷⁵ These papers show some strategies to detect and measure network- and KT-related items.

A final interesting issue that appears in a quantitative research about KT is that which Szulanski (1996) remarks on discussing the limitations of his classical research about internal stickiness: “survival bias influenced the selection of transfers because problematic or aborted transfers remained elusive” (p. 37).

We will now see how some of these issues have been addressed in the interviews that constitute the main data source of the research.

INTERVIEWS IN THIS RESEARCH

In order to test the hypotheses, the people to be interviewed had to be related to some extent with the KM and KT processes in the organization, both at the HQ and local levels.⁴⁷⁶ Thus, when it came to write down the list of candidates to interview,⁴⁷⁷ the first people to contact were, simultaneously, members of the HQ team and of the Spanish team. As the structure and characteristics of the actual processes were still majorly unknown,⁴⁷⁸ it was important to contact the right people. To do this, the researcher elaborated a research proposal, with a brief justification of the research and a

⁴⁷⁵ First, they had had to rate in scales their interaction with each other person in the firm.

⁴⁷⁶ The responsible for the Catering and Cleaning Excellence in each country had to be included in the list.

⁴⁷⁷ The researcher made a register with the main information about each interviewee and a follow up of the interviews in order to plan travels and so on.

⁴⁷⁸ As it will be soon explained with more detail, some interviews some years before had been conducted that gave us notice of the existence of some group-fostered KT processes, but it was just a basis for what had to be investigated now.

tentative timeline and sent it first to her contact in HQ.⁴⁷⁹ She received a prompt response (in less than one day), with the name of the two key persons to contact at the Copenhagen HQ. With these first two interviews, she received the information she needed about the ongoing corporate knowledge-sharing mechanisms and also the permission to start all the research. She then sent the research proposal to her contacts in Spain and the UK, and, via Spain, she was able to contact the Indian counterparts.

In every country, she decided to interview, at least, two managers of each service, and one of them should be in charge of the Cleaning or Catering Excellence projects. At the same time, in order to obtain complementary information to triangulate, a fifth person should provide a view from a different angle, if possible a more general overview of the subsidiary. At least one of the interviewees by service should have a longer tenure, at least 10 years, to be able to provide the longitudinal perspective. These were the instructions she gave to the first contact in each country.

Finally, we made a total of 24 interviews, for approximately 26 hours and 45 minutes.

Here is the **complete list of interviewees**:⁴⁸⁰

- HQ
 - Head of Excellence Centres (45’): It was a conference call, during which he shared with the researcher some documents and a video. Notes were taken.
 - Head of Process Innovation (1h): It was a conference call. Recorded and verbatim transcribed.

Due to time constraints,⁴⁸¹ these two managers above were interviewed via phone call. After the experience, the researcher decided to have all the other interviews face-to-face, unless major obstacles appeared. Against what Berg (2007) considered, she considered that visual cues were essential, especially when interviewing people who were not her nationality.

⁴⁷⁹ In fact, he had moved to the APAC Region HQ.

⁴⁸⁰ They are listed according to their position in the company, from higher to lower ranks.

⁴⁸¹ According to the preliminary timeline, interviews should have already started. In addition, travelling to Denmark was expensive for only two access interviews.

- UK

- IT Director of ISS UK (1h): Face-to-face interview at the ISS UK HQ. Recorded and verbatim transcribed. Around 15 minutes of the interview were not recorded but notes were taken. (8 years in ISS)
- Divisional Managing Director of Defence and Education (45'): Face-to-face interview at the ISS UK HQ. Recorded and verbatim transcribed. (3 years in ISS)
- Managing Director of Food and Hospitality (1h 15'): Face-to-face interview at the London, South Quay offices. Recorded and verbatim transcribed. (4 years in ISS)
- Divisional Director of ISS Facility Services Education (1h 15'): Face-to-face interview at the ISS UK HQ. Recorded and verbatim transcribed. (7 years in ISS)
- Divisional Director of London (Cleaning) (1h): Face-to-face interview at the London, South Quay offices. Recorded and verbatim transcribed. (1 year in ISS)
- Director of Cleaning Excellence (entering retirement) (1h 30'): Face-to-face interview at the London, South Quay offices. Recorded and verbatim transcribed. (22 years in ISS)

The access to the UK was through the IT Director of ISS UK, whom she had met two years before. He had been referred to as the responsible for knowledge-sharing processes in the UK and he was who contacted all the other managers and arranged for the interviews. That he did after a phone conversation with the researcher, in which they discussed the research and the people she needed to contact.

- Spain

- Country Manager of People and Culture (HR) (1h): Face-to-face interview at the ISS Spain HQ. Recorded and verbatim transcribed. (13 years)
- COO ISS Spain (1h): Face-to-face interview at the ISS Spain HQ. Recorded and verbatim transcribed. (8 years)
- Managing Director of Catering (2h 15'): Face-to-face interview at the ISS Spain HQ. Recorded and verbatim transcribed. Around 20 minutes of the interview were not recorded but notes were taken. (1 year)

- Managing Director of Cleaning (2h 15’): Face-to-face interview at the ISS Spain HQ. Recorded and verbatim transcribed. (13 years)
- Head of Procurement (Cleaning Division) & Cleaning Excellence Director (1h 30’): Face-to-face interview at the ISS Spain HQ. Recorded and verbatim transcribed. (9 years)
- Business Unit Manager of Education Catalonia (1h 15’): Face-to-face interview at the ISS Spain HQ. Recorded and verbatim transcribed. Around 55’ of the interview were also with the Managing Director of Catering present, and it was more a conversation with both. For this reason, the interventions of each were filed with different numbers (see below). (5 years)

In Spain, the access was through the HR Country Manager, who referred the researcher to the COO (she had met them years ago). He granted the access and the researcher could personally contact all the other interviewees.

- India

- CEO ISS India (1h): Face-to-face interview at ISS India HQ. Recorded and verbatim transcribed. (7 years)
- COO Facility Services and Head of Cleaning Excellence (1h 35’ and 1h 15’): Face-to-face interviews at ISS India HQ. Recorded and verbatim transcribed. (7 years)
- VP Human Resources ISS India (1h 30’): Face-to-face interview at ISS India HQ. Recorded and verbatim transcribed. (2 years)
- Head of Catering ISS India (1h 10’): Face-to-face interview at ISS India HQ. Recorded and verbatim transcribed. In fact, this interview was with him and the Assistant General Manager listed below. The minutes of each intervention were quite easy to individuate. (3 years)
- Chief Learning Officer ISS India (40’): Face-to-face interview at ISS India HQ. Recorded and verbatim transcribed. (7 years)
- Assistant Operations Manager (FS, Mumbai branch) (1h): Face-to-face interview at ISS India HQ. It was not recorded, and notes were taken.
- Assistant General Manager (Catering, West branch) (20’): Face-to-face interview at ISS India HQ. Recorded and verbatim transcribed. As above said, his Head was present and talked most of the interview, but there were two

intervals in which a telephone call allowed for one-on-one conversation with this informant. (3 years)

In the case of India, the researcher had considered to conduct the interviews via some kind of videoconference. However, she was much encouraged by the Spanish HR Country Manager to travel to Mumbai to see all in situ. Given the excellent reception and the availability she found from Indian managers, she decided to finally do the travel and personally interact with the interviewees. The access was as follows: the Spanish HR Manager made the contact with the Indian CEO, who was then on holiday and referred the researcher to the VP HR. He, in turn, maintained a phone call with the researcher where he took note of all her needs and arranged for the procedures of the travel and the people to be interviewed. Once there, she was gradually introduced to the people and places.

All things considered, the researcher believes that she managed to have the sample she intended, with information rich enough for her research. Indeed, having (1) interviewees from HQ and subsidiaries, (2) several interviewees by country and (3) in different levels and services helped the researcher to have a more faceted view of each subsidiary. (4) Interviewing at least two persons of the same service in each country was also useful to detect possible divergences and for triangulation. As it can be seen, our sample was a *purposive* one, and there was also a sort of *snowball* sampling in some cases (Berg, 2007).

The interviews were **filed** with a code number which indicated ‘yearmonthday’. It sometimes was followed by a number if more than one interview had taken place the same day. In this case, the order of the numbers indicated the order of the interviews. The complete list is the following:⁴⁸²

120124	120611-1
120228	120611-2
120322	120612
120326-1	120724-1

⁴⁸² They are listed in chronological order, without indication of who was the interviewee. This is how we have also cited them in the previous section (2.2.).

120326-2	120724-2
120313	120724-3
120419-1	120424-4
120419-2	120724-5
120419-3	120725-1
120607	120725-2
120608-1	120725-3
120608-2	120727

After some of the interviews, there were further clarifications that were asked and answered via email. They are the following:

email 120524

email 120608

email 021112

In addition to these interviews, others were taken into account, especially to draw information about the history of the company and also to have a background against which to compare the evolution of KM processes in the company during the five years previous to 2012. As mentioned, their primary scope was the writing of a teaching case on acquisitions, but some interviews were made with a broader research in mind. All these interviews were conducted by Julia Prats from IESE Business School being the researcher present and also having the possibility of asking some questions. All of them were recorded. In general, they were more unstructured than the ones listed above. We will only list here the ones we have used for this research.⁴⁸³

071106: Country Head HR, ISS Spain. Interview at ISS Spain HQ. Not recorded; just notes were taken.

080904-1 and -2: (2h) CEO and Country Head HR, ISS Spain. Joint interview at ISS Spain HQ. Not transcribed; an outline with the main ideas was made.

080908-1 and -2: (1h 45') Head of Group HR, and HR Development Manager, ISS Group. Joint interview at Group HQ. Not transcribed; an outline with the main ideas was made.

⁴⁸³ Not all of them are cited in the text but they were reviewed in search of information.

080908-3: (50') Former CEO and Chairman of the Board, ISS Group (deceased). Interview at his home in Charlottenlund (Denmark). Not transcribed; an outline with the main ideas was made.

080910: (50') Head of ISS Knowledge Forums, ISS Group. Interview and Group HQ. Transcribed verbatim.

081119: (55') Former CEO of ISS Group. Interview at his home in Weybridge, UK. Not transcribed; an outline with the main ideas was made.

100208: (1h 30') Technical Manager of Offices Cleaning, ISS Spain. Interview at ISS Spain HQ. Transcribed verbatim.

100311-2: (1h 10') IT Director of ISS UK. Interview at at the London, South Quay offices. Transcribed verbatim.

Before recording, permission was asked to all the interviewees. These transcriptions and the ones of the previous list were made by the researcher. The reason will be explained in the subsection devoted to ethical issues.

Transcriptions were as literal as possible, with time intervals of 5' indicated within the text, and inaudible and unintelligible words were indicated with [**], or [***] when it was more than a word. Some of the mentions to other institutions or companies were investigated during the transcription. The whole process took a long time, but it helped the researcher to have a picture of the main issues and to capture some issues that had gone undetected during the conversation.

Excerpts of the transcribed interviews can be found in the Annexes section, at the end of the dissertation (Annexes 3-23)

THE INTERVIEW PROTOCOL

All the interviews were semi-structured or semistandardised (Berg, 2007). Open-ended questions were formulated, and their order could be altered during the conversation. The researcher was careful to check that all issues were being covered. In some cases, additional clarifications were asked via email—for example, to the

interviews 120725-1, and 120607— or in subsequent meetings—for example, after 120326-2. The interviewer only took notes when the recorder had been off.

Regarding the questions of the interviews, the standard protocol was fixed after the first four interviews, which were, as said, with two HQ managers and with two members of the top management team of ISS Spain.⁴⁸⁴ In the two former, we were interested in their description of all the existing corporate KT processes. The two latter were exploratory interviews: we wanted to explain the goals of the research, know about KT processes in Spain, and gain access to the contacts we were interested in.⁴⁸⁵ Other interviews with the scope of gaining a general overview on the subsidiary were those with the CEO and the VP HR in India. Similarly, the interview with the ISS UK IT Director was addressed to get a feedback with respect to the last interview (Interview 100311-2), to detect the changes occurred in this period of time (two years). No protocol was used for the two interviews with the Chief Learning Officer in India. One example of the initial exploratory interviews can be found in Annex 1. Other small changes were added to the questionnaire: for example, if we had previously met this person, we omitted the personal background questions (Block A).

The standard protocol (Annex 2) was used in its different versions—Spanish, Catalan or English—for the rest of the interviews. It will be commented below.

Although most interviewees had been sent a copy of the research proposal,⁴⁸⁶ the interviewer prepared a brief introduction to explain her purpose. She then asked for permission to record the conversation, which was granted in all the cases (only at one point in one of the conversations she was asked to switch the recorder off for a while).

The **first block of questions (A)** was about the **interviewee's background**. If we follow Berg's (2007) classification, they could be considered non-essential, but neither

⁴⁸⁴ It is important to note that all the interviews with people who were *not directly involved in the services* had a triple finality: to work as a sort of pilot for the definitive ones, to provide complementary information for triangulation purposes and, at the same time, for the general description of the setting (2.2.). They were sorted out of the final data analysis.

⁴⁸⁵ We used with both what could be considered a preliminary version with respect to the final, standard questionnaire.

⁴⁸⁶ Some Indian interviewees did not receive it because the researcher did not know whom she was going to meet until she was in Mumbai.

were they throw-away questions. In fact, our experience is that asking interviewees talk about their career is a very good way to ease the conversation—it creates rapport—but it also provides clues for further questioning. In these narrations, the subject's opinion on the industry, competitors, their own organization, the systems of promotion, their own job and relationships among the different members of the company can be detected.

Therefore, they were asked about:

1. [Career] before [joining] ISS. When [did you join] ISS? Positions
2. Current position in ISS: [ask for a] chart. (Who do you report to?)

Additional/probing questions were made, such as what difference the interviewee saw between ISS and other peers in the industry.

The **second block of questions (B)** was similar, because its aim was to discover the **structure** of the subsidiary and the division. The questions were:

1. Structure of the company and your place there
2. View of the company (Here a question such as 'What are you good at?' or similar was formulated, as well as social perception of the company)
3. Your view of the Division and its current structure
4. Importance of the Division in terms of employees and revenue
5. Vision for (near) future
6. View of the (cleaning/catering) service (Both in terms of technical/quality development and social perception)
7. Which country do you see more mature? And less?

Once again, issues contained in these questions could appear anywhere in the conversation, but most usually at the beginning of it. In some cases, interviewees expressed their will to start precisely by all these items, so the researcher did not have to ask them.

The **third block of questions (C)** was directly addressed to the KT mechanisms we wanted to investigate: **HQ-promoted mechanisms**. Hence, they can be considered essential questions (Berg 2007):

Is there anybody coordinating [in the country/Division]? (=CKO or Chief Knowledge Officer)

[Who is doing it] Globally?

1. Knowledge Forums:

- Did you participate? Who else?
- In which ones? Could you describe one of them?
- Do they require a lot of time?
- Do you have a historical on the subject (i.e. how many K[nowledge] Forums on cleaning/catering and themes)?
- Reception and effects.

2. ISS Academy Programmes:

- Which Programme did you take?
- When?
- Who has been involved?
- Could you describe their structure?
- Could you describe how you move the K[nowledge] down to the following level to finally reach front-line employees?
- Which level of implementation do you think you are (according to HQ and comparing to other countries? (Note that this question connects with B.6.)
- What degree of compulsiveness/pressure/support/follow-up do you have from HQ? (Here we seek the perceived degree of interdependence and autonomy)⁴⁸⁷
- Degree of freedom (leeway)
- Any recent contribution from your side? (Here we sought voluntary knowledge-sharing)

3. Are you pilot in any project? (Again, we looked for contributions and, at the same time, level of matureness)

4. Written documents (or in e-format) about best practices. (We wanted to detect the degree of tacitness of the KT process vs. other possibilities, such as face-to-face meetings and travelling)

⁴⁸⁷ This question, being sensitive, was formulated in many cases at the end of the interview. Responses were quite frank and, at the same time, always distinguished about HQ requirements regarding financials, some basics about the Excellence programmes and what every country should figure out as their knowledge-sharing and development path—i.e. *how* these schemes were implemented in *this* particular country.

5. IT tools (programs, etc.) [to support KT] (We tried here to measure the relevance of computer-aided knowledge-sharing mechanisms)
 - Cleaning calculation system (SimISS)/Systems for catering?
 - SharePoint
 - Which is the role of IT [in KT processes]?
6. Top Management Conference: is it really useful [to transfer knowledge]?
7. Contentious issues. Disasters. Problems of implementation. ‘This will never fit in [Country]’ (Here we tried to capture failed KT and the reasons for the failure. Note that it is both knowledge departing from and arriving to the subsidiary)
8. Examples of collaboration with other countries (We were asking for data to figure out networks—knowledge sources and receivers—, KT mechanisms being used and—similarly to 2-last question and 3—contributions of the company. It also captured the actual needs of the subsidiary in terms of knowledge, which triangulated with the questions in B)
9. Other informal mechanisms [of KT] (Here we included questions about direct relationships with competitors and also exploitation of potential knowledge spillovers)
10. Relationship with the Regional Director[s] and HQ in these things. (We sought the influence of the corporate structure, i.e., again, interdependence and autonomy—as in 2-sixth question)
11. What levels have access to all these things? (here we triangulated with the block B questions, regarding how hierarchical/horizontal the company was)
12. Now talking about offices cleaning/schools catering. (i.e. whatever additional information about the service)

The **fourth block of questions (D)** included all the **knowledge-sharing mechanisms** created and used **in-country**. Here we included additional questions about training of newcomers, at the different levels, both by hiring or by transfer of undertakings (which was first asked if existed).

1. Did you create any kind of K[nowledge] centre, good practices repository, or [do you have] someone following it? (Here we also asked about the existence of both Competence Centres—Excellence Centres—and Centres of Excellence—or state-of-the-art facilities)

2. Any unit especially good at cleaning/catering? (It was a different way to detect where excellence—i.e. excelling knowledge—lies)

2.3.2.2. *DOCUMENTATION-BASED DATA COLLECTION MECHANISMS*

LITERATURE ON DOCUMENTARY DATA COLLECTION

Documents are called by Berg (2007) “unobtrusive measures in research.” In fact, the researcher does not interfere or alter them when collecting and analysing them.⁴⁸⁸ “To some extent, all the unobtrusive strategies amount to examining and assessing human traces” (p. 239). Thus, Hodder (1998), when discussing documentation, includes artefact interpretation. To avoid some problems related to interpretation (which will be discussed below), he advises to combine them along with other sources. Likewise, Yin (1994) states that documentation belongs to the first phase of a research, but he also insists in using multiple sources to increase validity.

The first that comes to the mind when talking about *documents* is texts on paper, but we can include here other kinds of documents: video and audio recordings, pictures and so on. Thus, Valles (1997) distinguishes between written and visual documents. We will instead distinguish between *physical* documents (texts or other objects) and *digital* documents. Thus, our choice rather resembles Yin’s proposal (1994). He separates documents from archival records. In the first he includes, communication documents, agendas and memoranda, administrative documents, formal studies and even mass media articles. Archival records are organizational registries, tables, maps, lists, statistical data, and so on, mostly in *digital* form. Likewise, Berg (2007) also distinguishes written materials from other, such as audio, video, or pictures. He also includes physical human traces, which are called by Yin (1994) physical artefacts.

We said above that, although it seems that the use of documents should guarantee the objectivity of the research, because the document is a fixed object, there are some **problems** related to these data sources. According to Valles (1997), the first one comes

⁴⁸⁸ As we will soon see, this does not mean that they are free from potential bias or manipulation.

from the *selection* itself: why *these* documents and not others? Thus, this first step is not free from bias (Yin, 1994). Another difficulty emerges from what we could call their ‘objectuality:’ they were produced for a different purpose than the one we are seeking, so they are by themselves somehow rigid or ‘resistant’ to yield *a meaning*. For example, Yin (1994, p. 82) notes: “the documentary evidence reflects a communication among other parties attempting to achieve some other objectives.” This points at the issue of their *interpretability* (Berg, 2007), which asks for a *contextualization*: we need always to keep record of the context in which these documents were produced (Hodder, 1998). Related to this is that the use of documents, especially certain documents that try to capture organizational knowledge, must take into account the path this knowledge has followed. Tsoukas and Vladimirou (2001) describe how knowledge becomes organizational by “its *codification* in the form of propositional statements underlain by a set of *collective understandings*” (p. 989, emphasis added). This requires a process through which agents turn unreflective into reflective, which is necessary to make knowledge manageable. In this process, the use of IT tools plays a role. That means that the information contained in documents arrives to us through a process of multiple *mediation* that is important to detect and decipher.

Valles (1997) adds some more issues. The first is *authenticity*, which refers to the firmness and authorship of the source. The second is its *availability* (i.e. if the available documents are representative and expressive enough), and the third is *credibility* (i.e., its sincerity and accuracy).

All these problems make it most convenient to always examine documents together with other sources, as said before. “Texts can be used alongside other forms of evidence so that the particular biases of each can be understood and compared” (Hodder, 1998, p. 111). And Yin (1994, p. 81) adds: “The most important use of documents is to corroborate and augment evidence from other sources.” And, therefore, Yin underlines the importance of conducting systematic searches when it comes to documentation.

The mention of the use of documents to collect data is not frequent. It is sometimes implied, like, for example, when the market or context where a particular organization operates are described. To do this, some source containing information of the organization and competitors, their performance and characteristics must probably have been used. For example, Starbuck (1993) provides demographic and financial data

about the companies he studies, just as Uzzi and Lancaster's (2003) description of the market suggests (they do cite *The Economist*). Sandberg and Pinnington (2009) add to their in-depth interviews some secondary data such as information on each interviewee and corporate information on the members' competences by levels. Likewise, Maritan and Brush (2003) use monthly progress reports to follow up the process they investigate. Chen and McQueen (2010) describe more in detail all their sources: internal manuals and instructions, customer satisfaction surveys, and performance reports about individuals and companies in the study.

DOCUMENTS IN THIS RESEARCH

Regarding our own research, we used a series of documents, always as a complementary source. As it has been above said, we have divided them in physical documents and digital documents, and this division reflects in how we have registered them: 'document' or 'd-document,' respectively, followed by the date we received the document with the figures 'yearmonthday,' just exactly like we did with interviews, except for the internal newsletters issues (*Encuentros*, from Spain, and *The ISS News India*), which are cited with their month and year (they do not follow a consistent numbering, and therefore we have not used the numbering, which would have been the regular citation way), and the documents from the Advantage Course (Sep 9-11, 2008), which have been registered as 'Adv 40' followed by the number of the document.

Most of the documents were handed over by interviewees to the interviewer or sent by email to her after the interview. Only in some cases (documents dated in Dec 2012 and 2013) the researcher contacted the interviewee again to remind him or her of the agreed documents.

Here is the complete list of documents used.

Physical documents:

We will first cite the documents that belong to the present research and then the ones that were collected in previous occasions but have been used/reviewed for this work.

document 120306-1: Brochure for the Innovation Fair (Turkey, TMC 2012).

document 120306-2: Leaflet FoodForce5 (Education, UK)

document 120313: Brochure of the Innovation Fair (TMC 2012).

document 120724-1: Home Care Brochure (India)

documents 120724-2: Documents of RARE programme (India). It was a folder that contained cards, flyers, pins and different leaflets and brochures used to diffuse the programme and also for the different rewards.

documents 120725: Site Quality Manual (FS, India) (Examined, but not handed over)

Encuentros, Dec 2006

Encuentros, Jul 2007

Encuentros, Mar 2008

Encuentros, Aug 2008

Encuentros, Dec 2008

Encuentros, Dec 2009

Encuentros, Sep 2011

Encuentros, Dec 2011

The ISS News India, Jan-Mar 2008

The ISS News India, Oct-Dec 2009

The ISS News India, Jan-Mar 2010

The ISS News India, Jul 2010

The ISS News India, Oct 2010

The ISS News India, Jul 2011

The ISS News India, Oct 2011

The ISS News India, Apr 2012

From previous contacts:

document 080904: Brochure of the Fundación Una Sonrisa Más (CSR initiative in Spain)⁴⁸⁹

document 080908: Employee Learning Diary

document 080909: Dossier Advantage Course (9-11 Sep 2008)

document 080911: Certificate of completion of the Advantage Course (9-11 Sep 2008)

document 100315-1: Leadership Principles brochure (Spanish translation, ISS Spain Unit Managers Conference 15-16 Mar 2010)

document 100315-2: International HR Standards (ISS Spain Unit Managers Conference 15-16 Mar 2010)

document 100315-3: Guía del empleado (ISS Spain Unit Managers Conference 15-16 Mar 2010)

documents 100315-4: Employment contract forms (ISS Spain Unit Managers Conference 15-16 Mar 2010)

document 100315-5: Documento sobre protección de datos (ISS Spain Unit Managers Conference 15-16 Mar 2010)

document 100315-6: Ficha de riesgos laborales (ISS Spain Unit Managers Conference 15-16 Mar 2010)

⁴⁸⁹ The Foundation was jointly constituted by the company and the two main Spanish unions: CCOO and UGT. With the cents from their salary, employees could voluntarily participate in employment creation initiatives in Latin America (Dominican Republic, Ecuador, Colombia, Peru) and Africa (Morocco, Burkina Faso, Angola).

Digital documents:

As above, we will first list the digital documents expressly collected for this research and then other documents from previous works that have been reviewed again.

d-document 120124: (pdf) Being Excellent at Changing ISS Business (HQ)

d-document 120322: (ppt) Knowledge-sharing processes (HQ)

d-document 120326-1: (doc) ISS Spain Catering Value Proposition-Es (Spanish version 1.0)

d-document 120326-2: (doc) ISS Spanish Catering Value Proposition-En (Corporate version)

d-document 120326-3: (ppt) ISS Spain Cleaning organizational chart

d-document 120326-4: (xls) ISS Spain Cleaning Excellence plan

d-document 120401: (ppt) ISS Spain Catering organizational chart

d-document 120420: (JPEG) ISS UK organizational chart

d-document 120613: (ppt) ISS UK Education Training Pyramid

d-document 130627: (ppt) Educació formació-qualificació (Spain)

d-document 120704: (xls) Dine with ISS [Food and Hospitality] training (UK)

d-document 120725-1: (ppt) Competency Workshop (India)

d-document 120725-2: (ppt) HR Presentation (India)

d-document 120725-3: (ppt) India CMT [Country Management Team]

d-document 120725-4: (ppt) India HR Strategy template

d-document 120725-5: (xls) ISS Leadership competences (India)

d-document 120725-6: (ppt) ISS RARE (India)

d-document 120725-7: (pdf) Confirmation Evaluation [assessment] form (India)

d-document 120725-8: (pdf) Interview assessment form (India)

d-document 120725-9: (pdf) ISS Promotion Evaluation form (India)

d-document 120725-10: (SWF) RARE video-presentation (India)

d-document 120725-11: (SWF) TITAN video-presentation (India)

d-document 120728: (ppt) Catering organizational chart (India)

d-document 120730: (pdf) ISS India organizational chart & FS organizational chart

d-document 121220-1: (xls) ISS UK Cleaning training

d-document 121220-2: (pdf) Managers and Supervisors Training Programme brochure (UK)

d-document 121220-3: (ppt) Managers training (UK)

d-document 121221-1: (JPEG) Mumbai branch IFS operations organizational chart

d-document 121221-2: (ppt) Presentation on Operations Process (FS, India)

d-document 130227-1: (xls) Catering H&S training calendar (India)

d-document 130227-2: (xls) FS-Cleaning training calendar (India)

d-document 130227-3: (xls) Security training calendar (India)

d-document 130618: (ppt) ISS Healthcare presentation (India)

In addition to these documents, all the *white papers and white books* issued by ISS Group from 2009 to 2012 were reviewed. The complete list (whitepapers from Nov 2009 to Sep 2014, and white books from Oct 2011 to Sep 2014) can be found at: <http://www.issworld.com/en/about-iss/learning-zone/whitepapers> and <http://www.issworld.com/en/about-iss/learning-zone/white-books>⁴⁹⁰

Similarly, the *annual reports* from 2008 to 2012, which can all be found in <http://inv.issworld.com/results.cfm?sp=2>, have been reviewed. In the text, they have been cited AR followed by the year.

⁴⁹⁰ We must note that such a collection is quite unusual in the industry. We have found some business cases in the Sodexo and G4S websites, but not a 'Learning zone'-like page.

ISS corporate *videos* were also reviewed in diverse occasions. They are all available at <https://www.youtube.com/user/ISSworldservicesTV/featured>

Finally, these are the *webpages* visited as part of the documentation. The two first pages were accessed to confirm some financial data. The corporate websites—of ISS and of competitors—were accessed multiple times; therefore, there is not a concrete access date.

<http://www.bloomberg.com/news/articles/2014-03-13/goldman-s-iss-sells-shares-in-biggest-danish-ipo-in-two-decades>, (*Bloomberg Business*) accessed 21/08/15

<http://businessvaluationtools.com/blog/2015>, (*Deal IQ*) accessed 21/08/15

www.es.issworld.com

www.in.issworld.com

www.issworld.com

www.uk.issworld.com

The documentation regarding the joint training project between ISS India and the MoRD can be consulted at:

<http://www.nrlmskills.in/ProjectDetails.aspx?stat=O>, accessed 11/10/2015.

Formerly, data could be found at another site that migrated its data to this one.

These competitors' pages were accessed in several occasions in search for data about their history, the services they provided and similar information.

www.aramark.com

www.compass-group.com

www.g4s.com

www.securitas.com

www.rentokil-initial.com

www.sodexo.com

Next, we will list the documents **from previous researches** that have been reviewed for the present one.

d-document Adv 40-1: (xls) Participants list

d-document Adv 40-4: (ppt) HR Employee Satisfaction

d-document Adv 40-5: (pdf) IFS Academy Programme

d-document Adv 40-6: (ppt) ISS Values and Code of Conduct

d-document Adv 40-9: (ppt) Service Concept

d-document Adv 40-10: (ppt) The ISS Value Chain

d-document 071105: ISS Code of Conduct brochure (web, retrieved 05/11/07)

d-document 100101-1: (pdf) ISS A/S Full Organizational Chart (including Regions)
(HQ)

d-document 100101-2: (ppt) ISS A/S organizational chart (HQ)

d-document 100101-3: (pdf) The ISS Value Chain Brochure 2009 (HQ)

d-document 100101-4: (PNG) The ISS Value Chain graph (HQ)

d-document 100416-1: (pdf) Strategy for Knowledge Skills Framework (UK)

d-document 100416-2: (pdf) People Development Programme Jan-June 2010
brochure (UK)

2.3.2.3. *OBSERVATION-BASED DATA COLLECTION MECHANISMS*

LITERATURE ON OBSERVATIONAL DATA COLLECTION

When addressing observational data collection strategies, Berg (2007) calls them ‘ethnographic field strategies.’ They require from the researcher to enter the field—covert or overt, depending on the object of study—and watch, listen and learn as much as possible. He or she then must make a detailed description of the observations: “They

should include as much texture, sensation, color, and minutia as your memory permits” (Berg, 2007, p. 198, see also Morse, 1998). But, at the same time, they need to be compressed to become workable. The observer must blend with the environment, becoming sort of ‘invisible’ either by staying as distant as possible or by becoming one of the observed. We will see that these are the two extremes of observational techniques.

According to Valles (1997), the difference between this observation, which is scientific, with respect to common observation, is that it requires persistence, bias control and theoretical foundations. In turn, he considers that scientific observation can be practiced with an indirect approach (through documents, which has just been explained) and with a direct approach, that is the observation we are describing now. In observation, both keeping realism and discovering meaning must work together.

Regarding the **types** of observational strategies, the researcher, as we said, can visit the site and collect data—in a casual or formal, protocolled way—about certain activities and environmental traits of the site. This is called *direct observation*.⁴⁹¹ But the observer can choose to take part in some of these activities, assuming a role in the setting. Thus, he or she sees the phenomenon from the inside. This is *participant observation*. The latter, according to Morse (1998), is the appropriate strategy to answer behavioural questions (i.e. why agents behave in a certain way). Therefore, we can find the observer adopting diverse positions with respect to what is observed: he or she can be a complete observer (naturalistic observation), an observer-as-participant, a participant-as-observer, and a complete participant (Valles, 1997). And here, the observer becomes ‘one of them.’ The very extreme of this is known as *action research*, in which there is close collaboration between the observer and the community (Berg, 2007).⁴⁹² As we said before, the choice depends on the phenomenon that is to be investigated but the paradigm previously adopted by the researcher plays also an important role.⁴⁹³

⁴⁹¹ Adler and Adler (1998) call it naturalistic observation, because it is similar to that of naturalists, who observe without interfering and remaining hidden.

⁴⁹² “The formally trained researcher stands with and alongside the community or group under study, not outside as an observer or external consultant” (Berg, 2007, p. 230).

⁴⁹³ For example, in the second volume they edited, Denzin and Lincoln (1998c), they equate participative inquiry to action research. We argue that there are differences.

In any case, the role of the observer is the first **methodological problem** among those described by Adler and Adler (1998). In fact, if there is no clear distinction between observer and observed, it is difficult to sustain the possibility of doing science at all, and, on the other hand, there are some phenomena easy to interpret from a biased instance unless they are lived or experimented from the inside. We have also said that observation requires perseverance, and this is because, besides the access issue, the observation normally follows *different stages* in which the researcher progressively focuses on the object of study, and then, needs to go through a detachment phase to analyse what has been observed.⁴⁹⁴ During these stages, rigour must be kept, and the observer effects must be detected. Finally, validity and reliability are not guaranteed if more than one observer or other ways of triangulation are not included.

Precisely the reasons Sandberg and Pinnington (2009) give not to consider direct observation a superior resource are that they involve inferences about what is occurring, and thus, they use observation as a complementary tool. Let us see what Tsoukas and Vladimirou (2001) sought in their participation in an induction programme in the organization they studied: “Our aim was to familiarize ourselves with the company, and get an overall picture about its operation, products and services, departments, etc.” (p. 984). As it will be explained later, we had gone through a similar experience. Inkpen and Dinur (1998) mention having collected observations during all the process they study, and Uzzi and Lancaster (2003) talk about ethnographic observation but neither does describe the observation they made. However, we did find an example of accurate description of an observational data collection—in this case, participant observation—in Chen and McQueen’s (2010) paper. In this case, the observer worked in the organization and interacted with the employees and was able also to observe how they worked out solutions along with their—in-house and overseas—colleagues and customers. The notes taken were subsequently analysed.

For the present research, both participant and non-participant observation was made. **Non-participant observation** consisted in the following:

⁴⁹⁴ Morse (1998) states that the observer may lose sensitivity or objectivity, and then it is time for withdrawal. However, it mustn’t be done in a way that does not allow for further re-connection or follow up.

-The observer took notes of the facilities she had visited, the offices, as well as the food that was served there, and how it was done, in Spain HQ, the UK HQ and India HQ. She could eat and observe front-line employees performing their job in the restaurant of the two first places and the steward and the cleaner in the latter.

-Visit 120725: She visited the offices of Capgemini and Dow in Mumbai with one of the interviewees and the team of FS who worked there. There she could talk with several employees (two supervisors and three cleaning workers) about their training and working routines and one of the clients. Conversations were with an interpreter. The visit lasted the whole morning of the day. The team showed her across all the facilities, including the bathrooms. She took notes after the visit.

-Visit 120726: She visited the Kokilaben Dhirubhai Ambani hospital in Mumbai, where ISS runs support services—patients handling, documents distribution and so on—and all the catering services, including a cafeteria, a restaurant, a staff dining room and the meals for all the inpatients. She went there with the interviewees of the Catering Division. She visited the kitchens, was present at the time of the preparation of the food trays for the inpatients and could talk with a hospital managers and members of the team, nutritionists and members of the support services team. They afterwards had lunch at the restaurant of the hospital. Finally, she was showed to some of the rooms. The researcher took notes after the visit.

As for the **participant observation**, the researcher had participated as one of the group along with Professor Prats in the Advantage Course offered at the ISS University in Copenhagen. The 40th edition took place the days 9-11 September 2008. There they participated in all the formal and informal activities and workshops except the moments they were interviewing some of the managers.⁴⁹⁵ This activity had happened a long time before the current research and she did not take many notes, but it was useful to know the company's style from inside, as well as for making new contacts that were useful afterwards.

⁴⁹⁵ This is the experience we have compared to Tsoukas and Vladimirou's (2001).

2.3.3. ETHICAL ISSUES REGARDING DATA COLLECTION AND HANDLING

Before starting the analysis section, it was prescriptive to deal with some matters related to ethics in research. We have not found much elaboration on these issues in the methodological bibliography we have used. For example, in Valles's book (1997), which was so useful under the technical point of view, we did not find any chapter devoted to this topic but a mention in the section on validity criteria.

Denzin and Lincoln (1998b), in the introduction to the first volume of their compilation about qualitative research, in which they address epistemological topics, explain what they consider different approaches to ethics. First, they comment what they call the *absolutist* approach, which argues that nobody has the right to invade the others' privacy, but, at the same time, there is a responsibility from the researcher to contribute to society. Consequently, researchers must only investigate the public sphere. There is an opposite approach: that of *deception*, in which, in the name of science and truth, any kind of intrusion is justified. We may find also the *relativist* view: the researcher is free to explore but only those matters that flow directly from his or her own experience. Any attempt to interpret others' experiences is doomed to failure. According to Denzin and Lincoln, some authors have undertaken a *revision of absolutism*, being critical towards the effectiveness of informed consent and other law enforcements. They then comment the *contextualized-consequentialist* approach, which relies on respect, non-coercion, non-manipulation, democracy and moral contextuality. Finally, Denzin and Lincoln mention *feminist* ethics (or ethics of care). We will not enter here a philosophical discussion, but in our opinion, Denzin and Lincoln do not cover all the possibilities⁴⁹⁶ and, at the same time, since they do not propose any ethical principle to follow, either all the approaches seem to them equally valid or none of them. We argue that scientific research has certain limits that are set by the personal dignity of the researcher and the researched. Thus, for example, any research that makes

⁴⁹⁶ For example, an interesting proposal is that of virtue ethics, for example, as it appears in Alasdair MacIntyre's works (1984, 1999). We suspect that this approach would be quickly placed by Denzin and Lincoln among absolutist ethics, although we consider it does not fit exactly with the description they give of the absolutist proposal.

the researcher engage in criminal activities, or that involves deceiving the researched would be ethically reprehensible.

If we look at interviews, Fontana and Frey (1998) discuss some of these issues, i.e. informed consent from the subjects, their right to privacy and protection from harm, and also the researcher's desirable degree of involvement in the research field. Regarding documents, Berg (2007) mentions that there may be ethical concerns regarding the obtainment and use of certain documents that were not intended to be public or, at least, to be examined by strangers. Finally, Adler and Adler (1998) when discussing observational techniques, refer to the right to privacy and also the researcher's duty to avoid falsifying his or her identity or the nature and goals of the research.

As we can see, all these discussions revolve around the topics of *privacy* and *consent* (Valles, 1997). The first regards to the concept of *confidentiality*: some researches are of a sensitive nature and require not revealing the name or the environment of the subject. Some use the term *anonymity* to refer to this same issue.⁴⁹⁷ For example, Yin (1994) states that total disclosure would be the ideal, because thus those who access the research can have the whole picture of the phenomenon, but sometimes anonymity is necessary. On the contrary, regarding *total* anonymity, "not only does it eliminate some important background information about the case, but it also makes mechanisms of composing the case difficult" (Yin, 1994, p. 144). Therefore, the researcher must here achieve a delicate balance.

When we talk about *consent*, we refer to the consent of the subjects to be investigated, their acquiescence to be part of a research. At the same time, it implies a previous *information* to the individual or the collectivity that they are to be subjected to research. Hence, it seems at first sight something more straightforward: either there *is* or there is *not* consent. But it must not be the case, given that part of the institutional review boards—IRBs—is to ensure that this consent has been asked and granted (Berg, 2007). Although written—and signed—consent is the plainest way of obtaining it, it is not always possible for the researcher to have it this way. This is why the distinction between *active* (signed) and *passive* (no objection made) consent has entered the

⁴⁹⁷ Berg (2007) warns that 'anonymity' is not knowing the name of the subject, whereas 'confidentiality' means knowing it but not revealing it. We are not going to split hairs on this matter and we will use the terms indifferently.

research world. At the same time, the consent can be informed, but also *implied*. According to Berg, (2007), implied consent “is indicated by the subject taking the time to complete the lengthy questionnaire. [...] A similar kind of implied consent can replace a signed consent slip when researchers conduct tape-recorded in-depth interviews” (p. 78).

How did we deal with these issues? First, regarding *confidentiality*, we tried to conceal the names of the informants, especially those who belong to the services we are investigating by registering and citing the interviews with date numbers. For this reason the lists of people interviewed and interviews are two different separate lists. We also adapted the organizational charts—they contained the names of the different managers, and some even their pictures—leaving only the positions. Time elapsed between data collection and the actual writing of the dissertation played in our favour, because some of the interviewees changed of position or left the company in the interim. The way we will display results also shows that we aggregated some data, and we will refer to the results without personalizing them. The researcher could have sent the recording files to any external transcriber but she decided to handle the material herself to protect interviewee’s privacy. Finally, for confidentiality reasons, given that they were all transcribed verbatim, we decided not to include all the interviews in the Annexes section but an excerpt of each, to give a sense of the conversation (Annexes 3-23). In any case, transcriptions are available for examination of the tribunal upon request.

As for *consent*, we have described how our access to the company had been. The interviews and documents obtained could not have been possible without this access granted by the organization members. It was active but verbal consent in all the cases, and also to the recording of the interviews. Informants were explained the object of the research and that their conversations would be used for—personal—research purposes and without name disclosure. They also understood that a doctoral dissertation has a different nature from a published paper. No one denied permission and no hidden recording device was used: the recorder available was a very accurate instrument that kept all the interviews in an mp3 format and had a formidable storage capacity, but—unfortunately for the researcher, who had to carry it in her travels—it was too big and visible to conceal it. During the conversations, some references to this recorder can be found, which proves that they were well aware of the recording. As mentioned, in one case an interviewee preferred that the researcher paused the recorder, to explain some

issues that he considered somehow sensitive. In another case, an interviewee said to the researcher that if he was so open was because he knew that the interviewee was not going to make a misuse of the statements.

In this section 2.3. we have described our data collection with relation to existing literature on the subject, detailing the three sources we have used: interviews, documents and non-participant and participant observation. Finally, we have addressed the potential ethical problems we could have encountered. We are now ready to start the description of our data analysis and findings.

2.4. DATA ANALYSIS

In this section, we will explain how we have done the analysis of the information collected (2.4.2.). We will first describe how the literature on methodology addresses this topic (2.4.1.).

2.4.1. ORIENTATIONS FOR DATA ANALYSIS FROM LITERATURE

In the section devoted to qualitative methods (2.1.) we described the peculiarities of these methods compared to quantitative research. The most remarkable one is the flexibility in terms of rules for work. This is even truer in the case of analysis.

Unlike statistical analysis, there are few fixed formulas or cookbook recipes to guide the novice [...]. Instead, much depends on an investigator's own style of rigorous thinking, along with the sufficient presentation of evidence and careful consideration of alternative interpretations. (Yin, 1994, p. 102)

Eisenhardt (1989) also notes that published works do not discuss excessively the analysis section and the result is often the impression of a considerable distance between data and conclusions. She also recommends explaining in detail the analysis process (see also Valles, 1997). And the first problem Eisenhardt points at is “a staggering volume of data” (p. 540). Given the richness of data in qualitative research, there is a certain overload that poses, first of all, the challenge of its *organisation* (Berg, 2007). But, once more, we find little description of this phase: “While most research courses and textbooks are excellent at describing the basic structures of research, few move the student into the areas of data organization and analysis” (Berg, 2007, p. 45).⁴⁹⁸ This organisation requires a kind of data *reduction*. Berg notes that this does not mean to reduce qualitative data to quantitative data, or numbers, but the use of certain strategies, such as summaries, the coding of certain items, the search for grounded topics, patterns and so on. Graphic displays can also be helpful. In short, this reduction must be done carefully, to avoid losing essential information, all the more so when qualitative data are per se incomplete, because they include a tacit facet, which is difficult to articulate. So it is key to capture it—“often manifested in nods, silences, humor, ad naughty nuances” (Altheide and Johnson, 1998, p. 297)—, because “it plays a constitutive role in giving meaning” (*ibid.*).

From the point of view of **research approaches**, we can address analysis in diverse forms. Valles (1997) comments some of them. For example, *analytic induction* intends to draw categories from a several number of cases; it also looks for evidence against this categorisation, and finally produces explanatory hypotheses. *Grounded theory*, in turn, combines codification with theory development. Therefore, it includes analytic induction but along with a constant revision and comparative method, from which categories and hypotheses are generated. It is a progressive work of parsimoniously integrating categories and properties towards the construction of a theory. Berg (2007) also advocates for a combination of induction and deduction during the analysis.

But, concretely, how are data to be *managed*? **Data management** consists of the “operations needed for a systematic, coherent process of data collection, storage and retrieval” (Huberman and Miles, 1998, p. 180). In the context of a research, it includes

⁴⁹⁸ In fact, in Valles’ (1997) and Berg’s (2007) works, data analysis is discussed in a final chapter that intends to be just ‘an introduction.’

(continuous) data analysis, data reduction (i.e. selection and condensation), data display (in an organized way) and, finally, the drawing of conclusions and verification (i.e. interpretation) (Huberman and Miles, 1998). There are many systems of doing it, Valles (1997) says, from the classical (and literal) scissors-and-paste, to the use of cards. With the introduction of IT in research—and there is still no need to talk about IT specific for analysis, but ordinary word processors and spreadsheets—there has been a sort of revolution. If we turn to IT for qualitative analysis, we must remember that “computer use in qualitative research remains in the infancy” (Berg, 2007, p. 333). There are different programs, such ATLAS.ti, NVivo and other software that facilitate the tasks of data selection, codification, clustering and linking and so on. Let us hear Berg’s observation: “If you spend enormous amounts of time trying to locate, learn how to use, and enter data into a computer program, this process may defeat the original time-saving purpose of computers” (pp. 333-334). At the beginning of our research, we felt that this could be the case. First of all, we had time constraints with respect to learn how to use one of these programs (which involves a great deal of playing). We considered that with 20-odd interviews—not a big number—, we could afford to analyse them without a program. In addition, when we started analysing we were not sure enough about what categories we wanted to use, and we felt that these programs are more useful when this matter is sorted out. Finally, another reason was our resistance to let go of our control over the sources, even to a computer program.

Either choosing to use IT systems or not, the analysis must be *rigorous*. Yin (1994) ends his chapter on data analysis with an explanation of what he considers the four principles of a high-quality analysis: (1) it “should show that it relied on all the relevant evidence” (p.123), therefore, it should be as exhaustive as possible; (2) it should incorporate all alternative interpretations; (3) it should deal with the most essential topics; and (4) the researcher must be able to apply his or her accumulate expertise to the analysis.

If we now move to **the analysis itself**, being rigorous also requires the researcher to be *systematic*. Yin (1994) reviews alternative *modes of analysis*: pattern-matching—which consists in the comparison of predicted and empirical patterns—, explanation-building—which focuses on causal explanations, which, in turn, must be based on theory—, time-series analysis—an evolutionary perspective that matches expectations with real outcomes—, and other modes such as the analysis of embedded units (a sort of

case-inside-the-case). Huberman and Miles (1998) propose a series of *procedures* that help the researcher to keep up with rigour, such as transforming raw material into partially processed data, keeping a coding scheme and memoranda of other analytic material, different ways of displaying data, and so on. These authors emphasize the need to keep record of all the steps followed during the analysis, and justify each decision.

Berg's (2007) instructions are more chronological: he proposes a series of **steps** to be followed. Starting from research questions, the researcher must extract preliminary analytic categories. Next, he or she needs to review the data and establish grounded categories, which will help find criteria to select relevant fragments, which will later be distributed into categories. Berg suggests then to count the number of entries and review the sorting in order to find patterns, a task which will lead to go back to the literature and to be able to explain the findings. It is important to remark that words or other items *counting*—such as “themes, characters, paragraphs, [...] concepts, and semantics” (Berg, 2007, p. 312)—does not mean to reduce content analysis to a mechanistic task but it makes it “a passport to listening to the words of the text and understanding better the perspective(s) of the producer of these words” (p. 308). *Theory* may help in different ways the researcher's task: for example, it may provide a background for the analysis of data, it helps in the mapping process in search of generalization, and it facilitates to establish predictions to be compared with reality (Huberman and Miles, 1998).

Among all these steps, there are two that appear often in the literature: *codification* (Altheide and Johnson, 1998, Berg, 2007, Huberman and Miles, 1998, Valles, 1997) and the search for *patterns* (Altheide and Johnson, 1998, Berg, 2007, Eisenhardt, 1989, Huberman and Miles, 1998, Stake, 1998, Yin, 1994). We will briefly address them.

Regarding **codification**, especially on the analysis of interviews, Berg (2007) proposes a gradual process, with topics and subtopics. With codification, data or groups of data (documents, items, words, and sentences) are assigned a category which helps the researcher make order in the amount of data collected. This is a previous step to the search for patterns. Berger later deals with the matter again, in the chapter devoted to content analysis. There he describes three types of coding: descriptive, by topic (which implies having built a previous schema or conceptual framework), and analytic (i.e. to develop concepts). “The more organized and systematic the coding schemes, the easier

it is to allow the data to talk to you and inform you about various research-related questions you might have” (p. 319).

As for **patterns**, they must be discovered through looking at data from different angles (Eisenhardt, 1989). Eisenhardt gives different examples of how to capture them: looking for in-group similarities and inter-group differences; sorting pairs of units and comparing them; looking for differences between apparently similar units and similarities between apparently different units; examining data separately, according to the different sources; selecting one case and then analysing the rest, and so on. What we have done in the present research is mostly similar to the first and third strategies. During all the process, Eisenhardt advises to iterate constantly the way theory-data-theory, but there is a moment in which the researcher must stop this movement: “The final product [...] may be concepts [...], a conceptual framework [...], or propositions of possibly midrange theory” (p. 545). It is the time for finding the explanations of phenomena and extracting conclusions.

It is not enough with being systematic during all the analysis. At the end there are different strategies that can be applied to check for validity-related issues. One of them, which was mentioned before (2.1.1.1.) is that of carrying out an audit by answering to a series of questions regarding the research (Huberman and Miles, 1998). For example, the question whether findings are based on data refers to the size and relevance of the sample, the question whether inferences emerge from data refers to the analysis and the search for contrary hypotheses, and, similarly, questions regarding the structure of categories, the justification of the research choices, the existence of bias and the search for reliability. Regarding the latter, Huberman and Miles suggest that persons other than the researcher—participants, informants, peers—review the study (see also Yin, 1994).

Within the literature reviewed in this dissertation, we have found some **examples** of researches using the different analysis methods we have been describing. First of all, regarding the *categories* being used in the analysis: they may be extracted from data (Inkpen and Dinur, 1998) or from theory (Hong and Nguyen, 2009). We have detected at least one paper in which software has been used for the qualitative analysis (Dyck *et al.*, 2005), and one which expressly refers to coding (Hong and Nguyen, 2009), although there are more examples of division of the text in smaller segments that then are sorted by topics (Dyck *et al.*, 2005, Hong and Nguyen, 2009, Uzzi and Lancaster,

2003, Yew and Schmidt, 2009). There are also some examples of frequency count, which is used for further analysis (Dyck *et al.*, 2005, Uzzi and Lancaster, 2003). Hong and Nguyen (2009) use an iterative analysis procedure, “with a constant shift between theory and data” (p. 350) and they also use cross-case comparisons. Finally, we have mentioned how the fruit of analysis can be varied. For example, Inkpen and Dinur (1998) develop a series of propositions.

2.4.2. DESCRIPTION OF THE DATA ANALYSIS

We will now describe how we made our data analysis.

After the transcription of the interviews, we proceeded to **select** and highlight all the words and phrases we found were relevant for our research. At the same time, we made a **summary** of the main points of each interview. We grouped them by country. These summaries were useful for the descriptions that can be found in 2.2. For this phase and the following ones, we kept in mind the classification we made of KT mechanisms (1.3.3.3.).

With the data—interviews, documents and observations—, we started constructing **a database** in an excel spreadsheet that listed in the *first column* all the **KT mechanisms** mentioned in the interviews and conversations in the visits. The order we followed was: first HQ, then UK (corporate,⁴⁹⁹ cleaning, catering), next Spain (corporate, cleaning, catering), and finally India (corporate, cleaning, catering). We used the colours to have a visual display of data: white for corporate, blue for cleaning, green for catering. We also marked the 23 mechanisms first mentioned in absolute terms (taken from the interviews). That was aimed to capture mechanisms that could possibly be considered the most important by interviewees.⁵⁰⁰ In order to have the most complete

⁴⁹⁹ By ‘corporate’ we understand the information that came from contacts with country managers who were not directly involved in the services we were studying, e.g. the IT Head in the UK, the HR Head in Spain or the CEO in India.

⁵⁰⁰ In the results (2.4.3.) section we will see if this particular point was useful for our research.

picture possible, in addition to the 2012 interviews, in the database we included two more: 100208 and 100311-2. These two people were interviewed again in 2012 and we wanted to keep their records in sight to compare. We also included some items that we assumed from the context, but were not explicitly mentioned (e.g., the existence of documents being exchanged in certain contacts). In this case, the coding went within parentheses (...).

The search yielded a total of 433 KT occurrences. They were coded according to the different columns, in which we had distributed the KT mechanisms in three big groups, corresponding to the kind of interactions: face-to-face interactions, technology-mediated interactions, and non-personal mechanisms of KT (see 1.3.3.3.). After each type, a column of 'remarks' was added, with the opinion of the interviewee about the mechanism, its use, or any other remark that was useful.

The codification process went as follows:

- Personal Interactions
 - Face-to-face interactions: They were coded with a number, referring to the different kind of interactions: 1: one-to-one communication, 2: formal instruction (understood as the interaction of an instructor with a group in a class-like setting), 3: group interactions, 4: interpersonal interactions that have as a result some intervention in practice (e.g. a visit to a country to provide help for the operations), and 5: personal interactions that occur during practice (such as on-the-job-training or joint ventures).⁵⁰¹
 - Technology-mediated interactions: Here, we just marked an X in the corresponding cell if they were
 - synchronous or
 - asynchronous.
- Non-Personal Interactions:

⁵⁰¹ We are aware that the numbers may suggest a gradation, but it is not the case. If we compare this codification with the classification of KT mechanisms suggested at 1.3.3.3., there is a difference in which we split the last type into numbers 4 and 5. This is because we noticed that an executive meeting in which new procedures are established is quite different for, say, an apprenticeship programme. The first will have an effect onto practice which is subsequent to the knowledge-sharing action, while the second is practice in itself.

-Digital documents/IT systems: Similarly to face-to-face interactions, items in here were assigned a number depending on if they were 1: a simple document, 2: a database or 3: a data processing system.⁵⁰²

-Physical documents: An X was marked in the corresponding cell.

In Table 6 we present a composed image to show the looks of the database.

Note that some items can simultaneously be coded in different columns. For example, there may be a digital and a physical version of the same document (e.g. a 'Manual'), or a course or programme may mean group meetings (FTF type 3) but also the use of documents (non-personal, physical). Likewise, interactions with other countries may include travels (FTF type 4) or the sharing of electronic documents (non-personal, digital, type 1), or simply sending an email (asynchronous, technology-mediated interpersonal communication mechanism). 'SOPs' mean in some occasions a set of practices (FTF, type 5) and in other cases a set of (digital or physical) documents containing them, or even of IT tools for these operations. To code them correctly, we had to look at the remarks that accompanied every entry. This had consequences on the way we analysed the appearances later.

As we wanted to have an idea of the ongoing knowledge flows in the company, we made a graph in which these flows were displayed: first a general group schema and then by country. To make it more comprehensible, we sorted out from the graphic all the mentions of transfers of knowledge that did pertain to the operations of the two services we were studying. In Exhibits 11, 12, 13, and 14, respectively, we can see these graphics. The arrows indicate the direction of the flows. Dashed lines indicate assumed contacts.

⁵⁰² This classification does suggest a gradation in complexity.

All KT mechanisms/channels mentioned in interviews												
INTERPERSONAL INTERACTION												
NON-PERSONAL INTERACTION												
Physical / FTF			Technology-mediated				1: Documents; 2: Databases; 3: Data Processing Systems			Use / Remarks	Physical document	Use / Remarks
KT MECHANISMS / CHANNELS	1: 1-to-1; 2: instruction; 3: group sessions; 4: some intervention in practice; 5: practice	Use / Remarks	Synchronous	Use / Remarks	Asynchronous	Use / Remarks						
21	E-Monitoring						3	Monitoring System for Route-based Services				
22	Expatriation	5	On an ad hoc basis (examples)									
23	Experts meetings	3	-Series of workshops -Industry experts outside and the very best ones inside. -1) Standards in a new area 2) Write down expertise 3) Get version 1									
24	FMS (In ECs)						3	Facility Management System				
25	Governance meetings	3	-Monthly -With Regional COOs -Planning & Feedback on best practices	(X)	(Deduced)							
76	SimISS						3	-Information for benchmarking (worldwide). Mainly Australia & US -Information on the contract allows to advance to clients requirements (contract extensions)				
77	Sourcing from Australia	4	Using personal travels to get ideas from there, especially on production numbers									
78	Staff survey						2	-For 3 years and 1/2 -Every year more response and more meaningful results -Interesting comments on managers				
79	Staff tracking tool (vISSualise) (pilot)						2	-Follows people around a building -By the moment, for measuring, at McLaren -Would be good for hotels -Initial resistance to being monitorised--> smartphone				
80	Supporting Ireland	4	Travelling to start there CE									
81	Supporting other countries	4	-They ask about implementation: having people do things									
82	Supporting US	4	US came to harmonise HP									
377	Education plan						(1)	(Deduced) They receive the documents & work on them for their service--> Activa Notebook	(X)	(Deduced)		
378	Experts	5	Educators are required to have qualification (first, they were trained in-house)									
379	IT tools						3	The ones in use in ISS helped a lot after integration				
380	Partnerships	5	Before ISS, with a leisure company. Each learned from									
381	Pedagogical Resources Notebook						(1)	Resources for educators				
382	People transfer	5	People left in turbulent									
383	Personal experience*	5	Doing a bit of all, much in quality & then in ops (schools & HC) + many changes & evolution of the industry + partnership with a leisure									

Table 6

KT mechanisms map (excerpts)

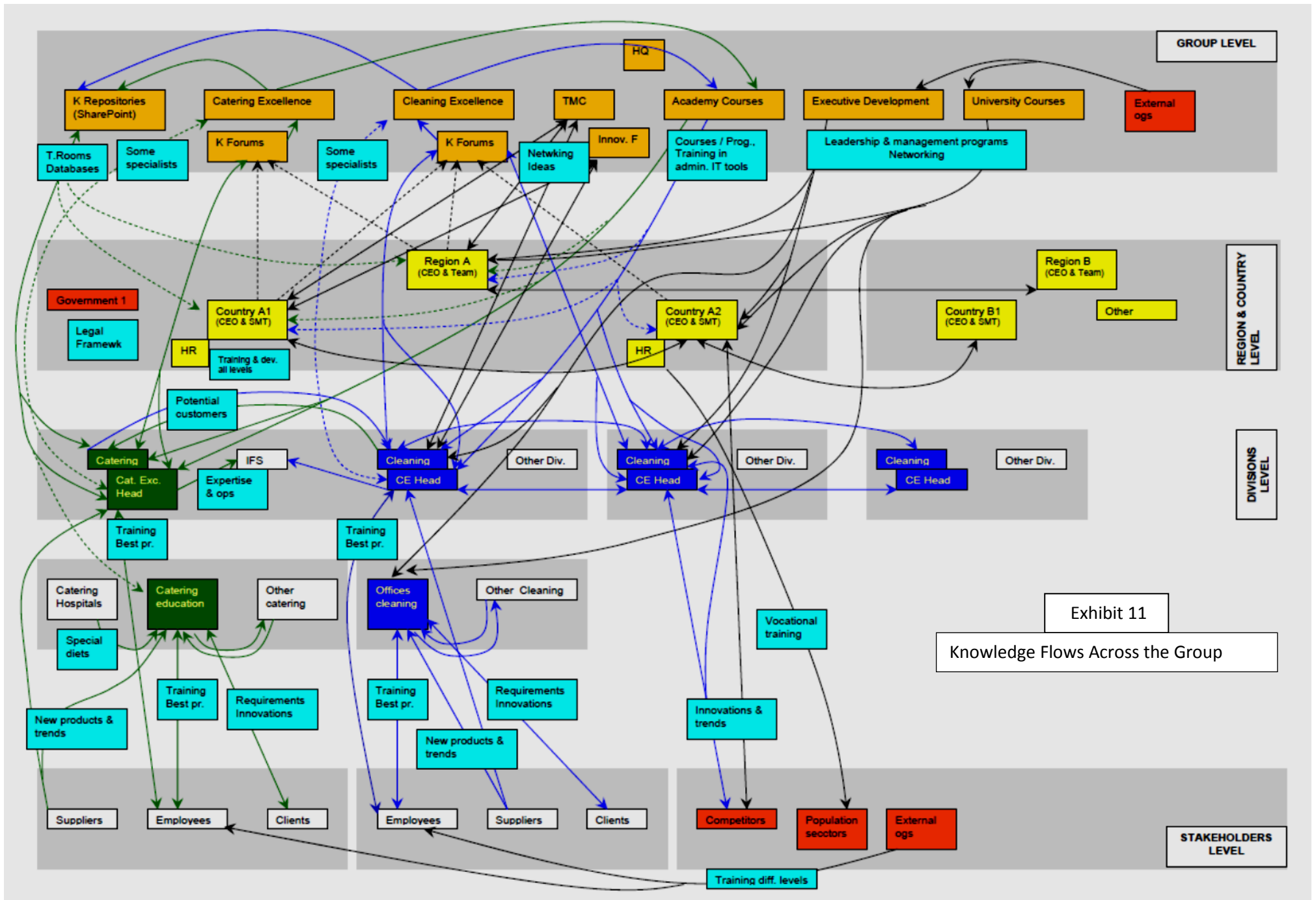
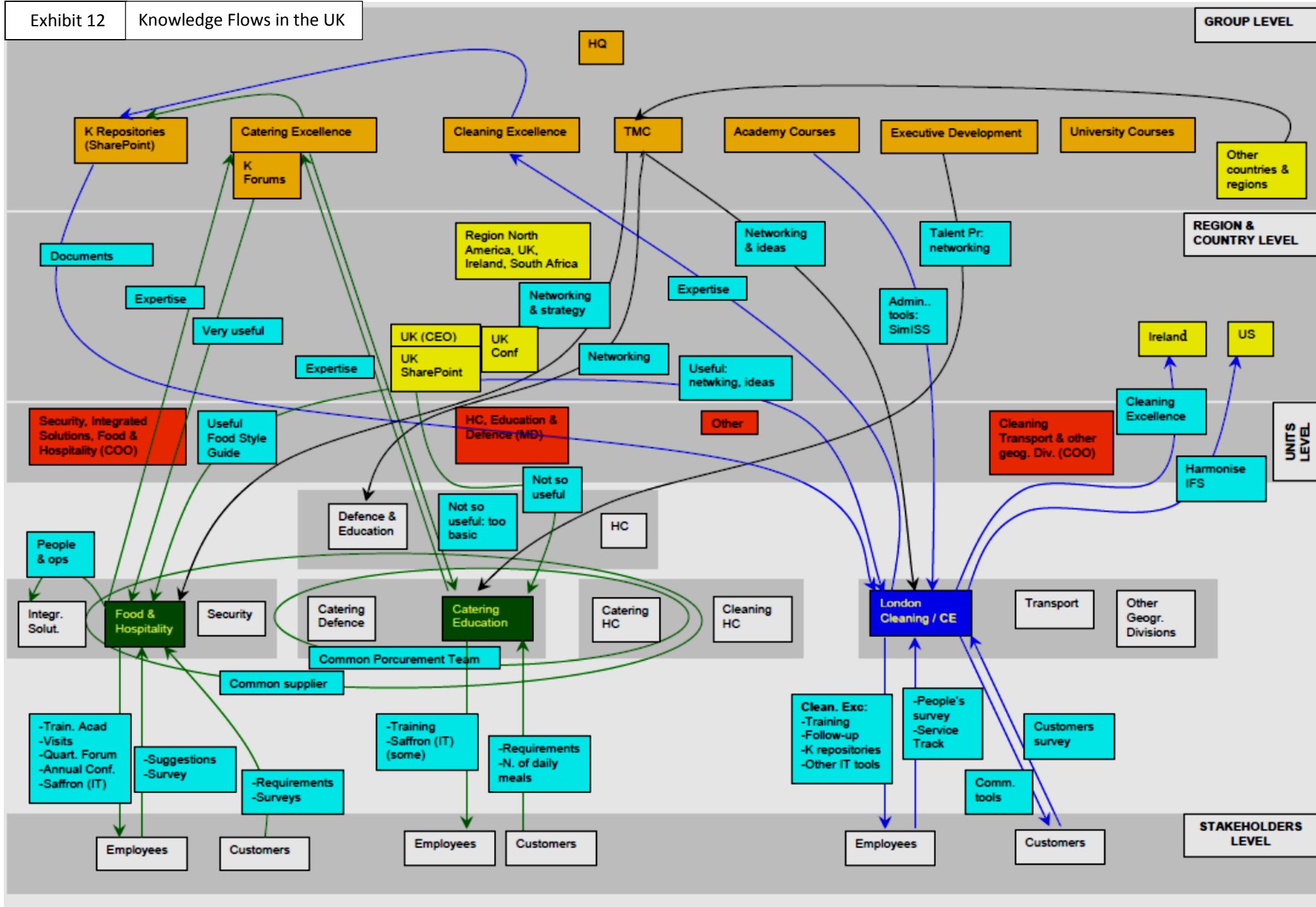


Exhibit 11
Knowledge Flows Across the Group

Exhibit 12 Knowledge Flows in the UK



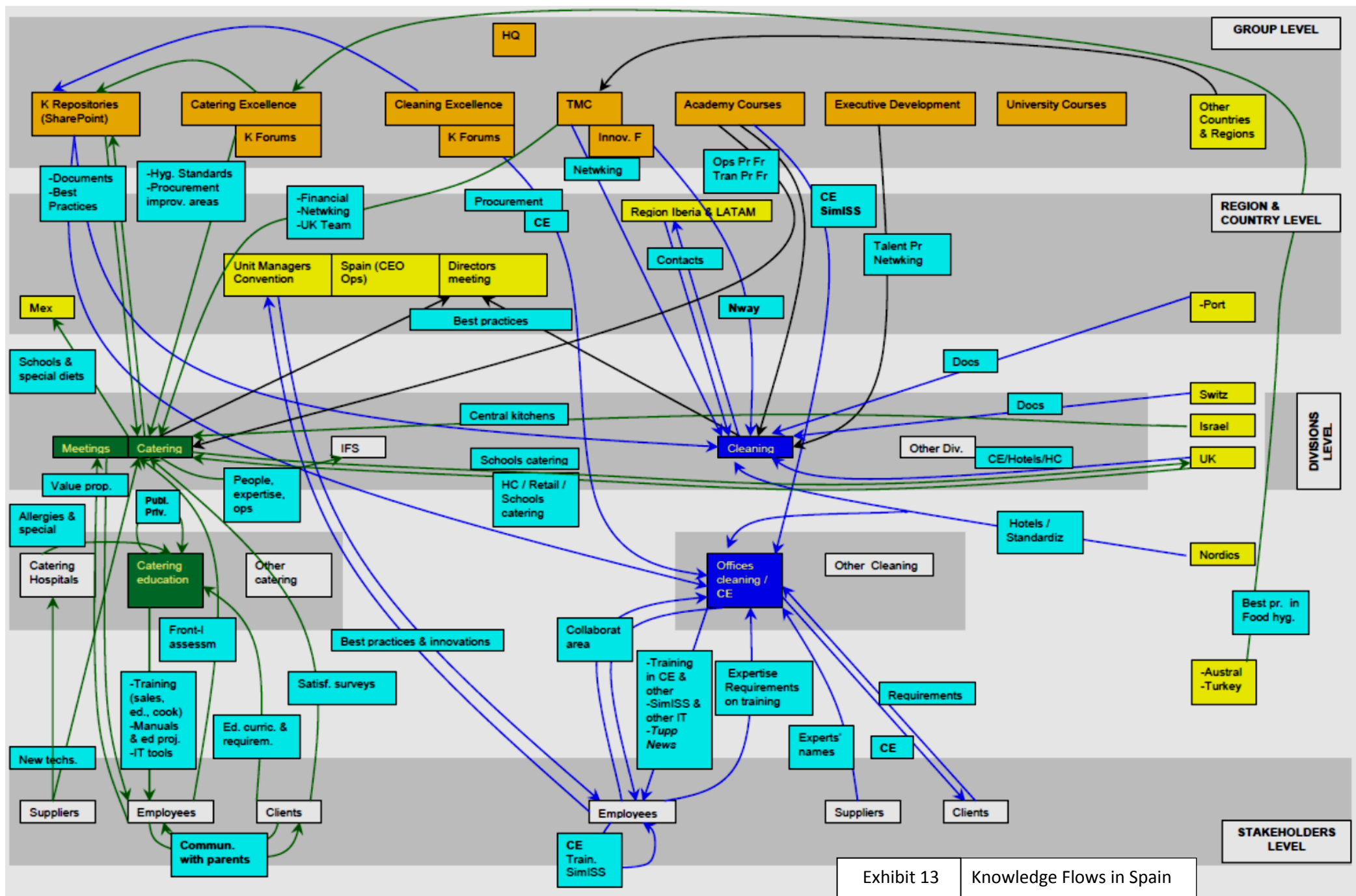
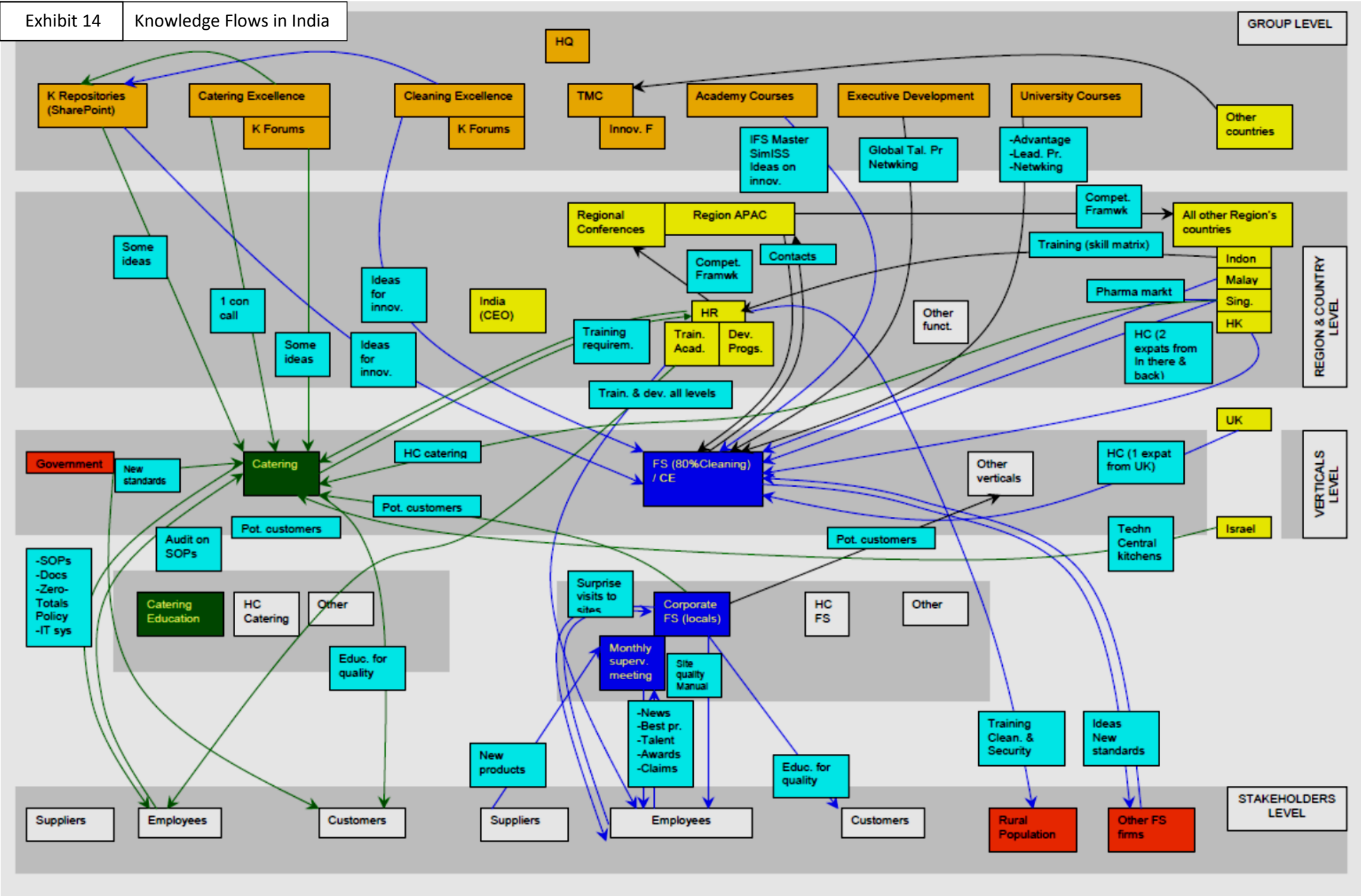


Exhibit 13 Knowledge Flows in Spain

Exhibit 14

Knowledge Flows in India



To make the database more workable, we further depurated it: we sorted out (1) the ‘corporate’ entries, both at the HQ and country levels; (2) entries that referred to knowledge that was not related to the cleaning or catering operations (e.g. financial meetings, leadership courses and programs and the like);⁵⁰³ (3) mentions that had been assumed by the researcher; (4) the ‘remarks’ column. We kept, however, the original full database because it contained information we did not want to lose. We also kept our observational data for triangulation purposes.

The resulting list had a total of 292 items. To it, we added one column for countries, and one for services with the purpose to record the number of occurrences and distribution of each knowledge mechanism. We also added a column to indicate which of these items were first mentioned in the interviews. In Table 7 a fragment of the resulting list can be seen.

⁵⁰³ We allowed ourselves an exception: we kept the data from the Head of Food and Hospitality in the UK because it contained some generic information about catering that was interesting for us. We had marked it in ochre. Note that there was not separate equivalent for the other countries, given that in Spain and India, Education reported directly to the Head of Catering, who was interviewed in both cases.

Table 7

KT Mechanisms Map. Only catering and cleaning services. Without assumptions. (Excerpts)

	KT MECHANISMS	FTF	Synchronous	Asynchronous	IT	Physical documents	Country	Service	First mentioned
2									
3	Abroad: Exchange with UK* (Sp)	3			1	X	Spain	Catering	X
4	K Forums* (Sp)	4	X		1	X	Spain	Catering	X
5	Food Force 5 (UK)				1	X	UK	Catering	
6	Contacts with clients (In)	5			1		India	Catering	
7	Standard Procedures (local) (In)	5			1		India	Catering	
8	Videos (In)				1		India	Catering	
9	Abroad: Sourcing from UK (Sp)	4			1		Spain	Catering	
10	Abroad: Sourcing from UK* (Sp)				1		Spain	Catering	X
11	Academy Programs (Sp)	3			1		Spain	Catering	
12	Catering Hygiene Best Practices Manual (Sp)				1		Spain	Catering	
13	Documents (Sp)				1		Spain	Catering	
14	Hygiene Manual team (Sp)	3			1		Spain	Catering	
15	NOSE manual (?) (Sp)				1		Spain	Catering	
16	Quality monitoring system (Service Track) (UK)				3		UK	Cleaning	
189	SimISS (UK)				3		UK	Cleaning	
190	Time & attendance system (UK)				3		UK	Cleaning	
191	Contacts with clients (Visit) (In)	4				X	India	Cleaning	
192	Homecare brochure (In)					X	India	Cleaning	
193	Industry Magazines (In)					X	India	Cleaning	
194	Site Quality Manual (In)					X	India	Cleaning	
195	Site Quality Manual (In)					X	India	Cleaning	
196	Innovation Fair (TMC) (Sp)	4				X	Spain	Cleaning	
197	Advantage Course* (UK)	3				X	UK	Cleaning	X
198	Training from HQ (UK)	4				X	UK	Cleaning	
199	Written Documents (UK)					X	UK	Cleaning	
200	Abroad: Support from UK (In)	4					India	Cleaning	
201	Academy Programs (In)	4					India	Cleaning	
202	Cleaning Excellence (In)	5					India	Cleaning	
203									

*First mentioned

In a separate document, we deleted all repetitions (e.g., the TMC could be mentioned several times in different countries and places), and we obtained a list of 161 mechanisms. This shorter list allowed us to have a clearer idea of the different mechanisms and also allowed us to correct some naming inconsistencies. The complete list can be found at Annex 24. We will here **comment some of the categories** we used.

There were *several kinds of contacts with other countries*: some were mentioned as contacts, other expressly referred to ‘sourcing from’ or ‘supporting’ them, and, finally, some contacts had a ‘probing’ character: informants had believed that these countries had something to offer them and established contacts or even travelled there. The result of these contacts was not clarified, and thus, they remained as ‘probing’ in the codification. Something similar happens with ‘Supporting HQ’ and ‘Support from HQ.’ When it is a ‘contact’ that was established in a ‘neutral’ place (such as the TMC), it remains as ‘contact.’ All of them started by ‘Abroad.’

Another choice we had to make about terms was the following: the difference between *Centres of Excellence* and *Excellence Centres*. The first refer to facilities that work as a sort of model—and sometimes are the site for pilot experiences—for all the other units in the country or Region (such as the McLaren HQ in the UK). Thus, we attached to them the name ‘Reference centres,’ and they were named ‘Reference centres/Centres of Excellence.’ On the other hand, ‘Excellence Centres’ were centres which worked as knowledge repositories on a certain service or speciality and catered advice and training to the other units (such as the Group Cleaning Excellence Centre). They were co-named ‘Competence centres.’ For example, in the UK, there was a team for the Cleaning Excellence, but in the same service, it could be said that the Excellence Centre was personified in one expert who worked as a catalyst for knowledge-sharing.

We also used two different categories to refer to *experience*: ‘Personal experience’ meant how individuals (mostly, the informant) were using accumulated experience to face new problems. On the other hand, ‘Previous experience’ was referred to the expertise embedded in the company and had to do with previous events.

Going back to the complete list of KT mechanisms, as we had grouped them into three big clusters—face-to-face interactions, technology-mediated interactions, and non-personal interactions—we then proceeded to the **items count** and we also calculated some **percentages** that helped us discover significant differences and similarities

between countries and services regarding the relative proportion in which different KT mechanisms were used. Therefore, we performed a *word frequency count*. We wanted, first, to know the *total* number of occurrences of each mechanism, regardless of country or service. Then we calculated the *proportion* in which they appeared with respect to this total, which was indicated in percentages. We next applied the same steps: total number of mechanisms, number of each type, percentages-proportion first for each country, regardless of services, and then, for each service, regardless of the countries. This allowed us to have a first glimpse of the differences and similarities between the three countries and the two services.

Given that we wanted to investigate, on one hand, country-related factors (cultural or other differences) and knowledge/service-related mechanisms, we needed to analyse both aspects. If we took the perspective of services, we could see the differences between countries. If we took the perspective of countries, we could see the differences between services in each country.

At this point, we had to **combine countries and services**, and we had to decide if we took countries or services as the point of reference. After some tests, we decided to take services as the point of reference. This allowed us to consider each service in itself and in each country. After that we had to review results by country, to check for more information regarding the similarities and difference between services. Therefore, the analysis and results will be presented in this order.

During the process, we often checked what interviewees said about each mechanism: we did not want to know only the number or proportion of KT mechanisms, but the subjects' preferences/choices about each KT mechanism, and, if possible, the reasons for these choices. At the same time, we tried to keep at sight the type of knowledge being transferred, and also if the mechanisms we found belonged to exchanges with other subsidiaries or were HQ-fostered or, on the contrary, they were local. The latter aspect helped us to see (1) the network of the subsidiary and (2) the degree to which corporate norms were reaching subsidiaries and, therefore, the degree of standardisation that was being achieved.

2.5. RESULTS AND DISCUSSION

In this section, we will present the results of our research. First, we will explain our analysis of general results (2.5.1.), i.e., all data aggregated. In a qualitative research, these numbers and percentages could only serve as preliminary information, but we considered that it could orientate our search. We will then proceed with the analysis by service (2.5.2.): first catering (2.5.2.1), and then cleaning (2.5.2.2.). Next, we will describe the analysis by country (2.5.3.) in the following order: India (2.5.3.1.), Spain (2.5.3.2.), and the UK (2.5.3.3.). Finally, we will discuss all the results altogether, checking whether the research questions were answered (2.5.4.).

2.5.1. GENERAL RESULTS

We will here present the general results, i.e., the aggregated data by country and by service. As we said before, although this is a qualitative research, word count and, over all, percentages, were useful to know the relative relevance of the items we were analysing. This task was always complemented by the interviewees' remarks regarding each mechanism. For example, the SimISS system was mentioned in all three countries, but knowing the number of times it was mentioned and, above all, the opinion of interviewees about it, the difficulties they experienced with it and whether consequently they had adopted it or not was equally important.

As mentioned, we obtained a total of 292 items.⁵⁰⁴ We will see how they were distributed by country and by service:

Cleaning informants provided 154 items, and those from catering were 138. Here is the **distribution** in absolute numbers (Table 8):

⁵⁰⁴ By *item*, *mention* or *occurrence* we mean *all* the appearances of a mention to a *KT mechanism*, including repeated mentions.

Table 8

	India	Spain	UK	Totals
Catering	19	51	68	138
Cleaning	47	61	46	154
Totals	66	112	114	292

The differences among countries and services corroborated to us the need to handle data carefully and go into detail in the investigation.

If we distribute the 292 items according to **the type of KT mechanisms**, these are the results (Table 9):

Table 9

Split of 292 items by types of mechanism ⁵⁰⁵	Number mentions	Partial percentages	Percentages out of 292
Total FTF Interactions	197	Out of 197	67,5%
Type 1	12	6,1%	
Type 2	1	0,5%	
Type 3	39	19,8%	
Type 4	74	37,6%	25,3%
Type 5	71	36%	24,3%
Total Technology-mediated interactions	25	Out of 25	8,6%
Synchronous interactions	12	48%	
Asynchronous interactions	13	52%	
Non-personal mechanisms	107	Out of 107	36,6%
Total IT-based mechanisms	96	89,7%	32,9%
Type 1	35		
Type 2	36		
Type 3	25		
Paper documents	18	16,8%	

If we add the subtotals, the total number is not 292 but 329. That means that in 37 cases there were **overlaps** among mechanisms or, in other words, 37 items simultaneously included two or three forms of mechanisms. As a consequence, the three total percentages in the right column (in black bold) did not add to 100. As this happened several times, we calculated partial percentages with respect to the corresponding total or subtotal. In the case of the right column, they were calculated

⁵⁰⁵ To remember the types of FTF and non-personal mechanisms, see 2.4.2.

with respect to the total of 292 items. In the central column, we calculated each set of percentages relatively to their respective subtotal: 197, 25 or 107.

If we look at these preliminary results, we have that (1) FTF interactions were the most represented among the data collected.⁵⁰⁶ This is an interesting point, because it shows that in the age of technologies, FTF personal contacts are considered the most appropriate for transferring knowledge about two services that, at least in theory, could be made explicit, codified and managed in a less ‘personal’ way. We will elaborate this point farther in the discussion section (2.5.4.1.).

We also need to note that, (2) between FTF interactions, those most discussed or mentioned were *types 4 and 5* interactions, i.e., those that had (indirect or direct) relation with practice. In fact, if we aggregate them,⁵⁰⁷ we can see that they were around 50% of total mentions. This is not strange, given that our research was focused on the transfer of best *practices* in *operations*. Related to this, (3) is interesting to note the single one mention to type 2 FTF interactions (one-to-group interactions that happen in a traditional class-like setting), because this is not the most suitable way to transfer this kind of knowledge. (4) IT-based mechanisms were also relevant (32,9% with respect to total mechanisms). This fact has to do with the characteristics of the services we were analysing: the higher the standardisability, the higher the codifiability and use of these kinds of tools, we hypothesised (H1). Finally, we must remark that (5) there is a *pattern* that appears repeatedly across subsidiaries and services, and it is that FTF always appear in first place in number of mentions, then non-personal mechanisms, and, finally, with very low numbers, technology-mediated personal interactions.

In any case, we need to wait to extract conclusions until we analyse these mechanisms in each service and country and see if there are differences between the different clusters.

⁵⁰⁶ We made sure that there was no bias in the design of the questionnaire that guided this distribution of results.

⁵⁰⁷ This aggregation can be done because there are no overlaps in the FTF cluster.

2.5.2. RESULTS FROM THE ANALYSIS BY SERVICE

First of all, we examined the results of the items in each service distributed by types of KT mechanism. In Table 10 we can see the results.⁵⁰⁸

Table 10		Distribution of results by service and types of KT mechanisms		
	FTF	Technology-mediated	Non-personal	
Total items (292)	197 (67,5%)	25 (8,6%)	107 (36,6%)	
Catering (138)	100 (72,5%)	10 (7,2%)	48 (34,8%)	
Cleaning (154)	97 (63%)	15 (9,7%)	59 (38,3%)	

Although the distribution followed the general trend in both case, if we look at it more closely, we will see that catering referred more to FTF than cleaning, and cleaning provided proportionally more technology-mediated and non-personal interactions than catering. This seems congruent with what we hypothesized about the respective degree of standardization and types of knowledge required by each service. Differences are not much marked, but neither are those between catering and cleaning. To obtain a more thorough description, we need to analyse results more in detail. In any case, these preliminary results show that there were differences between cleaning and catering in terms of interests and the way they approached KT.

In the analysis of the results by service we will examine the following aspects: most mentioned mechanisms, distribution of mechanisms by types—FTF, technology-mediated, non-personal—, which of them respond to the Group KM strategy and which are local, and comparison between the three countries, regarding the service in study.

⁵⁰⁸ Percentages are calculated with respect to the total number of each service.

2.5.2.1. RESULTS REGARDING CATERING

Catering informants provided a total of **138 items**. As said before, the analysis of each service mechanisms enabled us also to compare between countries.

MOST MENTIONED ITEMS

We can now examine the **most mentioned mechanisms** in catering (Table 11). In order to have more items to examine, we drew the list from 6 (maximum number of mentions) to 3 times mentioned.

Table 11					
13 Most mentioned items in Catering					
Total times mentioned	N.different items	Mechanisms	In	Sp	UK
6	2	Knowledge Forums*	1	2	3
		TMC*	1	2	3
5	2	Previous experience	2	2	1
		Training workers	1	1	3
4	4	Contacts with clients	1	2	1
		Experts	1	3	-
		Innovation Fair*	-	1	3
		Personal experience	1	2	1
3	5	Country intranet (SharePoint)	-	-	3
		Personnel transfer	-	1	2
		Saffron	-	1	2
		HQ Head of Excellence Centres*	1	2	-
		Local standard procedures	1	1	1
*Contacts with other countries and HQ initiatives Coincidences with cleaning are in red					

When we looked at the **types of interactions**, we found that 11 of these items included *FTF interactions*. 2 of them included synchronous *technology-mediated interactions*: ‘Knowledge Forums’ (6 times mentioned) and ‘Contacts with clients’ (4 times). Finally, 2 others referred to *non-personal mechanisms*: ‘Country intranet’ and ‘Saffron’ (3 times). If we translate this representation into percentages, the proportion obtained—84,6%, 15,4%, 15,4%—is different to the general pattern (Table 10)—67,5%, 8,6%, 36,6%—and the general one of catering—72,5%, 7,2%, 34,8%. The predominance of FTF interactions is even higher than in both cases. In most mentioned

items, the proportion of technology-mediated mechanisms is higher than the latter, and that of non-personal mechanisms is lower.

Examining the **scope** of the items, only 4 corresponded to HQ-devised mechanisms—‘Knowledge Forums,’ ‘TMC’ (both 6 times), ‘Innovation Fair’ (4 times), and ‘HQ Head of Excellence Centres’ (3 times)—the remaining 9 were local initiatives. That seems to hint at the higher degree of autonomy of catering in terms of standards or norms with respect to HQ, at least at the stage the subsidiaries were investigated. The absence of interactions with countries here can be deceptive: there were not *repeated* interactions of a *particular type* with *one particular country*. If we aggregate all the items tagged as ‘Abroad’, we obtain 18 items, which means that the mechanism of resorting to, exploring or supporting other countries was used quite often, especially in the two European countries (Indian informants felt that meals were far too culturally different, even between the countries in their same Region, although they also reported some interactions with these subsidiaries).⁵⁰⁹

If we pay attention to the **distribution among countries**, we will notice that some of the most mentioned items were not alluded to by India, and most of them were by Spain and the UK. We can detect here a sort of gradation in the development of the business in each subsidiary: the Innovation Fair could not appear in India since the managers interviewed had not taken part in any TMC. There was no mention to the intranet and a country-wide program to control menus (such as Saffron) was reported as not existing. In Spain, all the elements were present (some several times), except any mention to the intranet. In the UK, most items were mentioned more than one time and, looking at the gaps in the table and the interviews, it is easy to conclude that it is not that there were not experts in the country or relationships with the HQ Head of Excellence Centres, on the contrary, the level of expertise exhibited made them to be consulted by other subsidiaries and take part in the Group initiatives to set up standards (for which they needed these contacts with the HQ manager). In other words, they were *implicit* everywhere in the conversation, but *not explicitly* mentioned. To confirm this subject we will have to go on with our analysis.

⁵⁰⁹ We needed to keep them coded separately to have a clear picture of the direction and purpose of knowledge flows between these subsidiaries and the rest. To this purpose, a generic ‘interactions with other countries’ was of no use.

To finish with Table 11, we could remark the high level of coincidence with most mentioned mechanisms in cleaning.

We will proceed now to analyse the **different types of KT mechanisms** used in catering. To do so, we need to go back to Table 10.

FTF INTERACTIONS

100 out of 138 items (72,5%) mentioned by catering informants included some form of FTF interaction. It seems that these mechanisms can be identified as the primary form to transfer information. Taking this particular cluster—FTF mechanisms in catering—we obtained the following results (Tables 12, 13):⁵¹⁰

FTF interactions in catering				
Type	In	Sp	UK	Total items
1	2	3	2	7
2	—	—	1	1
3	1	10	13	24
4	1	9	21	31
5	11	16	10	37
Totals	15	38	47	100

Proportion* of FTF mechanisms in catering				
Type	In	Sp	UK	Total
1	13,3%	7,9%	4,2%	7%
2	—	—	2,1%	1%
3	6,7%	26,3%	27,7%	24%
4	6,7%	23,7%	44,7%	31%
5	73,3%	42,1%	21,3%	37%
*Percentages calculated with respect to each country's FTF subtotals Highest results in red				

If we look at the totals column, we will see that types 5 and 4 are the most mentioned. However, these results were not distributed in the same proportion in each country: in India, almost all items belonged to type 4, in Spain type 5 went first, followed by types 3 and 4, which showed similar results. In the UK, type 4 went first, followed by types 3 and 5.

⁵¹⁰ We remind the reader of the types of FTF interactions: 1: one-to-one communication, 2: formal instruction (class-like setting), 3: group interactions/meetings, 4: interpersonal interactions that have some relation to practice, and 5: personal interactions that occur during practice (see 2.4.2.). Note that in this group there are no overlaps.

Looking at **type 1** results, they are remarkably few, just 7, almost equally distributed. One of them referred to **relationships with other countries**: ‘Contacts with Spain’ (a conversation between the two managers), by the UK. Regarding **HQ-promoted** policies, the ‘HQ Head of Excellence Centres’ was mentioned 3 times as a source of expertise: once in India and twice in Spain. It is important to note that in India, he was mentioned to note that there was little interaction with him, whereas in Spain he was the reference point. The 3 remaining items were **local** interactions: with the ‘Chief Learning Officer’ in India, with ‘Experts’ in Spain, and ‘Contacts with employees’ (by the operations manager) in the UK. We argue that one-to-one FTF interactions must have been many more, but perhaps they have been simply taken for granted by informants, and only the ones with individuals considered *relevant* are mentioned.

There was only 1 mention to **type 2** interactions: ‘University Programmes’ by the UK. They were considered very useful for networking.

We found 24 occurrences of **type 3** FTF interactions. The distribution in countries is quite uneven. Only 1 referred to **contacts with other countries**: an ‘Exchange with UK’ (a meeting of managers), by Spain. As per **HQ KT** mechanisms, they were 14. The most mentioned was the ‘TMC’, which was mentioned once by India (the interviewee had not participated in any), twice in Spain and thrice in the UK. It was mentioned as the ideal networking meeting. Other meetings were mentioned: 3 in Spain—‘Academy Programmes,’ ‘Advantage Programme’ (both great opportunities to interact with peers) and ‘Hygiene Manual Team’ (the manager took part in it)—, and 5 in the UK—‘Executive development programmes’ (good for networking), ‘Meetings’ (importance of exchanges and need to have more), ‘Seminars’ (only useful if there is a real need) and the ‘Value Proposition Team’ (the manager took part in it).⁵¹¹ We can say that at this level, exchanges mentioned by Spanish and British informants were quite similar. Contrary to what we said regarding most mentioned items, global mechanisms were here more represented than local mechanisms.

⁵¹¹ It is important to note that these mechanisms were also appreciated as different means to improve managerial competences, but here we only took into account the aspect related to the *operations* of the service. In this case, they were considered *a source of contacts* for further learning and/or problem-solving.

There were also 9 **local** initiatives: 4 mentioned by Spain and 5 by UK. In both cases, there was the concern to enhance internal communication by using the Country Convention existing in both countries, but also with the establishment of different meetings specific to catering. Regarding the latter, the UK had developed more mechanisms: the ‘Employees’ Forum,’ the ‘Regional Road Shows,’ and the annual ‘UK Catering Division Conference,’ whilst in Spain there was only one ‘Catering meeting.’ The UK also tailored diverse models of ‘Customer Surveys’ in meetings with customers. One Spanish manager highlighted the need for more ‘Contacts with the Country Management Team,’ to improve their understanding of the peculiarities of the catering business. Therefore, we can observe a difference in development between Spain and the UK in terms of internal or local mechanisms.

As for **type 4** FTF mechanisms, the number grew to 31, although, again, with only 1 provided by India, 9 by Spain and 21 by the UK. These mechanisms represented 44,7% of mechanisms cited by UK catering informants (Table 13). First of all, mechanisms referring to **relationships with other subsidiaries** were 13, 5 for Spain and 8 for the UK. Spanish informants reported ‘Exploring Israel’ and ‘Exploring UK’, ‘Sourcing from UK,’ and ‘Supporting Mexico’ and ‘UK.’ British informants acknowledged ‘Exploring France’ and the ‘USA’, ‘Sourcing from the Netherlands,’ ‘Supporting Malaysia,’ ‘Spain’ and ‘other countries,’ and also had a general remark for ‘travelling to other countries’ (it only worked if there was a real need and purpose). Not all these contacts were fruitful: Israeli systems (mostly focused on central production) were too different from the Spanish ones, the UK team discovered that they were already doing most of the things that were being done in the Netherlands, the USA system was too costly for them, and the French conception of school meals was quite different from the British. It seemed that UK was one step ahead with respect to Spain in terms of providing knowledge to other subsidiaries.

Of the 12 **HQ-related initiatives**, the most mentioned were the ‘Knowledge Forums.’ They were the only ones cited by India (as a useful source of competitive advantage), and they appeared twice in Spain and thrice in the UK. Regarding them, whereas the Indian sources expected to find there some useful materials to add to their value proposition—something feasible for the Indian market—, UK suggested creating knowledge forums specific for each catering segment (schools, fine dining, corporate canteens, hospitals and so on). The ‘Innovation Fair’ appeared 4 times, 1 in Spain and 3

in UK. Both countries appreciated this mechanism but suggested a more refined selection of the projects to be presented. The UK added two more mechanisms: ‘European Forums’ and ‘Supporting HQ’ (a high involvement in the global strategy for catering). Finally, there were other 6 **local** initiatives: 1 by Spain (‘Receiving support by clients’ to design schools catering) and 4 by the UK. Of these, two were related: ‘Contacts with other catering divisions’ that resulted in the design of a ‘Procurement Team’ which decided on procurement for Healthcare, Education and Defence (a problem that did not exist in Spain because there was only one Division with a single Procurement unit). The other two were the creation of ‘Leisure activities’ for schools to educate children on food and nutrition and the ‘UK Executive Chefs Meeting’ to agree in some aspects of Education and Food and Hospitality. The initiatives designed by UK indicate an issue typical of a highly developed and specialised company: getting the different units to share knowledge among them.

We have finally **type 5** FTF interactions, i.e., those that occur in actual practice. We found here 37 occurrences, distributed in 11 for India, 16 for Spain and 10 for the UK. So here India was well represented and overtook UK. It was the most important category both for India and Spain. There was only one mention **to relationships with another country**: ‘Visit from Israel,’ by India (they aimed to collaborate on central kitchens but it was not possible because of the differences regarding culinary techniques). **HQ-fostered** mechanisms were 4, all from Spain: ‘Catering Excellence,’ ‘SOPs’ (twice), and ‘Supporting IFS,’ meaning in all four cases that they were sets of practices established according to corporate policies. The remaining 32 items were **local**. This was expectable, because actual practice—service delivery—happened in each country. We will provide here a table (Table 14) to show the striking parallelism between the three countries regarding local initiatives (bottom section of the table):

Table 14		
Type 5 FTF interactions in catering		
India	Spain	UK
Contacts with Israel *		
	Catering Excellence *	
	SOPs (2) *	
	Supporting IFS *	
Local standard procedures	Local standard procedures	Local standard procedures
Personal experience	Personal experience (2)	Personal experience
Previous experience (2)	Previous experience (2)	Previous experience
Training workers	Training workers	Training workers (3)
Contacts with clients (2)		Contacts with clients
Experts	Experts (2)	
	Partnerships	Partnerships
	Personnel transfer (2)	Personnel transfer (2)
Contacts with other services		
Outsourced logistics		
	Vocational training	
*Contacts with other countries and HQ initiatives Coincidences across subsidiaries in red		

These results suggest that, at least in these type of interactions, there were common cross-country patterns in terms of interests and concerns. It seems that cultural and geographic distance was not relevant in terms of the mechanisms embedded in the practice of the operations. It is also remarkable that in types 4 and 5 the ratio of local vs trans-local mechanisms in catering was inverse. We need to examine the cleaning service to draw conclusions from this.

In general terms, if we go back to Table 13, and see the different weight of types 4 and 5 in each country, we could say that the situation of India, which relied more in mechanisms transmitted through practice, was typical of a service that was still small, based very much on personal interactions, the personal experience of a few, frequent visits to sites and so on. In the case of the UK, the amount of experience amassed could explain their interactions to supply knowledge to other countries, either by bilateral contacts or through mechanisms designed by HQ, as well as other initiatives in search of knowledge to enrich their expertise with. In short, we could say that the more developed is a service, the more they could afford to detach from practice and elaborate other ways of knowledge diffusion. Spain seemed in an intermediate position between

the other two countries. We will go back to this issue when we finish the analysis by country (2.5.3.3).

TECHNOLOGY-MEDIATED INTERACTIONS

Paralleling general results, in catering only 10 out of 138 (7,2%) items contained some form of technology-mediated personal interaction. As above said, we believe that we cannot conclude that there were few personal interactions of this kind. Although service firms of the type we are analysing do not often use sophisticated communication technology, other simpler forms are very much extended, such as emails, phone calls or any form of instant messaging. Thus, we can conclude that they were so common that interviewees did not deem them worthy of being expressly mentioned. In Table 15 we show the results for catering split by country.

Table 15				
Technology-mediated personal interactions in Catering				
Type of interaction	In	Sp	UK	Total items
Synchronous	1	2	2	5
Asynchronous	—	1	4	5
Totals	1	3	6	10

As it can be seen, the number of synchronous and asynchronous interactions was the same, but their distribution was quite uneven between the different countries. Moreover, Spain and the UK showed an inverse proportion.

Regarding **synchronous interactions**, 3 of them were included in **HQ-promoted** mechanisms: ‘Knowledge Forums’ where cited by India and Spain, and a ‘Catering Excellence conf call,’ reported by UK. In the first case, the Indian informant reported an informative conference call in which he found there was too much difference between the European reality and the Indian one. The Spanish informant talked about a webinar which was part of the Forum in which he was participating. Regarding the ‘Catering Excellence conf call,’ the informant found the information very basic, more fitting to

countries that were beginning in the business.⁵¹² The remaining 2 were **local** mechanisms: ‘Videoconferencing’ in Spain (it was starting being used) and (telephone) ‘Contacts with clients’ in the UK.

2 of the **asynchronous** communication mechanisms were part of the **global strategy**: ‘SharePoint Team Rooms’ by Spain (to communicate with members of Knowledge Forums) and (emails between members of) ‘Executive development programs’ by UK. The 3 **local** items were provided by the UK: ‘Contacts with employees’ (they often directly emailed the Divisional Director) and ‘Emails’ (twice). Regarding the latter, they were considered the easiest communication channel but one informant acknowledged that they were perhaps too much in use instead of SharePoint.

We will here highlight the different reasons of dismissing information by Indian and British informants. Apparently, reasons regarding culture and development of the business were playing a role here. Also the frequent mention to emails by British informants was noteworthy.

NON-PERSONAL INTERACTIONS

There were 49 items out of 138 which referred to non-personal mechanisms for KT. Therefore, they represented 35,5% of catering mechanisms, a proportion very similar to the total presence of non-personal mechanisms. Of them, 46 included the use of some information technology and 7 involved the sharing of paper documents. That means that there were 4 overlaps. In Tables 16 and 17 we have the display of the results:

⁵¹² We suspect that the informative conference calls reported by Indian and UK informants might be the same, but each related them to different mechanisms. In any case, the reasons for considering the information not adequate to their situation were different: in one case, it was cultural distance; in the other, it was the level of development of the information.

Table 16				
Non-personal mechanisms in Catering				
Type of mechanism	In	Sp	UK	Total items
IT type 1	3	9	8	20
IT type 2	1	3	10	14
IT type 3	2	5	5	12
Total IT	6	17	23	46
Total Paper	—	4	3	7

Table 17				
Proportion* of IT-based mechanisms in Catering				
Type of mechanism	In	Sp	UK	Total
IT type 1	50%	52,9%	34,8%	43,5%
IT type 2	16,7%	17,6%	43,5%	30,4%
IT type 3	33,3%	29,4%	21,7%	26,1%

*Percentages calculated with respect to the subtotals in each country
Highest results in red

Three things can be remarked, only looking at these tables: (1) they may reflect the substitution of paper materials by some kind of new technology, but we do not discard that here something similar to what happened with technology-mediated interactions occurred: that physical documents were used everywhere and taken for granted. In fact, for example, versions of electronic documents were printed and used for discussion. Notwithstanding, at least one British and one Spanish informant expressed the commitment of their respective organisations with avoiding the use of paper as much as possible. (2) The tables show a predominance of type 1 IT-based mechanisms. Finally, (3) the parallel between India and Spain is quite obvious, and also the difference between these two countries with the UK. We will now examine the results more closely, to draw more information from them.

We will focus first on **IT-based mechanisms**.⁵¹³

Looking at the totals in Tables 16 and 17, **type 1 mechanisms** were the most mentioned in catering. In fact, they represented almost half of the IT-based mechanisms (43,5%). Within this cluster, it was the most mentioned by India and Spain, representing around half their respective IT-based mechanisms. If we look at the **scope** of these items, 5 regarded **exchanges with other countries**: 3 by Spain (all three sourcing from the UK), and 2 by the UK (they received documents from the Netherlands and sent support to Malaysia). 6 of them responded to **HQ-devised mechanisms**: 5 by Spain (various manuals and best practices documents) and 1 by the UK ('Documents from

⁵¹³ We must remember that type 1 were single documents (including recorded videos), type 2 database-like mechanisms (including online surveys and portals), and type 3 were computer programs/systems.

Catering Excellence’, which were too generic for the UK). Finally, there were 9 **locally developed** mechanisms: 1 mention by Spain—referring the need to document everything more after being acquired by ISS—, 3 by India, and 5 by the UK. The two latter reported different exchanges of documents with clients and the already established ‘Local Standard Procedures.’ To these, India added training ‘Videos,’ and the UK provided the ‘FoodForce5’ materials a brand new ‘Food Style Guide’ and the sending of documents to the Cleaning division.

We could remark here (1) the role of UK as a source of knowledge. (2) all but one of the mechanisms mentioned by Spain were related to international exchanges and corporate mechanisms. By what we knew from the interviews, UK intervened in the confection of some of these documents, therefore, it is understandable that they did not mention how they received and used them. The case of India seems quite different: as if they were already establishing their standards and had not already moved to the phase of looking outside the subsidiary.

Looking at **type 2** mechanisms, they were 14, with a rather unbalanced distribution across subsidiaries: 1 in India, 3 in Spain and 10 in the UK. In the latter, they were the most represented ones (43% of IT-based mechanisms). Of these mechanisms, 6 included **HQ-designed mechanisms**: 2 cited by Spain (the ‘SharePoint Team Rooms,’ cited twice as sources of materials), and 4 by the UK: the ‘Global intranet’ as a global repository, the suggestion of using more ‘Social networks’ (twice), and the ‘Staff survey.’ There were 8 **local** initiatives: 1 in India, 1 in Spain and 6 in the UK. Indian informants reported that they had just started collecting data from the global repositories. Spanish interviewees explained that they were borrowing the procurement portal from the Cleaning division and they were expecting to create their own one. The UK provided a wider variety of mechanisms, like the use of the ‘Country intranet (SharePoint),’ the design of various ‘Customer surveys,’ and the use of diverse ‘Excel and other’ systems to store and share information (to the detriment of SharePoint). The information from British interviewees showed also the typical problems of a big and consolidated organisation: already stored data needed to be organised better and, at the same time, KM systems were somehow disaggregated. Spain seemed in a phase of storage, and India was just starting it.

There were also 12 items belonging to **type 3**. 2 appeared in India, 5 in Spain and 5 in the UK. The relative relevance of these mechanisms in the two latter countries was different (29,4% in Spain, 21,7% in the UK). There was only one mention of an interaction with another country, by Spain, in which they mentioned they knew that Israel used a program which integrated procurement, menus, costs calculation and so on but trying to adapt it to Spain was considered non-viable due to the distance and differences among the countries. 3 mechanisms were related to the **HQ knowledge-sharing strategy**: 2 in Spain and 1 in UK. Spanish informants mentioned that since their acquisition, they were using more robust ‘IT tools,’ and regarding corporate ‘SOPs,’ they stated that there were not so many corporate systems as in cleaning because catering could not be standardised at the same level. The UK reported the recently started ‘Global mailbox’ as a worldwide system. The 8 **local** devices were distributed into 2 in India, 2 in Spain and 4 in the UK. India had integrated from South to West a system (‘Zero Totals Policy’) for financials, procurement and labour costs, but were not using a unified system to manage menus. In Spain they were testing ‘FSMax’ (a system for food-related businesses) to be used on-site. They mentioned ‘Saffron’ but considered it incomplete. Instead, diverse versions of ‘Saffron’ were being used in the UK and they were introducing ‘Trade Simple’ to control the ordering process and make it interact with Saffron. Another project in the UK was the introduction of ‘Tablets’ to manage all the site-related data.

Several things can be commented here: (1) most of the mentioned programs in the UK were full operating in the corporate catering business. Kitchens in Education were too small to introduce some of these systems. (2) Both Spain and UK appeared to be striving to find an all-encompassing system (i.e. to simultaneously control procurement, food storage, menus, sales, financial reporting and so on) to be used on-site and monitored from higher levels. India was integrating a system at the financial level.

Finally, we have **paper documents** to be analysed. They were few: 7 in total, 4 in Spain and 3 in the UK. The 3 mentions to interactions **between countries** reported exchanges of documents between Spain and UK regarding the Education business. Regarding **mechanisms developed from HQ**, Spain provided for examination a sample of the Value Proposition document, issued in one of the ‘Knowledge Forums.’ Regarding **local** knowledge-sharing mechanisms, Education in Spain created several written forms of keeping parents updated about their children’s habits regarding meals

and the UK issued a series of printed materials for children related to nutrition. The different physical modalities of ‘Customer surveys’ were also discussed.

Regarding India, which showed no mention to physical documents, the researcher could observe that all the control of menus and meals in a hospital was made on paper sheets, and believes that in other types of operations, which were less sophisticated, they worked in a similar way.

Although we have made some observations during all the description of the analysis of the catering operations, we will need to do the one for cleaning to be more conclusive.

2.5.2.2. RESULTS REGARDING CLEANING

Cleaning informants provided a total of **154 items**. We will proceed with the analysis following the same order as in catering: most mentioned items and data grouped in the different types of KT mechanisms, looking also at the scope of these mechanisms (i.e. group / international vs. local).

MOST MENTIONED ITEMS

To examine the **most mentioned mechanisms** in cleaning (Table 18), we took the items that were mentioned 4 (maximum number of occurrences) and 3 times.

Table 18					
15 Most mentioned items in Cleaning					
Total times mentioned	N.different items	Mechanisms	In	Sp	UK
4	7	Cleaning Excellence*	1	2	1
		Contacts with HQ*	1	1	2
		Country intranet	1	1	2
		Knowledge Forums*	-	2	2
		Personnel transfer	1	1	2
		SimISS*	1	2	1
		Training workers	2	1	1
3	8	Competence Centres*	1	2	-
		Contacts with clients	2	1	-
		Contacts with IFS*	-	2	1
		Experts	1	1	1
		Previous experience	1	2	-
		Reference Centres*	-	2	1
		Global intranet (SharePoint)*	1	2	-
		TMC*	1	1	1
*Contacts with other countries and HQ initiatives Coincidences with catering are in red					

We will first describe the **types of interactions** that can be found. Out of 15 mechanisms, 12 were *FTF interactions*. There was 3 *technology-mediated interactions*: ‘Knowledge Forums’ (4 times mentioned), ‘Global intranet’ (3 times), and ‘Country intranet’ (4 times). Finally, we found 3 *non-personal mechanisms*: the ‘Country intranet’ (4 times), ‘SimISS’ (4 times) and ‘Global intranet’ (3 times). Putting into percentages these numbers, we find a proportion of mechanisms—80%, 20%, 20%—that differs both from the general one (Table 10)—67,5%, 8,6%, 36,6%—and the general for catering—63%, 9,7%, 38,3%. First, FTF and technology-mediated mechanisms are much higher. Non-personal mechanisms are low enough to equate the technology-mediated ones. This same effect—higher proportion of FTF interactions and the same proportion of technology-mediated as non-personal mechanisms—happened to the catering results in the ‘most mentioned’ cluster of data (84,6%, 15,4%, 15,4%). We argue that it responds to a primary identification of the concept of knowledge transfer with FTF interaction in the minds of interviewees. The other mechanisms are considered secondary and auxiliary to the first.

If we attend to their **scope**, we did find 9 referring to **HQ-designed items**, and 6 were **local mechanisms**: ‘Country intranet,’ ‘Personnel transfer,’ ‘Training workers,’ ‘Contacts with clients,’ ‘Experts,’ and ‘Previous experience.’ That proportion—inverse from that found in catering—seems to confirm something we suspected when we did this same analysis on catering (2.5.2.1): cleaning is susceptible of adopting more corporate mechanisms, because it can reach a higher level of standardisation than catering. The same observation we did there about exchanges with other countries among most cited items in catering holds here: there were not repeated references to exchanges with *a particular* country, but in general, the interactions categorised as ‘Abroad’ added up to 22, which means that it was a frequently used mechanism. Here, unlike in catering, India was well represented, with 5 mentions (Spain provided 10 items and UK 7). The fact of the higher number in the case of Spain is easy to explain given their *double* role as receiver and provider of knowledge.

Regarding the high level of coincidence with catering, we could add here that the differing items (7) were almost in the same number than the ones we found in catering (5). Of them, ‘SimISS’⁵¹⁴ and ‘Cleaning Excellence’ obviously could not be found in the other service.⁵¹⁵ However, we did not find any other pattern, as we found none in the distribution among countries, either.

As we did in catering, we will now analyse the **different types of KT mechanisms** used in catering. We need to keep Table 10 present.

FTF INTERACTIONS

Out of 155 items provided by cleaning informants, 97 included some form of FTF interactions (63%). There is a predominance of FTF interactions but, at the same time, the proportion is lower than the one in catering (72,5%). Here are Tables 19 and 20:⁵¹⁶

⁵¹⁴ Exactly the same as in catering, where we found ‘Saffron.’

⁵¹⁵ Some of the other—‘Competence Centres’ and ‘Reference Centres’— could be considered more typical of cleaning only if we make the assumption of a bigger interest in creating *knowledge repositories* in the cleaning service with respect to catering, due to the different nature of both services.

⁵¹⁶ This is a reminder of the types of FTF interactions: 1: one-to-one communication, 2: formal instruction (class-like setting), 3: group interactions/meetings, 4: interpersonal interactions that have some relation to

FTF interactions in cleaning				
Type	In	Sp	UK	Total items
1	3	1	1	5
2	—	—	—	—
3	4	7	4	15
4	11	20	12	43
5	11	12	11	34
Totals	29	40	28	97

Proportion* of FTF mechanisms in cleaning				
Type	In	Sp	UK	Total
1	10,3%	2,5%	3,6%	5,1%
2	—	—	—	—
3	13,8%	17,5%	14,3%	15,5%
4	37,9%	50%	42,8%	44,3%
5	37,9%	30%	39,3%	35,1%

*Percentages calculated with respect to each country's FTF subtotals
Highest results in red

Just the same as in catering, types 4 and 5 were the most represented both in the totals column and in each country's. In India, types 4 and 5 appeared in the same proportion. In Spain and the UK, type 4 was predominant. The similarity between the results in India and the UK is also noteworthy. We will have to continue analysing to find some pattern here.

We will first comment **type 1** FTF interactions. There were only 5 mentions, 3 by India, 1 by Spain and 1 by the UK. 2 of them were related to **HQ-promoted mechanisms**: 1 by India ('Competence centres') and 1 by UK ('Contacts with HQ'). In the first, the informant identified himself as *the* Excellence Centre for cleaning. In the second, the informant referred frequent one-to-one meetings with the HQ Head of Excellence Centres. The remaining items were **local**: 2 by India ('Contacts with clients' and 'Experts') and 1 by Spain ('Technical Manager').⁵¹⁷ Like in catering, we believe that only one-to-one interactions considered relevant were reported.

There were no mentions to **type 2** interactions. In this, both services were quite similar: there was only 1 in catering.

practice, and 5: personal interactions that occur during practice (see 2.4.2.). Note that in this group there are no overlaps.

⁵¹⁷ There was a similar situation in Spain and in India, where there was *one* person as the reference for knowledge-related issues in cleaning. This situation was not viewed as the ideal in Spain, where they wanted to create a team to manage this knowledge.

Regarding **type 3** interactions, there were 15 occurrences, distributed into 4 in India, 7 in Spain and 4 in UK. This distribution is clearly different from that of catering, where meetings were quite relevant in Spain and the UK and there were almost no mentions in India. Perhaps the need for meetings was different in each service, or it had to do with a different level of development of each service (catering was younger than cleaning). 2 entries referred to **relationships with other countries**, both by Spain, who reported contacts with India and Turkey at the TMC. Out of the 7 mentions to **global mechanisms**, 'TMC' was the most mentioned, once in each of the three countries. It was very positively considered, especially for the networking that it fostered. The other mentions were the 'Regional Conference' (India), 'Academy Programmes' (Spain), and 'Advantage Programme' and 'Cleaning Excellence Innovation Team' (UK). They were less in number than the ones for catering, but very similar in nature. Moreover, all of them were mentioned as a way of meeting colleagues. Finally, we found 5 references to **local mechanisms**, all of them very similar: industry meetings (India), meetings with members of the country management team (India and Spain) and, finally, country-wide Conferences (Spain and UK). All of them were the usual type of meetings managers take part in (like the ones in catering).

Type 4 FTF interactions were the most mentioned ones in cleaning, with a total of 43 items. Their distribution followed a pattern similar to the one in type 3: 11 in India, 20 in Spain and 12 in UK. These interactions were the most represented in Spain and the UK (see Table 11). To see if some explanation could be drawn from these results, we gathered the results in one table (Table 21):

Table 21		
Type 4 FTF interactions in cleaning		
India	Spain	UK
Support from UK *	Sourcing from UK (2)*	
	Sourcing from Nordic*	
	Sourcing from Norway (2)*	
	Sourcing from Slovakia*	
	Sourcing from other countries*	
	Supporting France*	
		Sourcing from Australia*
		Supporting Ireland*
		Supporting US*
		Supporting other countries (2)*
Contacts with Region*		
	Supporting Region*	
Support from HQ*		
	Innovation Fair (TMC)*	
		Training from HQ*
Contacts with HQ*	Contacts with HQ*	Contacts with HQ*
	Knowledge Forums (2)*	Knowledge Forums (2)*
	Reference Centres*	Reference Centres*
	Competence Centres (2)*	
Academy Programmes*		
Contacts with clients	Contacts with clients	
Monthly Supervisors Meeting (2)		
Visits to sites (2)		
Supporting managers		
	Contacts with IFS	
	Exchanges within units	
	Technical Management team	
		Contacts with suppliers
		Travelling to sites
*Contacts with other countries and HQ initiatives Coincidences between subsidiaries in red		

We divided the table in two. If we analyse the top section, we will notice that the main differences were between India and the other countries, especially in terms of number of interactions cited. UK and Spain had very similar activities, but the difference, again, is that UK was mainly *source* of knowledge and Spain was mainly *recipient*. The UK already had, at least, one Reference Centre, and Spain were finalizing the details to have some Reference Centres ready. India relied much on their contacts

with the Regional team, something that was not the case in Spain and UK. The mention to ‘Knowledge Forums’ was not in the same direction in Spain and the UK. The first had the handicap of the language, given that they were very specific and they did not have technicians with the appropriate language level, whereas the UK sent different members of the team, depending on the topics. Therefore, (1) in terms of **global or international mechanisms**, we could clearly state that there was a gradation in the incorporation of these mechanisms. Regarding to **local** mechanisms, it seems that India had managed to organise more mechanisms with a repercussion in practice than Spain. Spain was starting to make units exchange more knowledge and was planning to create a Technical Management team in the short-medium term. The UK had already a team that visited the sites and had frequent contacts also with suppliers which provided knowledge. Therefore, (2) paradoxically, although Spain had provided more items than UK and India, we could say that, in terms of type 4 local mechanisms; it was not in the same situation as India or UK.

Finally we will describe our findings about **type 5** FTF interactions: we found 34 items, almost equally distributed among the three countries: 11 in India, 12 in Spain, 11 in the UK (Table 22).

Table 22

Type 5 FTF interactions in cleaning		
India	Spain	UK
Sourcing from Singapore *		
Cleaning Excellence*	Cleaning Excellence (2) *	Cleaning Excellence*
	Contacts with IFS*	Contacts with IFS*
Expatriation*		Expatriation*
	Cleaning Excellence Training*	
	Reference Centres*	
	Support from HQ*	
Training workers (2)	Training workers	Training workers
	Personnel transfer	Personnel transfer (2)
	Experts	Experts
Previous experience	Previous experience (2)	
Mitra (2)		
Planning and Costing Team		
RARE program		
Vocational training		
	Technical Manager	
		Graduates Programme (2)
		Handover of London position
		Partnerships
*Contacts with other countries and HQ initiatives Coincidences between countries in red		

The first thing we can observe is that the coincidences between countries are distributed into the two sections of the table, and not only in the one regarding local mechanisms (which was the case of catering).

When we attended to **global mechanisms**, we found only one reference to a **relationship with another country** by India: ‘Sourcing from Singapore,’ which involved actual training. Regarding **HR-promoted mechanisms**, we found a series of coincidences: ‘Cleaning Excellence’ (in the three countries), Expatriation (in India and UK), and ‘Contacts with IFS’ (in Spain and the UK). It is important to note that (1) the mentions did not all have the same sign: for example, ‘Cleaning Excellence’ was already implanted in UK, but it was being ‘sold’ into the different subunits; in Spain it was finishing its concretion and was in a diffusion phase, and in India, they took from it what they saw could fit in the country. ‘Contacts with IFS’ meant in the UK that cleaning teams contributed closely with IFS for the straightforward cleaning part, according to the Cleaning Excellence standards, whereas in Spain this was still not happening. Moreover, (2) these mechanisms triplicated the number of those in catering. This is not strange if we understand that, being cleaning much more standardisable than catering, HQ processes can reach a lower level of detail, almost to the cleaning operation itself. In catering, informants stated that standardisation could reach hygiene practices, food handling and storage, procurement, but not actual cooking techniques, which were different in each cultural area.

Notwithstanding, it is also understandable that where we found more occurrences of type 5 FTF mechanisms was on the **local mechanisms** side, because practice happened *locally*. They were 22. Again, there were plenty of coincidences across subsidiaries: ‘Training workers’ (in the three countries), ‘Personnel transfer’⁵¹⁸ and ‘Experts’ (Spain and UK), and ‘Previous experience’ (India and Spain). Moving employees and the identification of experts was something described as already happening in the UK, whereas in Spain it was beginning to be done (in some cases, in training experiences of short duration). To these, each country added according to their needs. Again, it appears that India and UK had more mechanisms of their invention than Spain.

⁵¹⁸ We used ‘Personnel transfer’ to mean moving employees across the country, as opposed to expatriation.

If we compare types 4 and 5 we can extract some interesting information: (1) the ratio between corporate vs. local mechanisms in types 4 and 5 was inverse both in catering and cleaning, with a predominance of global mechanisms in the former and the opposite in the latter. This is because HQ generally concentrated their effort in mechanisms of type 4, i.e., they reached the ‘train the trainer’ level, but then it was up to each country to effectively apply all the different procedures in the way more fitting. (2) This effect was found in both catering and cleaning, but in cleaning there were comparatively more global mechanisms in both types 4 and 5. The reason is, again, the more standardisability of cleaning, which made it possible to set more global standards for this service. (3) As before said, comparing the *totals* of catering and cleaning, we found that in the former, type 4 represented the 31% of cited mechanisms and type 5 the 37%. In cleaning, on the contrary, type 4 were the 44% of mechanisms and type 5 the 35%. This also responded to what we had expected in H2. (4) Regarding the different distribution by country of catering and cleaning items between types 4 and 5 FTF interactions, we suggested an explanation in 2.5.2.1 and will deal with this issue again in 2.5.3.3., at the end of the analysis by country.

TECHNOLOGY-MEDIATED INTERACTIONS

The number of total technology-mediated interactions that were mentioned in the cleaning service (15) represented 9,7% of the total items in cleaning. The proportion was slightly superior to the one in catering. Table 23 displays the results for this cluster.

Table 23				
Technology-mediated interactions in Cleaning				
Type of interaction	In	Sp	UK	Total items
Synchronous	3	4	—	7
Asynchronous	1	2	5	8
Totals	4	6	5	15

At first sight, similarly to catering, totals of each type of technology-mediated interactions were almost the same (7 and 8, see Table 15), but if we compare the proportions, we’ll find a totally different distribution.

Let us see first the results for **synchronous interactions**: there was 1 mention to ‘**Contacts with other countries**’ (India) and 4 that included **HQ-promoted mechanisms**: ‘Contacts with Region’ and ‘Skype’ (India) and ‘Knowledge Forums’ (conferences) and ‘Support from HQ’ (Spain). There were 2 items related to **local interactions**: ‘Calls’ to experts and ‘Contacts with suppliers’ (Spain). It is remarkable that UK did not provide any item, and this confirms us the fact that these interactions, especially the simplest ones, were taken for granted. During the researcher’s visits to UK offices, she could observe a great deal of synchronous communication, be it via phone calls, be it by instant messaging (WhatsApp).

Regarding **asynchronous interactions**, 2 referred to **relationships with other subsidiaries**: ‘Supporting Argentina’ and ‘Thailand’ via emails (UK). Other 3 belonged to the **HQ strategy**: the ‘Global intranet (SharePoint)’ forums in India, ‘Supporting HQ’ in Spain, and ‘Contacts with peers’ (via the Cleaning Excellence site) in UK. There were 3 entries of **local initiatives**: frequent ‘Emails’ from HQ (Spain), and, ‘Country intranet’ (email account for suggestions) and ‘Supporting clients’ (email) in the UK. From here we could underscore the insistence of Spain in the communication with HQ, either responding to requests of support or reminders of pending tasks. India benefitted from the discussions in the global site, whereas in the UK it seemed to be an activity both in support of other subsidiaries and internal communication. This, again, seems to point at different stages of development of the subsidiaries, especially in cleaning.

NON-PERSONAL MECHANISMS

We will finally comment non-personal mechanisms, of which we found 59 citations (38,3%). The proportion is slightly higher than that in catering (35,5%). 50 of them referred to IT-based mechanisms, and 11 to paper documents. That means that there were 2 overlaps. Tables 24 and 25 show the results.

Table 24				
Non-personal mechanisms in Cleaning				
Type of mechanism	In	Sp	UK	Total items
IT type 1	9	4	2	15
IT type 2	5	9	8	22
IT type 3	4	6	3	13
Total IT	18	19	13	50
Total Paper	6	2	3	11

Table 25				
Proportion* of IT-based mechanisms in Cleaning				
Type of mechanism	In	Sp	UK	Total
IT type 1	50%	21%	15,4%	30%
IT type 2	27,8%	47,4%	61,5%	44%
IT type 3	22,2%	31,6%	23,1%	26%

*Percentages calculated with respect to the subtotals in each country
Highest result in red

The first thing we can comment on these tables is that the proportion between IT-based mechanisms and paper/physical documents is similar to the one in catering, only the first percentage is slightly lower and the second slightly higher in cleaning. The second remarkable difference is the predominance of type 2 items in the totals and in Spain and UK, especially in the latter (in catering, it was type 1, see Tables XX and XXI)

We found 15 mentions to **type 1** of IT-based mechanisms, more than half of them reported by Indian informants. 4 of them referred to contacts with other countries, all of them reported by India. In this there was a clear difference with respect to catering, and the reason here seems to be the greater growth of their cleaning services with respect to their catering services. Three of them (‘Contacts with other countries,’ ‘Sourcing from Malaysia,’ and ‘Sourcing from Singapore’) regarded the exchange of documents and one, the reception of training videos that were adapted (‘Sourcing from other countries’). Other 5 mechanisms were related to **HQ-devised mechanisms**. 2 were provided by India (‘Contacts with HQ’ in the form of documents and the weekly document ‘Global News alert’), 2 by Spain (‘Cleaning Excellence’ manuals and a report ‘Supporting HQ’), and 1 by UK (‘Knowledge Forums’ documentation). Finally, 6 mentions went to **local** mechanisms: 3 of them in India (‘Local news alert,’ ‘Operations Process presentation,’ and ‘Videos’ for training), 1 in the UK (‘Videos’ with technical procedures) and 2 in Spain (‘Presentations for clients’ and ‘Tupper News,’ the internal magazine). The proportion of local mechanisms vs the rest was slightly lower in cleaning (40%) with respect to catering (45%). Although the difference is minimal, it may respond to the differences local/global we detected in other parts of this analysis.

As we said before, **type 2** mechanisms were the most numerous. 11 regarded **corporate mechanisms**: 3 by India, 4 by Spain and 4 by the UK. The most cited ones were the ‘Global Intranet (SharePoint)’ as a documents repository (3 times, 1 by India and 2 by Spain), the ‘Customer Experience survey’ as a successful source of data (twice, by India and UK), and, likewise, the ‘Staff Survey’ (twice, UK). Other mechanisms were the TMC (India), the ‘Cleaning Excellence Master Plan’ (Spain), the SharePoint Team Rooms (Spain), and the suggestion of a ‘Wikipedia-like tool’ (UK). The global intranet and the staff survey were also among the most cited in cleaning. The other 11 were **local mechanisms**: 2 in India, 5 in Spain and 4 in UK. Among them, the most cited was a ‘Country intranet’ as a documents repository (4 times, 1 in India, 1 in Spain, and 2 in UK). Spain cited ‘Access’ and ‘Excel sheets’ as ways of storing data that had to be eradicated, the project of a ‘Collaboration area,’ and an attempt of creating an ‘Experts list.’ In India, all the data regarding the ‘Vocational training’ project were in the web of the Ministry. UK provided a suggestion of using ‘Social networks’ to manage all internal contacts worldwide, and the ‘Staff tracking tool,’ still in testing.

We detected (1) that the UK had already managed to unify the data in one platform and were struggling to make all the information organized and available. Spain was still in the process of integrating dispersed data. India reported having all their documents in the country intranet, but, for what the researcher could see, they needed to unify the formats and give all the materials a corporate unified image. (2) The list had in common with catering that they also cited the respective country intranets, and also the concern to get rid of non-sharable ways of storing data such as Excel sheets. (3) The proportion of global mechanisms was between 47% and 60% in the three countries, whereas in catering it was lower, which, again, talks about the higher facility of using standard systems in cleaning.

We will now comment on **type 3** IT-based mechanisms. Among them, we found 6 **HQ-promoted mechanisms**. ‘SimISS’ was cited in India, Spain (twice) and the UK. As above explained (2.2.4.), both India and Spain had difficulties in applying SimISS, whereas in UK it was in full use (they even used the benchmarking aspect to anticipate clients’ needs). There were also generic mentions to the different systems of the company by India and Spain. They agreed in that these systems were more robust but, at the same time, one Spanish informant noted that the new systems had brought along

more permissions and barriers. 7 were **local mechanisms**: some of them, such as the ones mentioned by India (2) and Spain (2), aimed to complement (Spain) or even substitute (India) the SimISS. Others were monitoring systems mentioned in the UK ('Quality monitoring system' and 'Time and attendance system,' both in use) and Spain ('GMAO', in project). It seems that India still were not planning to incorporate such on-site monitoring systems. Therefore, we can venture to see here also a sort of gradation. If we compare to catering, India here provided more items, and, in general, there were more mentions to corporate systems. In accordance with what we already noticed, the use of systems is very much related to the level of standardization of the service.

Finally, we have **physical documents**. They were mentioned in a higher number than catering (11 vs 7). None referred to **relationships with other countries**, which probably did not reflect reality, because we have reasons to suppose that part of the documents shared between countries were physical. 5 of them referred to **HQ-promoted mechanisms**. For example, Indian informants reported taking many booklets and documents at the 'TMC.' Spanish interviewees mentioned the many paper documents of 'Cleaning Excellence' and different materials received at the 'Innovation Fair.' Finally, British informants alluded to a great amount of materials brought from the 'Advantage Programme' and the excessive amount of pages of the first Cleaning Excellence 'Training from HQ' project back in time. We did find evidence of 6 different types of materials related to **local strategies**. UK provided 1 of them, while India 5. The former gave up collecting their practices in 'Written documents' and used SharePoint instead. Indian informants used physical documents in their 'Contacts with clients,' with the 'Site Quality Manuals' (twice mentioned), brochures such as the 'Home Care brochure' and, finally, used 'Industry magazines' to spread their practices. This predominance of India in physical documents is consonant with what the researcher experienced. Indian informants provided her with a good quantity of written materials, such as brochures, cards, internal magazines, manuals and so on, which were very helpful for the documentation phase.⁵¹⁹ At lower levels, such as supervisors', the use of paper was more predominant than in other subsidiaries, and that responded to the educational level of employees and their accessibility to technologies.

⁵¹⁹ It is also true that they were the most generous in terms of digital documents.

2.5.3. RESULTS FROM THE ANALYSIS BY COUNTRY

We will now analyse the results by country. Our purpose is to obtain more detail about the services of catering and cleaning in each country and find further confirmation—or eventual refutation—for the indications we found in the previous two sections (2.5.2.1, 2.5.2.2.). Therefore, our review will be careful but briefer: we are not interested in repeating already investigated matters. Also for this reason, we will present the tables and we will only note those things that are remarkable or puzzling with regards to what it has already been fathomed.

First of all, we will present the total results for all three countries, split into catering and cleaning (Table 26).

Table 26

	Catering	Cleaning	Totals
India	19	47	66
Spain	51	61	112
UK	68	46	114
Totals	138	154	292

It is just the reverse of Table 8, which was discussed at the beginning of 2.5.1. but it shows our change of perspective.

We also need to see how data from each country were distributed by KT mechanisms. This is displayed in Table 27:

Table 27

	FTF (67,5%)	Technology-mediated (8,6%)	Non-personal (36,6%)
India (66)	44 (66,7%)	5 (7,6%)	29 (43,9%)
Spain (112)	78 (69,6%)	9 (8%)	38 (33,9%)
UK (114)	75 (65,8%)	11 (9,6%)	40 (35,1%)

There was obviously a pattern, but also differences among countries.

As for the **pattern**, if we compare this table to Table 10 (2.5.2.), we can observe that partial results keep constant in the attribution of more weight to FTF interactions, then non-personal mechanisms, and, finally, technology-mediated mechanisms. Therefore, the pattern is the same across countries and services. We argue that the culture of the company as a whole may have influence on these results. In every country, the entry mode has been by acquisition of companies that (1) had a good reputation and position in the local market, and (2) showed some traits that made them more suitable to the ‘ISS’ way of conducting the business. We have above noted how in some interviews, when asked about the changes they had to undergo after being acquired by ISS, interviewees stated that they had changed very few things or that “we went on doing the same things.” This did not mean disregard for the corporate framework, which was obviously new (and sometimes difficult to integrate), but it portrayed that the view of the business, notion of quality, code of ethics, relationships between peers and with lower ranks and similar things did not need to change, because the acquired organization had been chosen because it shared these same views with the parent company. Therefore, we suggest that these traits account for the split between preferred KT mechanisms.

Regarding the **differences**, we could note, for example, that those that had lower FTF interactions (India and UK), had more non-personal interactions. This was significant since each mechanism’s percentage had been measured independently from the others, with respect to each country’s total number of items. In a different fashion, in technology-mediated mechanisms, we could see an ascendant order from the youngest to the oldest subsidiary. This may be congruent with the level of use of technologies (a sign of maturity) in the industry in each country. We will have to put together all data to conclude something more solid from these observations.

For the analysis by country, we will follow the order from the youngest to the oldest subsidiary—as on Table 27—, which also coincides with an increasing quantity of data to be analysed.

2.5.3.1. RESULTS IN INDIA⁵²⁰

For the sake of brevity, we will only review results for each type of KT mechanism.

FTF INTERACTIONS IN ISS INDIA

44 of 66 (66,7%) items were mentioned by Indian informants included some form of FTF knowledge-sharing mechanisms. Results referring to this cluster are presented in Tables 28 and 29:

Table 28			
FTF interactions in India			
Type	Ca	CI	Total items
1	2	3	5
2	—	—	—
3	1	4	5
4	1	11	12
5	11	11	22
Totals	15	29	44

Table 29			
Proportion* FTF interactions in India			
Type	Ca	CI	Total
1	13,3%	10,4%	11,4%
2	—	—	—
3	6,7%	13,8%	11,4%
4	6,7%	37,9%	27,2%
5	73,3%	37,9%	50%
*Percentages calculated with respect to each service Highest results are in red			

We can observe the predominance of types 4 and 5, especially the latter in catering. In cleaning, both types are equally represented.

Regarding **type 1**, we found few items, just 5. Almost all of them referred to one-to-one conversations with relevant people in the organization: the ‘Chief Learning Officer’ and ‘clients’ (to elaborate menus) (catering), the ‘HQ Head of Excellence Centres’, some ‘Experts,’ and the ‘FS Head’, who identified himself as the excellence centre for cleaning (cleaning). Almost all of them referred to **local** mechanisms. There were no remarkable differences, except that that the two **global** mechanisms appeared in cleaning.

There was not mention to **type 2** interactions.

⁵²⁰For the history and peculiarities of this subsidiary, see 2.2.4.3.

Among **type 3 mechanisms**—meetings and teams—we found that only the ‘TMC’ was cited by both teams. The catering informant said he had not attended any (he had been recently appointed). All the other mechanisms were cited by cleaning: the ‘Region Conference,’ ‘industry: FS Forums’ (in which they took part), and group ‘meetings with the CEO.’ We could conclude that this kind of mechanisms was considered worthy of mention by the cleaning informants.

The list of **type 4 FTF mechanisms** was considerably larger. It contained 12 entries. The only mechanism cited by the catering team was the ‘Knowledge Forums,’ of which the informant was aware and from which he expected to draw ideas to offer their clients. Cleaning informants also cited this mechanism, but it seems that they could draw from them more information, for example, regarding machines, equipment and cleaning products, procedures and so on. Among the mechanisms cited by cleaning, 7 were related with the Group strategy, such as ‘contacts with’ and ‘support from HQ’ and ‘from the UK,’ various ‘Academy Programmes,’ and the ‘support to local managers’ from the Country management team to deal with global contracts. The rest were **local** initiatives: ‘contacts with clients,’ the ‘monthly Supervisors Meeting’ (mentioned twice) and impromptu and scheduled ‘visits to sites’ (twice).

Finally, we analysed **type 5 FTF interactions**. This was the largest group, with 22 occurrences, equally distributed between the two services. Catering informants cited only 1 referring to **relationships with other countries**: the ‘contacts with Israel’ (which, as explained in 2.5.2.1., led to no result) and so did cleaning: ‘Sourcing from Singapore.’ Catering added 1 mechanism responding to **HQ-supported initiatives**: ‘contacts with other services’ in order to cross-sell. Cleaning mentioned other 2: ‘Cleaning Excellence,’ and ‘expatriation.’ Regarding **local** mechanisms, the number remained almost equal, but there were differences regarding the mechanisms: those mentioned by cleaning appeared to be more institutionalised, such as ‘RARE’, the function of the ‘*mitra*’ (twice), ‘vocational training,’ and the ‘Planning and Costing Team,’ and ‘training workers’ in general (twice). The latter were also cited by catering, but among catering items we could find more references to individual and collective experience, and also their ‘standard procedures (local)’ and ‘outsourcing logistics’ for food distribution.

Some observations: (1) The emphasis of cleaning in diverse training and development mechanisms is understandable since catering hired skilled workers and trained them in the ‘ISS way’ of doing a job they already knew. (2) In any case, it is important to note that RARE and the *mitra* system were in use in all the divisions in India, not only in cleaning, which also marks a difference between the two services, because these mechanisms were *not mentioned* by catering informants. (3) In addition, Cleaning Excellence was being adapted into “an Indianised form”, in words of an informant, whereas it seemed that the catering team did not have the same perception of Catering Excellence. We could conclude that, although type 5 were the most mentioned in catering, there were clear differences between the approaches in the two services. We argue that these differences were both due to the different types of job and also the different stages of development of the two.

TECHNOLOGY-MEDIATED INTERACTIONS

We will discuss now these other personal interactions. They were scarcely represented among the data we found in India. Only 5 items out of 66 (7,6%) were mentioned. Here are the results (Table 30)

Table 30			
Technology-mediated personal interactions in India			
Type of interaction	Ca	CI	Total items
Synchronous	1	3	4
Asynchronous	—	1	1
Totals	1	4	5

Looking first at **synchronous** mechanisms, we found only 1 item by catering: ‘Knowledge Forum conf call,’ whereas catering contributed with periodic ‘contacts with Region,’ ‘contacts with other countries’ and ‘Skype’ with peers from diverse courses. Again, the distribution clearly shows a higher frequency of contacts with other colleagues abroad on the cleaning side, which may be explained by the difference in terms of tenure and position between the informants of both services.

There was only 1 mention to **asynchronous** interactions: ‘Global intranet (SharePoint),’ whose forums were used by the informant. This was a use that certainly catering did not report.

NON-PERSONAL MECHANISMS

We found 29 entries corresponding to these mechanisms, which made 43,9% out of 66 entries. Of them, 24 reported the application of some technology to knowledge-sharing. Tables 31 and 32 show the results:

Table 31			
Type of mechanism	Ca	CI	Total items
IT type 1	3	9	12
IT type 2	1	5	6
IT type 3	2	4	6
Total IT	6	18	24
Total Paper	—	6	6
Non-personal mechanisms in India			

Table 32			
Proportion* of IT-based mechanisms in India			
Type	Ca	CI	Total
IT type 1	50%	50%	50%
IT type 2	16,7%	27,8%	25%
IT type 3	30,3%	22,2%	25%
*Percentages calculated with respect to the subtotals in each service Highest results in red			

We will first comment on **IT-based mechanisms**.

The high proportion of **type 1** in both services talked about the importance given to the exchange of documents. Notwithstanding, it is most interesting to look at *what* mechanisms were mentioned. First of all, it is important to remark that all the 6 mechanisms that referred either to exchanges with other countries or HQ-promoted initiatives appeared all on the side of cleaning: documents sourced from Singapore, Malaysia and other countries (including videos), reports to HQ and the reception of the periodical ‘news alert (global)’. Regarding **local** mechanisms, catering mentioned the ‘Standard Procedures (local),’ ‘contacts with clients’ (who weekly received the menus), and ‘videos’ for training. These were also used by cleaning, who added the ‘news alert (country),’ copied from the global one, and the ‘Operations Process presentation’ (for the implementation of FS in a new site). Again, the degree of extension and maturity of the service inside the subsidiary seems to play an important role in the distribution of results.

The list of **type 2 mechanisms** was shorter: 6 items, of which only 1 was provided by catering, the ‘lists of data’ from other subsidiaries that the informant had just started collecting. On the contrary, cleaning referred databases from the ‘TMC’ and on the ‘global’ and ‘country intranet,’ the global ‘Customer Experience survey,’ and a complete database on the ‘vocational training’ performed with the MoRD to be found in internet. Therefore, the three mechanisms regarding the **global strategy** appeared in the cleaning data. Again this showed that cleaning had developed the facet of databases and similar systems of collecting data further than catering.

Then we analysed **type 3 IT-based systems**. They were also 6 and, again, we found more of them on the cleaning cluster. Catering twice mentioned a system for calculation and reporting—part of the ‘Zero Totals Policy’—, whereas cleaning cited ‘Planning and Costing Team’ systems (created to replace the SimISS), the ‘CCB Track Sheet’ (which was integrated in the former), ‘SimISS’ (which could not be applied because of the differences between India and European countries) and the global ‘SOPs.’ The two latter were part of the **group mechanisms**, and this was a clear difference between cleaning and catering. The other was that catering did not use an integrated system for menus and suppliers, whereas cleaning had created a system that integrated calculation of spaces, hours and wages.

Finally, we examined KT mechanisms that included some **physical document**. Indian interviewees provided—in some cases, even handed out to the researcher (see 2.3.2.2.)—also 6 items of this type, all of them related to the cleaning division: the documents and booklets of the ‘TMC,’ ‘contacts with clients’ (in which they received the Site Quality Manual and other documents), the ‘Homecare brochure,’ ‘Industry-related magazines’ and the ‘Site Quality Manual’ itself (twice presented to the researcher). It is important to remark that physical documents were mentioned in the same number by the three subsidiaries, but their relative importance in the Indian one seemed to be higher. We already mentioned our observations regarding this point (2.5.2.2.), and also our opinion about the lack of items from catering (2.5.2.1.).

2.5.3.2. RESULTS IN SPAIN⁵²¹

We will now move on to Spain, and we will start by FTF personal interactions.

FTF INTERACTIONS IN SPAIN

Spain provided to our research a total of 112 entries, of which 78 (69,6%) referred to interactions in which all interlocutors were physically present. In Spain, the proportion of this kind of interactions was the highest between the three subsidiaries. Maybe some cultural trait could influence this difference—the two collectivist countries (Spain and India) rated higher than the individualist one—, but we consider that the differences are not so big to be conclusive. Results are showed in Tables 33 and 34:

FTF interactions in Spain			
Type of FTF	Ca	CI	Total items
1	3	1	4
2	—	—	—
3	10	7	17
4	9	20	29
5	16	12	28
Totals	38	40	78

Proportion* of FTF interactions in Spain			
Type	Ca	CI	Total
1	7,9%	2,5%	5,1%
2	—	—	—
3	26,3%	17,5%	21,8%
4	23,7%	50%	37,2%
5	42,1%	30%	35,9%

*Percentages calculated with respect to the subtotals in each service
Highest results are in red

In putting together these results, we could observe that, with respect to India, the relative relevance of type 4 mechanisms in cleaning and type 5 in catering was clear in Spain (in totals, there were similar percentages). We paid attention to the absolute numbers (Table 33) and we noticed that there were *more* mentions to all mechanisms in catering, but the big difference with cleaning was in *type 4* interactions, where cleaning more than doubled catering. This indicated us that we needed to look at these FTF interactions carefully.

⁵²¹ For the history and peculiarities of this subsidiary, see 2.2.4.2.

We found in **type 1** references to key persons such as ‘Experts,’ and the ‘HQ Head of Excellence Centres’ (twice) in catering, and the ‘Technical Manager’ in cleaning. Here, the reference to **HQ** appeared in catering.

Like in India, there were no references to **type 2 FTF interactions**.

Regarding **type 3** contacts, the first thing we detected was a majority of references to **international meetings** of diverse kind in both services. Catering mentioned meeting the UK members at the TMC (which appeared twice in this service), and other occasions of meeting colleagues such as the ‘Academy Programmes,’ the ‘Advantage Programme,’ and the ‘Hygiene Manual Team.’ In cleaning, we could find meetings with the India and Turkey peers at the TMC, as well as, again, the ‘Academy Programmes.’ There were also **local** events in which to meet other colleagues. Catering mentioned the country-level ‘Catering meeting,’ the ‘Spain Convention’ and meetings with the Country management team and with employees. Cleaning also referred the ‘Spain Convention’ (twice), and the ‘Division Directors meeting.’ Both services followed a similar pattern but the type of meetings mentioned was slightly different: catering seemed to report at least two meetings in which employees of lower levels were reached. We could remark a good representation of international events on both sides.

The number of entries regarding **type 4 FTF interactions** was much higher and as above noted, quite uneven: 9 in catering, 20 in cleaning. Concretely, that made exactly half of the FTF interactions mentioned in cleaning. A closer look at the data showed that in both services there was a much higher representation of **interactions with other countries** and HQ-promoted mechanisms. Regarding the first, catering mentioned, for example, ‘Exploring Israel’ and the ‘UK,’ ‘Sourcing from the UK,’ and ‘Supporting UK’ and ‘Mexico’. Cleaning provided a larger but very similar list: they sourced from the UK, Nordic countries, Norway (twice), Slovakia and other countries, they supported France and the Region when they were asked for, and they referred ‘Contacts with HQ’. Regarding **HQ-promoted mechanisms**, cleaning referred the ‘Innovation Fair’ and the ‘Knowledge Forums’ (twice), both mentioned the same number of times by cleaning informants, who also added their preliminary ‘Contacts with IFS’ (to align the cleaning delivery). Catering, as a **local** initiative, cited the ‘Support from clients’ (in shaping the Education business). Cleaning, and this was the clearest difference with respect to catering, provided a list of different mechanisms that they were starting to incorporate,

such as the ‘Reference Centres’ (twice), and ‘Exchanges between units,’ and two related projects: the creation of ‘Competence Centres’ and in a shorter term, that of a ‘Technical Management Team.’ To them, they added ‘Contacts with clients’ (to match demand and offer). We argue that the difference in number in all clusters between catering and cleaning was especially due to the different sizes of the divisions and also the more recent creation of the catering division, which had just finished a difficult integration, and not so much to the degree of sophistication of the different mechanisms. In fact, catering had already solved their relationships with IFS (see analysis type 5 below), and counted with a Technical and Development Director and a Quality Manager (d-document 120401).

We will close the analysis of FTF interactions with **type 5 mechanisms**. The number was also high (28) and more evenly distributed: 16 for catering and 12 for cleaning. In terms of relative importance, they represented 42,1% of all the FTF mechanisms, of which a clear majority were locally designed mechanisms. Indeed, the number of mentions of **initiatives launched from HQ** was almost the same in both services. Catering mentioned the ‘Catering Excellence’ practices, the global ‘SOPs’ (twice) and the support they offered to IFS. Cleaning mentioned the ‘Cleaning Excellence’ practices (twice) and training, the support they received from HQ (in training and follow up) and that which they still did *not* provide to IFS. The parallelism was quite clear. As for **local mechanisms**, they were also very similar: transferring people,⁵²² ‘Previous experience,’ ‘Experts,’⁵²³ and ‘Training workers’ appeared in both services. Catering added ‘Personal experience,’ ‘Standard processes (local),’ ‘Partnerships,’ and ‘Vocational Training.’ Cleaning provided ‘Reference Centres’ used for training and the training provided by the ‘Technical Manager.’ Cleaning did not refer to standards because they were comprised by Cleaning Excellence, which had been on for longer than Catering Excellence. Catering Excellence was mentioned only at the end of the interview, at the interviewer’s demand, as the programme embracing the mechanisms discussed before. In any case, it seems clear that catering showed more focus on type 5 mechanisms, which is consistent to what we hypothesised (H2).⁵²⁴

⁵²² Once in cleaning, twice in catering.

⁵²³ Once in cleaning, twice in catering.

⁵²⁴ We already commented on this in 2.5.2.2., when we finished analysing FTF mechanisms in cleaning.

TECHNOLOGY-MEDIATED INTERACTIONS

The 9 items we found in this cluster represented 8% of total mechanisms. The distribution is showed in Table 35:

Technology-mediated interactions in Spain			
Type of interaction	Ca	Cl	Total items
Synchronous	2	4	6
Asynchronous	1	2	3
Totals	3	6	9

We could observe that the proportion synchronous/asynchronous was the same in catering and cleaning.

The **synchronous** mechanisms mentioned by them were also very similar: ‘Knowledge Forums’ conferences were found once in each. Catering added incipient ‘Videoconferencing’, and cleaning provided ad hoc ‘Support from HQ,’ ‘calls’ (asking for information on experts), and ‘contacts with suppliers’ (informing on experts). Altogether it showed a variety of channels.

As for the **asynchronous** group, we found one mention to ‘SharePoint Team Rooms’ (catering) and ‘emails’ from HQ for follow up and ‘Support to HQ’ in response to other emails.

We could not conclude much from these results for what refers to differences between catering and cleaning.

NON-PERSONAL MECHANISMS

There were a total of 38 mentions to non-personal mechanisms of knowledge-sharing, which made 33% of the cleaning items. We gathered data in Tables 36 and 37:

Table 36			
Non-personal mechanisms in Spain			
Type of mechanism	Ca	Cl	Total items
IT type 1	9	4	13
IT type 2	3	9	12
IT type 3	5	6	11
Total IT	17	19	36
Total Paper	4	2	6

Table 37			
Proportion* of IT-based mechanisms in Spain			
Type	Ca	Cl	Total
IT type 1	52,9%	21%	36,1%
IT type 2	17,7%	47,4%	33,3%
IT type 3	29,4%	31,6%	30,6%
*Percentages calculated with respect to the subtotals in each service Highest results are in red			

By the totals we discovered that there were 4 overlaps between both types of non-personal mechanisms. Another thing that appeared clear was that, if in India type 1 of IT-based mechanisms was the most relevant both in cleaning and catering, in Spain that happened only in catering, whereas in cleaning it was type 2. Another difference was that in Spain there were six times more items regarding IT-based mechanisms than physical mechanisms, and in India it was only four. If we looked at totals, there was almost an equal distribution among the three types, which did not happen in India, with a clear superiority of type 1. It was possible that differences in the use of technologies in these services in each country explained these results.

As always, we will start by discussing **type 1 mechanisms**. They were 13, with a clear predominance of catering, as above said. Looking at the **scope** of the mechanisms, we found, first of all, that all 9 items cited by catering were used either in exchanges with other countries or in relation to **HQ-promoted mechanisms**. Documents used in ‘Exchange with’ and ‘Sourcing from UK,’ ‘Knowledge Forums,’ ‘Academy Programmes,’ others issued by the ‘Hygiene Manual Team,’ and compilations such as the ‘Catering hygiene best practices’ or the ‘NOSE manual’ and other ‘Documents’ were referred. On the contrary, catering presented documents from the ‘Cleaning Excellence’ and others sent in support to HQ, and also cited **local** items such as ‘Presentations for clients’ and the internal magazine ‘Tupper News.’ It seems that the catering division was much busier at the documentation phase than the cleaning division, which already had the databases but were more worried with accessibility and diffusion. In India, by contrast, catering was in local growth-to internationalisation phase, and cleaning was finishing their documentation phase. This could explain the

differences in distribution of types 1 and 2 mechanisms between the two countries. We will need to examine results regarding type 2 and UK to be sure of these intuitions.

Type 2 mechanisms were 12. Here the distribution was inverse: Spanish cleaning informants reported here 47,4% of their total number of IT-based mechanisms. Catering informants provided two mentions to the new 'SharePoint Team Rooms' databases, and the 'Procurement portal' that they borrowed from cleaning. Cleaning interviewees also mentioned using the 'SharePoint Team rooms' and other **global mechanisms** such as the 'Cleaning Excellence Master Plan' and the global intranet (twice). They mentioned the lack of time to consult all the documents loaded there. To these, cleaning added **local** ways of storing and retrieving information, such as 'Access' and 'Excel sheets,' the 'Country intranet', an attempt to create an 'Experts list' and the project of a 'Collaborative area' in the country intranet. In this kind of mechanisms, it appeared that cleaning had reported more diversity both globally and locally, which in part could confirm what said in type 1.

We found 11 **type 3 IT-based** mechanisms. The distribution among services was almost even, and looking at the items, it seemed at first sight that they were also at a similar level of development. When we looked at **international mechanisms**, we found that catering mentioned 'Exploring Israel' systems, but they did not approach them, and they acknowledged that there were not so many 'SOPs' in catering as in cleaning because of the differences in standardisability of each service. Catering cited twice the 'SimISS' (twice) and the problems they experienced in implanting it, and the administrative tools contained in the 'Standard Procedures Frameworks.' **Locally** adapted systems appeared in both sides: catering mentioned their knowledge of 'Saffron' but their trials with 'FSMax', and cited other 'IT tools'. Cleaning talked extensively about 'AplEs' (twice) the system they ideated to complement SimISS, and the project of using 'GMAO.' Therefore, catering had not been provided by HQ with the same programs for operations as cleaning, and cleaning had difficulties in adopting the group-provided one. Both, therefore, were still actively looking for the ideal, all-purpose system.

The last group of items to be examined were **paper or physical documents**. They were in equal numbers as India, but much lesser in importance. In any case, it seems that even in the era of new technologies, paper was still in use. All the items (2)

provided by cleaning—‘Innovation Fair’ and ‘Cleaning Excellence’ documents—and by catering (3)—‘Exchanges with’ and ‘Supporting UK,’ and ‘Knowledge Forums’ documents—were part of the **group strategy**. The rest of the **local** mechanisms were ‘Contacts with clients’ that meant handling of documents, by catering informants. We are not sure that the predominant numbers of catering were a reflection of a real prevalence.

2.5.3.3. RESULTS IN UK⁵²⁵

Last, but not least, we will study the results yielded by the UK, the oldest and most developed subsidiary. British informants provided 114 items. As before said, UK showed the lowest proportion of FTF interactions and the highest of technology-mediated interactions.

FTF INTERACTIONS IN UK

75 of 114 entries (65,8%) mentioned by UK informants included some form of FTF interaction. Results in this cluster are represented in Tables 38, and 39:

Table 38			
FTF interactions in UK			
Type of FTF	Ca	CI	Total items
1	2	1	3
2	1	—	1
3	13	4	17
4	21	12	33
5	10	11	21
Totals	47	28	75

Table 39			
Proportion* of FTF interactions in UK			
Type	Ca	CI	Total
1	4,3%	3,6%	4%
2	2,1%	—	1,3%
3	27,6%	14,3%	22,7%
4	44,7%	42,8%	44%
5	21,3%	39,3%	28%
*Percentages calculated with respect to the subtotals in each service Highest results are in red			

⁵²⁵ For the history and peculiarities of this subsidiary, see 2.2.4.1.

The first thing we could see was the predominance of type 4 of FTF interactions in both services. Thus, we found that: (1) in India, it was clearly type 5 for catering and types 4 and 5 equal for cleaning, (2) in Spain, it was type 5 for catering and clearly type 4 for cleaning. Finally, (3) in UK we find type 4 for each service. We found these distributions quite interesting—at least visually, it suggested some sort of progression—and we tried to find an explanation that could fit all three. In 2.5.2.1., we suggested that, at least for catering, it seemed that once procedures had been well established, the subsidiary focused its efforts on other ways to diffuse best practices that did not need an on-the-job training (i.e. a sort of train-the-trainer approach), which are those in type 4. We could apply the same logic to cleaning and see the differences between both services as ascribable to the different standardisability between cleaning and catering (H2). That meant that the passage from 5 to 4 is easier for cleaning. This explanation had the additional advantage of being consistent with what we discovered about the distribution of global vs. local mechanisms between the different countries (2.5.2.2.). We do not discard, however, that these differences responded other idiosyncratic properties of each subsidiary.

Looking at **type 1 interactions**, we found only 3 items: ‘Contacts with Spain’ and ‘with employees’ in catering, and ‘Contacts with HQ’ in cleaning.

In **type 2** the only mention of this study appeared: it referred to the ‘University Programmes.’

We found 17 items that included **type 3 interactions**: 13 for catering and 4 for cleaning. It was the same number as in Spain and with a similar distribution, slightly more uneven (10 to 7 in Spain). 10 of them corresponded to **mechanisms promoted by HQ**. For catering, the ‘Executive development programmes’ (twice), ‘Seminars,’ the ‘Value Proposition Team’ and the ‘TMC’ (thrice) were discussed. Cleaning mentioned fewer mechanisms: the ‘Cleaning Excellence Innovation team,’ the ‘Advantage Programme’ and the ‘TMC.’ To these, cleaning only added 1 **local** mechanism: the ‘UK Conference’, whilst catering cited ‘Contacts with other catering divisions,’ ‘Customer surveys’ which were prepared teaming up with customers, the ‘Employees Forum,’ ‘Regional Road Shows,’ ‘UK Catering Division Conference’ and other ‘Meetings.’ This clear difference made us think that, in terms of meetings and

networking events, the catering division had created a great diversity.⁵²⁶ We are not sure of what it may mean for cleaning, but it seemed to us that it had something to do with the higher skills required for their jobs, which allowed catering employees of all levels to interact and learn from each other in this kind of meetings. Going back to Spain, a similar explanation could account for similar results.

Type 4 interactions were the most numerous, with 33 items, with a clear majority by catering (21). Interestingly enough, this did not affect the fact that both services reported a similar predominance of type 4 mechanisms (see Table XLIX), i.e. type 4 interactions were also proportionally the most relevant for the service that had reported less items (cleaning).⁵²⁷ 13 of them referred to **interactions with other countries**. Also in these, catering provided more examples (8): they explored France and the US (which they found too different in concept and budgets), sourced from Netherlands, and Supported Malaysia, Spain and other countries. Cleaning reported sourcing from Australia and supporting Ireland, the US and other countries. There were other 13 mechanisms related to the **HQ policies**. Catering cited more items (8): the ‘European Forums,’ ‘Innovation Fairs’ (thrice), ‘Supporting HQ’ in international strategy, and ‘Knowledge Forums’ (thrice). Cleaning also mentioned ‘Knowledge Forums’ (twice), more ‘Contacts with HQ,’ the existence of ‘Reference Centres’ and ‘Training from HQ’ on IT systems. Catering also provided more **local mechanisms**: ‘Leisure activities’ in Education, a common ‘Procurement team,’ an upcoming ‘UK Executive Chefs meeting’ and the outsourcing of marketing for Education. Cleaning mentioned ‘Contacts with suppliers’ (who helped on new products and videos for operations) and ‘Travelling to sites’ (for implementation, follow-up and capturing best practices). There was a remarkable balance between both services in terms of the relative relevance of each of the three mentioned clusters.

There were 21 **type 5 interactions**, 10 for cleaning and 11 for catering. As in Spain and unlike in India, there were no mentions to interactions with other countries. **HQ-devised mechanisms** were scarce: 3 in cleaning: ‘Cleaning Excellence’ being implemented, the provision of cleaning for the IFS businesses, and ‘Expatriation,’ namely, the relationships between UK and HQ in terms of promotion after being in UK.

⁵²⁶ A visit to the respective twitter accounts of the Education and Food and Hospitality managers showed plenty of events related to their businesses.

⁵²⁷ As above said, this result was quite unexpected (it contradicted H2).

Local mechanisms were quite similar: ‘Partnerships’ were mentioned by both services, and also ‘Training workers’⁵²⁸ and ‘Personnel transfer’ (twice in each). To these, cleaning added ‘Experts,’ the ‘Graduate Programme’ and the gradual ‘Handover of the London Head position.’ Catering cited ‘Contacts with clients’ (Head Chefs sat weekly with them), ‘Standard procedures (local),’ ‘Personal experience’ (key to keep contacts) and ‘Previous experience’ (led to establish SOPs by clients segments).

Curiously enough, in all three subsidiaries the number of type 5 items was the same or almost the same in both services (although their relative importance, as said, was different). Again, the prevalence of local initiatives in these countries was also clear, and explainable, given that practice was designed locally, even when having, as it was the case, a group framework.

TECHNOLOGY-MEDIATED INTERACTIONS

Total personal interactions that were mediated by technology in UK were 11, distributed into 2 synchronous and 9 asynchronous, thus reverting the order found in India and Spain. UK ranked higher than the other subsidiaries in terms of relative importance (9,6%). Results are displayed in Table 40:

Table 40			
Technology-mediated interactions in UK			
Type of interaction	Ca	Cl	Total items
Synchronous	2	—	2
Asynchronous	4	5	9
Totals	6	5	11

Synchronous interactions were both in catering: a ‘Catering Excellence conf call’ and calls from clients.

Asynchronous interactions were distributed in 4 for catering and 5 for cleaning. Regarding **group mechanisms**, catering cited emails between the ‘Executive Development programmes’ participants, and cleaning used the same communication

⁵²⁸ Once in cleaning, thrice in catering.

channel to support Argentina and Thailand and the Cleaning Excellence global site to contact with peers. For **local** communications, catering cited frequent emails of employees to the Division Director and other ‘Emails’ (twice), whereas cleaning referred the ‘Country intranet (SharePoint)’ and emails supporting clients. Regarding the use of emails, it seemed that opinions were ambivalent: one catering informant considered that they saved a lot of travelling, but another remarked that SharePoint should be used more for certain internal communications.

After examining these results and not finding much different communication channels with respect to the other two subsidiaries, our opinion is that the scarcity of synchronous interactions reflects their everydayness, rather than their lower incidence.

NON-PERSONAL MECHANISMS

UK informants made 40 mentions to non-personal mechanisms, which made 35,1% of their total number of mentions. Results are summarised in Tables 41 and 42.

Type of mechanism	Ca	Cl	Total items
IT type 1	8	2	10
IT type 2	10	8	18
IT type 3	5	3	8
Total IT	23	13	36
Total Paper	3	3	6
Non-personal mechanisms in UK			

Proportion* of IT-based mechanisms in UK			
Type	Ca	Cl	Total
IT type 1	34,8%	15,4%	27,8%
IT type 2	43,5%	61,5%	50%
IT type 3	21,7%	23,1%	22,2%
*Percentages calculated with respect to the subtotals in each service Highest results are in red			

If we observe the totals, there were two overlaps between IT mechanisms and physical documents.

Similarly to Spain, there was six times the number of physical documents in IT-based mechanisms.

IT-based mechanisms were 36, the same number as in Spain. However, there were some peculiarities in their distribution. Similarly to what we observed regarding types 4 and 5 FTF mechanisms, we found also an interesting pattern in IT-based mechanisms: (1) in India, there was a clear predominance of type 1 mechanisms in both services, (2) in Spain, this preference was for type 1 in catering and for type 2 in cleaning, and (3) in

the UK, both catering and cleaning show a clear prevalence of type 2. It could be a coincidence, but it seemed to us that it could have to do with the level of maturity of the different services: the construction and sharing of databases and similar data repositories presumes having developed a certain *amount* of expertise, and this is also fostered by the achievement of a critical mass (i.e. *size* of the business).

There were 10 occurrences of **type 1 mechanisms**, which were distributed into 8 for catering and 2 for cleaning. Items referring to **interactions with other countries** belonged to catering: ‘Supporting Malaysia’ and ‘Exploring Netherlands.’ As for **HQ-promoted mechanisms**, catering referred to the ‘Documents of Catering Excellence’ and cleaning to those from the ‘Knowledge Forums.’ The first were considered less specialised than the level UK was working at and the second were considered potentially useful but lengthy. As for **local mechanisms**, catering only mentioned **videos** for training, whereas catering provided up to 5 diverse sets of documents used for contacts with clients, children at schools, guidance on procedures and so on. The small quantity of references from cleaning could be explained in two ways: (1) they took for granted that many documents were shared in these formats, or (2) most of the documentation was uploaded in SharePoint and, therefore, there was less circulation of detached documents.

Regarding **type 2 mechanisms**, we found 18 of them, 10 in catering and 8 in cleaning. Despite these numbers, they represented 43,5% of total IT-based mechanisms for catering and 61,5% of cleaning. As above said, this type was the most relevant in UK for both services. Regarding **HQ initiatives**, both services positively valued the information from the global surveys (staff and customers surveys) and suggested improvements for the global databases, such as the segmentation of contents and databases in catering and the creation of a Wikipedia-like tool to facilitate search and retrieval (cleaning). In the case of **local mechanisms**, the ‘Country intranet (SharePoint)’ was most cited as useful but not much in use in catering whereas it was considered not so user-friendly in cleaning. A common suggestion was to improve and foster the use of social networks to share information. In addition, cleaning mentioned the data collected by the ‘Staff tracking tool’ that was being tested. Catering cited data from several ‘Customer surveys,’ queries into the other catering services databases and the use of ‘Excel’ sheets. It appears that catering were fighting against data disaggregation and cleaning against the typical problems of data aggregation.

We found 8 mentions to **type 3 interactions**. Similarly to the previous group, although the numbers were superior for catering (5), they represented 21,7% of their IT-based mechanisms, and 23,1% for cleaning. There were two mentions to **global mechanisms**: the ‘Global mailbox’ system (catering) and ‘SimISS’ in cleaning, which was implanted and in use. Diverse systems were in use **locally**: ‘Saffron’ (twice) and ‘Trade Simple’ for the different phases of the operations, and the project of introducing ‘Tablets’ to manage data on-site were the catering contributions. Cleaning mentioned the ‘Quality Monitoring System’ and the ‘Time and Attendance’ system. Therefore, we see quite a coincidence in contents.

Finally, we reviewed the use of **physical documents**: they appeared in the catering interactions with Spain and when cleaning informants mentioned the ‘Advantage Course’ and the first attempt of ‘Training from HQ’ in Cleaning Excellence time ago. Other paper documents circulated locally, such as some ‘Customer surveys’ and the ‘FoodForce 5’ in catering. Cleaning narrated how they gave up using papers to document best practices.

We are now ready to discuss these results under the light of the hypotheses we formulated.

2.5.4. DISCUSSION

This subsection will be primarily devoted to a discussion of the results (2.5.4.1.) that emerged from the analysis described in subsections 2.5.1-2.5.3. We will also dedicate a section to the limitations of this research (2.5.4.2).

2.5.4.1. DISCUSSION OF THE RESULTS

Over the lengthy description of the analyses and results, we attempted to establish probable explanations for the observed results. Here, we aim to combine these observations to confirm to the hypotheses formulated in 1.5. Therefore, we will keep

these hypotheses present. As the whole, this research involves the factors that influence the preference for some KT mechanisms over others; these mechanisms comprise backbone of this discussion. Therefore, we will describe the different inferences regarding both subsidiaries and services at each step and note which hypotheses are referred to. Finally, we will ascertain which aspects of the hypotheses have been confirmed by this case study.

DISCUSSION OF RESULTS FROM THE GENERAL ANALYSES

The first data analysis, in which we clustered **all data by types of KT mechanism**, was useful to provide an overview of what to expect in terms of the distribution of data. FTF mechanisms were most frequently mentioned, followed by non-personal mechanisms and technology-mediated personal interactions. Among FTF mechanisms, types 4 and 5 (i.e., those related to practice) were mentioned most often.

In the **general analysis by service**, we found some confirmations of the different approaches from the different services. Both services were standardisable, and therefore, they exhibited an expected high proportion of non-personal mechanisms (H1). Because these services have a notable manual component, according to the previous literature, FTF KT mechanisms were likely to occur at a high proportion. However, because the respective knowledge in these services was not of a great complexity, the actual proportion in which FTF mechanisms appeared was higher than expected (H2).

Following the different *knowledge-related characteristics* of the two services, we expected that personal *FTF mechanisms would appear in catering in a larger proportion than in cleaning, which was confirmed* (H2). Similarly, the other two types of mechanisms had proportionally larger values in cleaning (H1).

The examination of the **most mentioned** mechanisms in each service aimed to ascertain whether the distribution followed a *pattern*. This analysis did not follow the distribution of the total data analysis; however, an overwhelming predominance (approximately 80%) of FTF mechanisms was observed. The other two mechanisms appeared at a considerable distance and both with the same value.

However, we *did find a pattern* in the distribution of types of KT mechanisms in each of the other analyses (by country and by service), similar to is described above regarding the total data analysis.⁵²⁹ The finding of a pattern that remained constant suggested a simultaneous cross-country and cross-service influence, and we postulated that this influence should be *the culture of the group itself* (see 2.5.3.).

When we examined the *proportion global-local mechanisms* in the **analysis of the most frequently mentioned items by service**, we expected the first (global mechanisms) to appear *in a higher proportion in cleaning than in catering* because of the smaller susceptibility of the knowledge involved in catering to be codified and therefore standardised on a global basis. With this, we sought confirmation of the differences between catering and cleaning in terms of codifiability and standardisability. The aforementioned expectation regarding the proportion of HQ-devised mechanisms vs. locally designed mechanisms was observed in both catering, where local mechanisms were proportionally more relevant, and in cleaning, where the inverse occurred. In the same analysis, one case was observed in which the mechanism of exchange with other countries was not used because of *cultural differences* (H5). In examining the distribution of most frequently mentioned catering items among countries, we detected an increasing scale—both in terms of numbers and contents—from India to Spain to the UK that corresponded with the *growth* of the service in each country (H3). Finally, regarding the most frequently mentioned items by service, there was a high proportion of references to relationships with other subsidiaries reported in catering (18 items=13%) and cleaning (22 items=14,3%). In general terms⁵³⁰ and according to H4, these results indicate the maturity of these services in the company.

In the **general analysis by country**, within the pattern mentioned above, we observed that the subsidiary that rated lowest in FTF mechanisms (UK) also had highest proportion of non-personal mechanisms, which was consistent with the literature regarding media richness (Murray and Peyrefitte, 2007). Taken in general, the fact that

⁵²⁹ Results oscillated between a proportion of 63%-72,5% of FTF personal interactions, 7,2%-9,7% of technology-mediated personal interactions, and 33,9%-43,9% of non-personal mechanisms. The differences between these intervals were precisely those found (and analysed) between services and between subsidiaries.

⁵³⁰ We found that the actual distribution and direction of these relationships was different between countries and services.

both Spain and India were collectivist cultures may be related to the higher proportion of FTF relationships compared with the UK. Regarding *technology-mediated communication*, the progression from India, to Spain and the UK was correlated with both the *age of the subsidiaries* (H3) and *use of technologies* in the respective industries (H6).

After these preliminary analyses, we next examined what conclusions could be drawn from the analysis of KT mechanisms by service and country.

DISCUSSION OF RESULTS FROM THE FTF INTERACTION ANALYSIS

A predominance of FTF interactions was expected in both services, with a higher proportion in catering (H2). Similarly, as expected, cleaning was higher in non-personal mechanisms (H1), but the difference between both services was smaller than that found for FTF mechanisms.

Regarding **type 1** FTF interactions (one-to-one personal interactions), no significant differences were observed between countries or services. Interactions were mentioned in very low numbers, which led us to assume that one-to-one contacts occurred so frequently that *only interactions with key individuals* (e.g., the Group Head of Excellence Centres and experts inside or outside the subsidiary) were mentioned.

Unsurprisingly, **type 2** interactions (one-to-group interactions, e.g., a class) were mentioned only once because the managerial context, and especially the types of services studied here, which in terms of knowledge, have a literal *hands-on approach*, did not fit a typical class-like context.⁵³¹

Type 3 interactions (teams and meetings in general) provided additional data. When we studied these interactions **by country**, Spain and UK had in common that catering provided more items than cleaning and referred to local meetings that reached lower levels in the company compared with those cited by cleaning. We related this to the higher *level of skills* of catering front-line employees, which enabled more exchanges between countries (H2). We also detected differences between UK and Spain

⁵³¹ The well-known relationship between manual activities and learning-in-practice was the underlying logic here (see 1.2.4).

in catering, which indicated a *greater development* of these mechanisms (for example, conferences, forums, diverse cooking competitions, etc.) in this service in the UK (H3).

The interactions that provided more information were **types 4 and 5**, i.e., those related to *practice*. This result was expected because (1) our research had an eminently practical focus and (2) catering and cleaning services included manual skills, which only can be acquired through practice. We observed differences in the prevalence of these two types of mechanisms between the different countries. In India, type 5 prevailed in catering, whereas cleaning equally rated 4 and 5. In Spain, catering equally underscored type 5 and cleaning type 4. UK rated type 4 highest in both services. We explained (see 2.5.3.3) how the assumption of a progression from India to Spain to the UK could be consistent with the differences between catering and cleaning in terms of *standardisability* (H1). The progression is also consistent with the different *age* of the subsidiaries because India had the youngest subsidiary and UK had the oldest subsidiary (H3). Taken globally, catering had a higher percentage of type 5 mechanisms and cleaning of type 4, which again confirmed H2.

First, we examined **type 4** interactions (different interactions that have a subsequent effect on practice, e.g., a visit to a country to help solve a problem or a meeting with a client to discuss changes in the service delivery). The analysis of these interactions resulted in interesting findings. If **catering is considered first** and subsidiaries are compared, UK was the biggest knowledge provider and the most specialised, which led to some disaggregation of knowledge. Spain was smaller and less ramified. India had the smallest operation and provided only one item in this category. The relative importance of these mechanisms and the nature of these mechanisms in each country suggested that the *age and development of the service* (H3) played a role. The same explanation could be provided for the subsidiaries' expectations regarding some HQ-designed mechanisms (Knowledge Forums and the Innovation Fair).⁵³² These results also indicated the external network of each subsidiary and were consistent with H4.

⁵³² Regarding Knowledge Forums, while Spain and the UK were suggesting further specialisation of these mechanisms, India sought in them useful insights to enrich their business. The Innovation Fair was not attended by the Indian informant, whereas Spanish and British informants expected it to become even more refined in the selection of projects presented.

By examining the **results in cleaning**, we found that regarding *international-scope mechanisms*, a clear progression was observed from India to Spain and the UK, in which the UK was more of a knowledge provider than a receiver and had previously incorporated all *HQ-promoted mechanisms*. Therefore, the *age and development of the service* again accounted for differences between countries (H3) and the external relationships of each subsidiary (H4). In contrast, regarding *locally* designed mechanisms, each subsidiary had developed different methods to transfer knowledge; however, we could not find a scale, or alternately, differences were not related to the *age* of the service, which we had assumed in H3 to be connected with its *development* (in terms of the variety of elements in the organization). We believe that each subsidiary was responding to different characteristics of their local and internal environment. In India, social and educational factors had triggered strong investment in mechanisms related to training, promotion and KT; in Spain, the scarcity of resources, which was common in their market, resulted in cascading solutions. In the UK, a team had previously been created, and processes were being institutionalised. These results are consistent with H6. Comparing all three countries, evidence of the differences between catering and cleaning was observed in terms of characteristics and evolution.⁵³³

Finally, we will comment on what the examination of **type 5** interactions (those that occur in practice, e.g., training or transferring an employee). If we first focus on **catering** and look across subsidiaries, nearly exactly the same mechanisms appeared in every country regarding *local* initiatives. These results suggested that knowledge was transferred through practice in the same manner in all subsidiaries investigated, regardless cultural differences. Therefore, culture was not a determine factor in this point, unlike the same interviewees believed. In **cleaning**, we found *three-fold more mechanisms designed by HQ* with respect to catering, indicating that in cleaning, international standards could attain deeper levels of concretion to reach actual practice, which informants from catering stated could not occur with this service given cultural differences. In our opinion, this result indicated the influence of *culture* (H5) on the adoption of certain mechanisms and that cleaning is more easily *standardised* than catering. However, a closer analysis of HQ-designed mechanisms in cleaning indicated differences between countries that could be attributed to differences in *development of the service in each subsidiary* (H3). Regarding *locally* designed mechanisms, India and

⁵³³ This was a subsequent confirmation that our selection of the two services was correct.

UK showed again more diversity than Spain. The same explanation for type 4 mechanisms can explain these results, i.e., differences did not follow a trend that could be related to the subsidiary age; instead, other circumstances had made these subsidiaries evolve differently, suggesting that age and development are not necessarily tied, unlike what was assumed in H3.

Looking **across countries** and still examining type 5 interactions, in India, differences between catering and cleaning were observed. Catering did not emphasise *training and development* so much as cleaning, likely because they hired already skilled personnel who, it is true, received training, but cleaning employees needed induction training from a most basic skill level. Moreover, cleaning was considered an entry job, which enabled the most gifted employees to be promoted or move to catering or other services. All of these characteristics indicated differences in terms of knowledge complexity between these services. *Differences in the development of both services* were observed in India, which accounted for the different attitudes towards Catering and Cleaning Excellence (H3), acknowledging that in both cases, participants in India noted a *cultural distance* between the subsidiary and the area these projects came from (Europe) (H5).

As we noted above, the majority of local mechanisms in all the countries was natural because type 5 refers to practice, which occurs locally.

Considering all these mechanisms in general, in at least one case, catering in India, the *development of the service*, which was consolidating in the subsidiary, did affect the (nearly non-existent) use of exchanges with other countries to obtain knowledge (H3 and H4).

DISCUSSION OF RESULTS FROM THE ANALYSIS OF TECHNOLOGY-MEDIATED INTERACTIONS

The cluster from which we had less—and, at the same time, less rich—information, was that of technology-mediated communication. We noted in the description of the results that this scarce representation, especially for the simplest and most available and affordable mechanisms, such as emails, Skype calls, and phone calls, did not necessary indicate that these interactions did not exist but that they were too ordinary to be

mentioned. More sophisticated communications, such as videoconferences and webinars, were used more frugally. We also observed that the use of social networks was most generalized in the UK. Ordinarily, email and phone calls initiated contacts that likely resulted in a site visit, which was due to the type of service provided; to learn something, *on-site observations were better* (H2).⁵³⁴ Across **countries**, we detected a distribution that could be attributed to the age and development of each subsidiary (H3) and the market conditions with respect to technology use (H6).

The analysis of these interactions also suggested that there were many *different reasons not to incorporate* certain information. For example, regarding a conference call on catering, India considered the information too far from their *cultural context* (H5), and the UK viewed it too generic in terms of *knowledge content*. The difference between cleaning and catering in India regarding extra-subsidiary contacts could also be related to the differences in tenure and position between the respective informants.⁵³⁵

DISCUSSION OF RESULTS FROM THE ANALYSIS OF NON-PERSONAL MECHANISMS

The analysis of the final set of KT mechanisms provided additional information. Considering these mechanisms generally and the specific services, a disproportion between IT-based mechanisms and paper/physical documents was observed that was lower in cleaning. This disproportion was likely not due to the absence of the use of **physical** or **paper documents** but to their ordinary use. Although all three countries reported the use of these documents six times, in India they had a higher proportional importance, which was consistent with the researcher's observations. We argue that this was due to contextual circumstances, such as *the market* (H6) and culture.

Regarding **IT-based documents**, the first thing we noticed was a predominance of type 1 mechanisms in catering and type 2 in cleaning. Differences in the distributions of

⁵³⁴ This occurred in the case of exchanges with other subsidiaries but also inside the country, as we could observe in the interviews and was closely related to the idea held by some interviewees that meetings and travel is sensible when there is a *real need* (i.e., a *practical* one) of knowledge or a problem to be solved.

⁵³⁵ They were heads of their respective services; in terms of hierarchy, the cleaning informant was the COO and the catering informant was the Head of Catering. The former was in the company since before it was acquired by a Danish group, and the latter had a three-year tenure.

these two types across countries were observed. In India, type 1 was the most relevant in both services. In Spain, type 1 was highest for catering and type 2 for cleaning. In the UK, type 2 was highest in both services. Here, we suggested a growing *level of development and sophistication of services* over time (H3) based on the concept of exchanging detached documents compared with sharing materials on databases and using efficient systems to store and retrieve information.

Regarding **type 1** (documents in digital format) and changing the focus to the services themselves, in **catering**, *differences between the three countries* were observed, India was documenting internally and not seeking international documentation, Spain relied on documents from HQ-launched initiatives, and the UK collaborated in the creation of these documents. Examining the locally created documents, we found similar differences in the creation and sharing of documents in the different subsidiaries. Therefore, a clear evolution of catering that ran parallel to the respective *size of catering* in each country was observed (H3). In **cleaning**, India had more interactions and document exchange with other countries than in catering because *both services evolved in different ways*, primarily due to the difference of *age and development* between services (H3). Examining *locally* created documents in cleaning, we previously noted differences between the subsidiaries; however, these differences did not appear to follow an age-related pattern, unlike H3.

Differences between cleaning and catering were also observed in **type 2** (different mechanisms that gather and store information) in the UK, where both services indicated type 2 mechanisms as most relevant; catering created systems to collect and store data, and cleaning sought efficiency in database use. Again, these differences were likely due to *age and development of the service* (H3). In **catering**, we observed different stages in which subsidiaries were considering the construction and use of data repositories, and these stages were related to the development and size of the *catering business* in each country (H3). Regarding **cleaning**, the proportion of HQ-promoted mechanisms was generally much larger than that for catering, suggesting that because cleaning is more *standardisable* and its knowledge is more *codifiable*, it could more easily stored and shared globally (H1). Similar to catering, the problems experienced in each country were correlated with the age of each subsidiary (H3).

Lastly, we will discuss **type 3** mechanisms (computer programmes and systems). Both cleaning and catering and all subsidiaries sought to find *the* system that integrated many types of information. The UK was closest to achieving this goal. In Spain, *cultural distance* discouraged catering from asking for information about systems used in another country (H5). Spain was attempting their own adaptation, whereas in cleaning, they partially adopted a corporate system and used other complementary systems due to *labour laws* in Spain (H6). For the *same reasons*, India had created their own system (H6). A gradation in the use of technologies in both cleaning and catering between the three countries was observed, which we argue responded to the *technological development in the market* of these countries (H6).

ASSESSING THE HYPOTHESES

We next discuss whether this research answered the hypotheses formulated in section 1.5.

Before proceeding, we would like to note that we have intentionally used the term ‘assess’. Because our research is not quantitative, we did not strictly ‘test’ our hypotheses but instead ascertained whether they were confirmed in the specific cases studied here. We have previously discussed the generalization of qualitative research (2.1.1) and cases studies (2.1.2.1) and methodological issues related to qualitative research (2.1.2.3). Accordingly, the purpose of this case study, methodologically speaking, was to shed light on a certain segment of service firms and explore their behaviour regarding KT mechanisms, especially those launched with a global purpose, while simultaneously contributing to theory in this specific area. Thus, in verifying the hypotheses, caution should be taken when generalising these results. We will assess whether hypotheses were confirmed *in the studied cases*. The comparison between three subsidiaries instead of a single organisation broadens the scope of this study; however, to achieve additional generalisation, this study should be replicated in similar settings to those studied here. Additionally, quantitative research should be conducted.

Hypothesis 1: The more *codifiable* the knowledge of a service is, the more *standardisable* it is, and therefore, the *more non-personal KT mechanisms* it will use.

This hypothesis was confirmed in diverse forms. (1) Both services were relatively codifiable and standardisable, and thus, both services exhibited a high proportion of *non-personal mechanisms*. (2) The service that had a larger share of these characteristics (cleaning) provided proportionally more non-personal mechanisms.⁵³⁶ (3) Among those mechanisms, *IT-based type 2* mechanisms were used in larger proportion by the service with more codifiable knowledge, consistent with the greater ability of this type of knowledge to be stored and shared via databases and similar repositories.

Standardisability not only influenced the selection of non-personal mechanisms but also the different proportion of type 4 and 5 FTF mechanisms observed in catering and cleaning. The results suggested a transition from mechanisms that were more associated to practice (type 5) to others that required a certain distance from practice (type 4), which we suggest occurred over time and at a different pace in each service, given their different characteristics, specifically those regarding codifiability and standardisability.⁵³⁷

Therefore, we consider that H1 was confirmed.

Hypothesis 2: The more *complex* is the *practical* knowledge a service contains, the more knowledge related to it will be transferred in *FTF interactions* related to *practice*.

In accordance with H2, catering, which had more complex knowledge, reported higher FTF interactions in general and type 5 interactions, which are those which occur in actual practice.

⁵³⁶ Cleaning enabled the same equipment, products and bodily movements worldwide.

⁵³⁷ We believe that the HQ aim in catering was not to reach a total standardisation but to set up certain levels of quality, hygiene standards and other similar procedures. It appeared that the problems for standardization in cleaning were different: problems that could be solved with technical (in the case of IT systems) or other resources or by investing more in training.

However, given the relatively low complexity of the knowledge involved in the operations of the services under study, we were surprised by the *high proportion of FTF interactions* reported by both services. Following the well-known literature (see 1.4.3.2), we suggested that this result could be an effect of the *manual* component of both services, which requires interpersonal relationships.

Even technology-mediated interactions were viewed by both services as a means to reach FTF relationships, which was consistent with services with a high practical component. And this required visits, meetings, practical demonstrations and similar mechanisms.

Additionally, the higher complexity of the knowledge and skills required by catering was associated with a higher number of local meetings and events (type 3 FTF interactions) that gathered *lower rank employees*. Thus, we suggest that the type of knowledge employees possessed entitled them to participate in events in which they could interact with and demonstrate knowledge to or even contest with other colleagues.

Therefore, we consider that H2 was confirmed.

Hypothesis 3: The *older and more developed*—in terms of variety of mechanisms it creates—an organization is, the more and more diverse KT mechanisms it will use.

Our results also confirmed this hypothesis, although only partially.

H3 was confirmed when applied to **subsidiaries** (1) in our general analysis regarding the use of *technology-mediated communication channels*. The differences between subsidiaries could be attributed to the technological development of the different subsidiaries, which in this case, were associated with their respective ages.

(2) The explanation proposed in our description of the different uses of *type 4 and 5 FTF mechanisms* by catering and cleaning across subsidiaries (see the discussion of H1) was also consistent with the different age of the subsidiaries and their development of diverse mechanisms. (3) The same explanation could be applied to the different *use of types 1 and 2 IT-based non-personal mechanisms* across subsidiaries.

We found additional confirmation of this hypothesis regarding **services** in the different subsidiaries in nearly all stages of our analysis. First, (4) by analysing most frequently mentioned items by service, we found an increasing number and variety of mechanisms cited *for catering* in the three countries, which corresponded to the age and development of the service in each subsidiary.

Age and development of the service in each subsidiary also affected the use of some FTF interactions and non-personal IT-based mechanisms. (5) In the case of *catering*, we detected it in the resort to *types 3 and 4 FTF interactions and types 1 and 2 IT-based non-personal mechanisms*. Concretely, the organization of local meetings (*type 3 FTF interactions*) that included lower levels of service depended on the age and development of the service in each subsidiary (in this case, a comparison between Spain and the UK).⁵³⁸ These traits of the service also affected *type 4 FTF interactions*: we detected it regarding the number, relative relevance and content of these interactions in catering across the different subsidiaries, and also in the different expectations they had regarding some HQ-designed mechanisms. In the case of the country where the service was the youngest and less developed (India), the effect was more dramatic; virtually no types of FTF relationships with other subsidiaries were observed. The creation and use of digital documents (*type 1 IT-based mechanisms*), both intra- and extra-subsidiary in catering was correlated with the age and development of the service in each subsidiary. Likewise, the phase in which databases and similar electronic repositories (*type 2 IT-based mechanisms*) were could be tied to the age and development of the service in each country.

(6) For *cleaning*, we found effects of service age and development on the *use of type 4 and 5 FTF mechanisms and type 2 IT-based non-personal mechanisms*. We detected differences in the behaviour of this service across subsidiaries in international-scope *type 4 FTF mechanisms*, with increasing incorporation of HQ-designed mechanisms and a transition from being nearly exclusively a knowledge receiver to almost exclusively a knowledge provider for other subsidiaries. These differences were associated with the development and age of the service in each country. The use of *type 5 FTF HQ-designed mechanisms* was similarly affected. Regarding *type 2 IT-based*

⁵³⁸ This is related to that described above in the discussion of H2 regarding this same service and mechanisms.

mechanisms, the number and characteristics of these mechanisms and the challenges the cleaning service experienced in using them in each subsidiary indicated that they were affected by the age and development of subsidiaries.

Through these analyses, we also found that the two services underwent a generally different evolution by the different behaviour exhibited across subsidiaries regarding the use of type 4 and 5 FTF mechanisms and type 1 and 2 IT-based mechanisms.

When we formulated hypotheses (1.5), we assumed that age and development were correlated but found evidence that *this was not the case* in certain circumstances. Concretely, in the oldest service (cleaning) the use of locally-prompted type 4 and 5 FTF interactions and locally-created digital documents (type 1 IT-based mechanisms) showed different traits across subsidiaries that did not follow the age pattern but a clear different evolution of the service in this aspect in each country. This contradicts some authors (Foss and Pedersen, 2002) and supports others (van Wijk *et al.*, 2008). The latter argue that older companies may develop some obstacles to KT, implying that the evolution and creation of mechanisms may be considered separately from the age of the organisation.

Therefore, H3 was only partially confirmed, and we suggest further research on a possible consideration of age and internal development as *two different constructs*.

Hypothesis 4: The *older* an organization is, the more external relationships it will develop.

(1) Taken globally, we found that both services reported a high number of references to *relationships with other subsidiaries*⁵³⁹, which according to H4, could indicate the maturity of these services in the company. Some findings confirmed H4.

(2) Regarding the use of *type 4 FTF* mechanisms that involved relationships with other subsidiaries, both in cleaning and catering, a progression in the density and direction of networks from the youngest (India) to the oldest subsidiary (UK) was observed. (3) A similar progression was observed regarding the relative age of the

⁵³⁹ Catering informants cited 18 items (13% of total items), and cleaning provided 22 items (14,3% of total items).

service inside the subsidiary. The most extreme example was that of the youngest service in the youngest subsidiary (catering in India), which showed almost no sharing with other subsidiaries. These data are consistent with the type of interaction noted here. FTF interactions with other subsidiaries that involved on-the-job training or even expatriation (type 5), were rare, whereas most contacts with other countries were type 4 FTF mechanisms.

Therefore, our results confirm H4.

Hypothesis 5: The more *cultural distance* between two subsidiaries or between a subsidiary and the HQ, the less KT will happen between them.

(1) In our analysis of the most frequently cited items by service, we observed one case in which the mechanisms of *exchange with other countries* were not used because of cultural differences.

(2) Informants from the service which required more complex knowledge and was less standardisable (catering) insisted on cultural differences regarding food and cooking as the explanation for not sharing certain areas of expertise with other countries. This effect was especially observed for *type 5 FTF interactions* (knowledge-sharing in practice), in which the other service (cleaning) reported three-fold more HQ-designed initiatives. In the most geographically distant country (India), this conviction was even stronger and was observed in *type 5 FTF interactions in both services* (with some differences). (3) Additionally, in India, another example regarding a *technology-mediated interaction* was observed, and (3) in Spain, cultural differences prevented contact with another subsidiary regarding a *type 3 non-personal* mechanism.⁵⁴⁰

However, the effect of cultural differences on relationships between subsidiaries apparently did not follow previous theory (Bhagat *et al.*, 2002, Gouveia *et al.*, 2003, 2011), which used the dimensions of collectivism-individualism and vertical-horizontal. According to the theory, relationships between the UK and India should be easier and more frequent than those between the UK and Spain or India and Spain because the first pair shares the ‘vertical’ dimension. However, we detected frequent relationships between Spain and the UK, which did not share any cultural traits, and much less

⁵⁴⁰ These two latter examples belonged to the same service, catering.

frequent relationships between the other two possible dyads. We argue that these constructs were too abstract or perhaps too simple and did not consider other factors. One explanation for these results comes from Egelhoff (1982); in a company structured in *geographical regions*, knowledge easily flows inside the region and with difficulty across regions, and HQ intervention is needed to achieve transfer of knowledge across regions,⁵⁴¹ indicating that geographical distance remains relevant in the era of telecommunications, especially combined with the barriers posed by organisation structure.

Therefore, the study confirmed H5, but some of the literature has been challenged by our findings.

Hypothesis 6: The *local market context* of a subsidiary—specific market, technological, educational and economic development, and laws—will modulate the adoption of certain KT mechanisms.

We found evidence to support the influence of the local context of the subsidiary on KT mechanisms. For example, (1) in our general analysis by country, we suggested that the collectivistic aspect of Spanish and Indian cultures could account for the proportionally higher rating of these subsidiaries in *FTF interactions* than the more individualistic UK.

(2) The different situation and context of the subsidiaries made each create different *type 4 FTF local solutions* to transfer knowledge in one service (cleaning). (3) We also found in our general analysis by country that market and social conditions played a role in incorporating *technology-mediated communication channels*. (4) The same account could explain the different incorporation of *type 3 non-personal mechanisms* (the most sophisticated type) across subsidiaries in both services.

(5) In the prevalence of sharing *physical documents* in India, we observed the influence of the cultural context in which the subsidiary operated. (6) Local labour laws significantly affected the adoption of *HQ-promoted type 3 non-personal KT*

⁵⁴¹ In fact, that is what happened: the contact of India and Spain started when the first CEO in India was sent to Spain to learn, and the two contacts between India and UK happened with the mediation of HQ.

mechanisms for cleaning in two countries (India and Spain). The different strategies, substitution vs. complementation, depended on the perceived degree of difference between the context the system was designed for and the actual local situation.

In contrast, local differences did not affect the type of mechanisms catering developed *locally* to transfer knowledge through *type 5 FTF interactions*; these mechanisms were essentially the same across subsidiaries, despite being in an area where subsidiaries had more creative freedom.

Therefore, this study confirmed H6.

To conclude with this section, we summarise the **additional findings** from the analysis.

The first finding is that the *effect of Group culture* could account for the general pattern in the distribution of the different mechanisms across subsidiaries and services. We believe that this factor could have a moderating effect on other differences between the units of our analysis.

The second finding is the need to separate service *age* from service *development*, which we assumed were associated, in H3. There may be aspects in which much younger subsidiaries create a greater variety of mechanisms faster than older subsidiaries.

The third finding is that *cultural differences did not* account for much variation compared, for example, with the development of the subsidiaries, their age or knowledge-related aspects. However, there were some striking parallelisms across subsidiaries, which is especially relevant in a MNC.

The fourth finding is the need to *review the theory* regarding the categories of individualism-collectivism and horizontal-vertical to culturally distinguish populations.

The fifth finding is that *physical distance* could have an important effect on the network relationships of the countries, and this effect may be greater if the countries belong to different regions (among those established by the company).

The sixth finding is that *standardisability* was also related to *variations in some FTF interactions*, in addition to the hypothesised non-personal mechanisms.

The seventh finding is the *high proportion of FTF interactions*, which we attributed to the *manual* aspect of the services under study, and their highly *practical* component.

The eighth finding is the association of *higher knowledge complexity* with more *type 3 FTF* interactions, which included employees at lower levels of the organisation.

The ninth finding is that the *differences of tenure and position of the interviewees* could also affect their choice of KT mechanisms and their networks, which was indicated by comparisons between Indian informants from catering and cleaning.⁵⁴²

These nine additional findings should be assessed in further research.

2.5.4.2. LIMITATIONS OF THIS EMPIRICAL RESEARCH

The first limitation of this research is intrinsic to case studies, which restrict generalisation. Above, we discussed this issue and the reasons for using case studies, and we understand this *limitation* not negative but the framework of our research.

Another limitation was the use of a semi-structured questionnaire. Even with appropriate testing, semi-structured questionnaires risk leading the conversation. However, we must balance between being flexible and obtaining all necessary information on the study topic with time and interview constraints.

In any case, the questions could have been more incisive regarding technology-mediated interactions. However, the interviewees' discretion resulted in the advantage indicating to what extent interviewees considered these types of interactions important compared with FTF interactions. The same space was available for IT-based mechanisms, and different results were observed; thus, we conclude that this strategy was beneficial.

⁵⁴² Regarding *hierarchical* level, not all interviewees were peers, but they complied with the requirement of being in charge of or in possession of the information regarding the Cleaning Excellence or Catering Excellence mechanisms and other information regarding these respective services. As described in 2.2.4, each subsidiary had a different structure.

Another limitation was that although failed KT was added to the questionnaire, it was difficult to find examples of failed KT. Some examples were noted, but we could have been more insistent on this matter. We sought to avoid making the interviewee feel uncomfortable by being too pressing.

Interviewing only managers and not front-line employees is another limitation of the present study, which could be completed with an evaluation of the perceptions of all these mechanisms by these members of the organisation.

CONCLUSIONS

We begin the conclusion of this work with the **contributions** of this thesis to research.

First, we inquired about the most relevant influences underlying the OL and KM literature. We grouped them and established an order in these different approaches. In addition to the contribution this work means to the theory in terms of conceptual clarification, it will help future researchers to understand the extent to which these different positions are compatible with each other.

Second, we proposed a classification for types of individual and collective knowledge that can be useful in understanding the emphasis of a particular theory or approach, which can also be useful in identifying the types of knowledge being used in different activities in empirical research.

Third, drawing from the existing literature, we proposed a classification of KT mechanisms based on the type of relationships or interactions established to share knowledge: interpersonal communication (mediated by technology or not) and non-personal methods to transfer knowledge. This classification focuses on the parties of the KT process and thus avoids an objectified consideration of knowledge. We also specified different types of FTF interactions and IT-based non-personal mechanisms of KT because a one-on-one conversation is different from a formal class or a side-by-side interaction in a training programme. Similarly, IT-based mechanisms may have different levels of sophistication.

Fourth, we provided an outline with criteria to establish a taxonomy for service firms by examining different elements of their activity: the different types of capital or assets (including knowledge-related aspects), the institutional aspects of the employees' occupation, and the degree of customisation of the service.

Fifth, our research occurred in an uncommon setting for research on KT.

Sixth, this empirical investigation relates types of knowledge related to certain occupations, types of KT mechanisms, and subsidiary characteristics in the field of service MNCs.

We formulated a series of **hypotheses** that were mostly confirmed by the data.

In summary, we confirmed that the type of KT mechanisms used was affected by the codifiability and complexity of the knowledge needed for certain services, in more manners than expected (H1 and H2).

The diversity of KT mechanisms was affected by the age and development of services and subsidiaries, but those factors worked separately, not jointly, as we had expected (H3). Previous research has suggested that these factors are correlated (Foss and Pedersen, 2002), whereas other research has suggested that these factors are independent (van Wijk et al., 2008). We have found evidence supporting the latter.

Age also influenced the number and direction of KT interactions with peers in other subsidiaries (H4).

Cultural distance between different parties was an obstacle to KT (especially in the service with more complex knowledge) but not how we had expected (H5) and contrary to some authors (Bhagat et al., 2002, Gouveia et al., 2003, 2011).

Finally, we found different way in which the local context of the subsidiary affected the adoption of some KT mechanisms over others: cultural traits, technological development, labour laws and agreements, and workforce education (H6).

The effects observed here primarily occurred for certain types of FTF interactions, such as meetings with a networking outcome and interactions with different degrees of connection to practice (respectively, type 3, 4 and 5 interactions) and the use of non-personal mechanisms (digital documents, databases and IT systems) of transferring knowledge. These results confirm that there are differences between different FTF interactions and between IT-based mechanisms and that the use of each interaction or mechanism is influenced differently by the type of knowledge/service and other factors that have investigated in this research.

Our study has indicated avenues **for further research**, some of which were suggested by our additional findings.

In MNCs, the *effect of corporate culture* on KT processes may be significant in certain types of organisations that have created, diffused and sustained a strong culture. The effect of corporate culture should be investigated and assessed. In this research, we proposed the possibility of this influence.

We found that the *age* and *development* (which is understood in terms of the variety of internal mechanisms created), of an organisation are not necessarily correlated and may have different effects on the development and use of KT mechanisms. We suggest that future research should investigate the conditions under which these effects occur.

Similarly, the conditions in which *cultural differences* are determining factors for inter-unit KT is another topic for inquiry. Regarding cultural traits, we suggested above that the use of only a few categories (the authors cited used two dyads) might not be sufficient to understand differences between cultures, indicating that a more careful selection is needed regarding the adoption of an existing model (such as the Hofstede model) for research purposes. Taking components of a model with several interconnected categories might not be advisable.

Given the relevance of FTF interactions in certain service MNCs, the effects of *geographical distance* on inter-units KT, especially when correlated with certain organisational structures, should not be overlooked. Technology-mediated interactions and non-personal KT mechanisms should not be assumed to totally substitute for FTF interactions. Media richness and some characteristics of the service, such as codifiability and knowledge complexity, also play an important role. Geographical distance should also not be directly associated with cultural distance.

The results of our research demonstrated that a different degree of *codifiability* of the knowledge of the service, i.e., the extent to which this knowledge can be made explicit, also accounted for differences between the *types of FTF mechanisms* used to transfer knowledge. Further clarifications of this point should be conducted.

We attributed the high proportion of FTF interactions, regardless of the low complexity of the knowledge involved in the studied services, to the high proportion of *manual work* in the practice of these services, which is another aspect that should be further investigated.

Similarly, we attributed the larger number of meetings involving lower-level employees to the comparatively higher complexity of the knowledge involved in one of the services, and further research is needed.

This research could be completed or extended with diverse methods: (1) further qualitative research on middle-lower management and front-line employees; (2) quantitative research, i.e., a survey, involving the group mentioned in (1) or involving more countries.

The generalizability of our conclusions could also be tested: (1) a replication of this research in other service companies as similar as possible in size, industry and structure to the those investigated here; (2) comparisons with similar research conducted in MNCs of the same industry with different characteristics; and (3) replications of the research on service companies with similar characteristics but in a different industry.

The categorisation of service companies designed here could be used to assess similarities and differences between these businesses and those included in this study, which in turn could be a further test of the operationalisability of the proposed model.

Finally, looking at all what has been since said in this conclusions section, some preliminary **implications for practice** can be drawn. Given the nature of our research—a case study—, they will be addressed especially to service MNCs with similar characteristics to the one studied here.

First of all, the importance of creating a strong culture across the subsidiaries. Interestingly, this is, as we have observed in our case study, compatible with different structures in the different subsidiaries and a strong local positioning, as far as this common culture is based on some fundamental ethical principles, attitudes and interests that guide the decision-making and the interpersonal relationships in the company. This common mind-set can be a favourable ground for the transfer of knowledge across the organisation.

Of course, the need to include learning and knowledge-sharing as a goal in corporate culture cannot be sufficiently emphasised. That means to create learning facilitators, develop the appropriate flexibility and also provide the subsidiaries with the

resources they need. We suggest that companies attend to the facilitation of networking-creation spaces and circumstances for new subsidiaries, new services within these subsidiaries, and incoming managers. The sooner they establish bonds and the denser the network they create, the easier they will find it to seek and provide knowledge to other units.

Regarding the design of KT mechanisms to be adopted globally, some issues should be considered. Some issues have been highlighted above. (1) FTF interactions are relevant for KT in service companies, and the function of other mechanisms that include the use of technologies (such as technology-mediated communications and non-personal knowledge-sharing mechanisms) is auxiliary. (2) The efficacy of these tools may vary depending on many different factors regarding the characteristics of the services and subsidiaries. Therefore, (3) knowledge-related characteristics of services, the age and development of subsidiaries and services within them, and certain local context conditions, such as the market, laws, technological development, etc., may be more relevant than cultural differences. Cultural traits can be relevant but may not be the definitive reason for some subsidiaries to accept or decline some KT mechanisms. (4) MNCs must also consider the company structure, especially if the company is divided across geographical regions. We previously noted that geographical distance remains relevant for the exchange of knowledge across subsidiaries. (5) Older subsidiaries do not necessarily develop more KT mechanisms; their economic situation and occasionally, the development of internal obstacles, such as knowledge silos, may hinder the transfer of knowledge internally. Therefore, although they may be very good at sharing knowledge with other subsidiaries, the development of these internal barriers is a source of low competitive advantage and a frequent cause of sluggishness in the adoption of HQ-promoted initiatives.

We hope that this research has contributed insights to academia and management practice.

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ANNEXES

ANNEX 1

Interview with Group Head of Excellence Centres

First of all, thank you for your time and interest.

(Who I am and what is my thesis about)
(Why I chose ISS and my connection with it)
(People whom I met in Denmark)

After talking to [Head of Process Innovation], he sent me a slide with the areas in which you have the processes of best practices transfer: customer segments, products (service lines), and generic business processes. I was more interested in product best practices. My idea is to see how these mechanisms — that are being designed at the corporate level — are being implemented in 2 different services and in 3 different countries. I have chosen 2 single services because they are easier for analysis and it allows me to reach, if possible, the supervisor level. They are catering and cleaning, concretely, catering for schools and offices cleaning.

Ask for permission to record
Privacy statement: no name disclosure without permission

I would like to know in more detail how are the best-practice transfer processes in both lines, cleaning and catering.

1. Your position & background. Function. Who do you report to?
2. KM mechanisms
 - a) How is a best practice identified/spotted?
 - b) Knowledge Forums:
 - time,
 - frequency,
 - places.
 - List of matters? (at least in these 2 services)
 - documents? (e or physical)
 - follow up?
 - c) Countries that are outstanding in both services.
 - d) ISS Academy: countries, sessions, etc. I understand that you use the programs to train in tools very much based on an IT platform. Is it OK?
Could you explain the train-the-trainer concept?
 - Always related to the 2 services, you go and...
 - Documents
 - Follow up?
 - e) IT systems related to these 2 services. Besides SimISS?
 - f) TMC & other meetings
 - g) View of informal ways: Spain says you are the one who knows 'who-knows-what'. Is it so? Do you have any kind of database?
 - h) Examples of expats (for the 2 services)
 - i) Collaboration of institutions for the particular things we have talked about
 - j) Examples of ideas taken from conversations with competitors?
3. Any idea or suggestion?

ANNEX 2

Standard Interview Protocol

First of all, thank you very much for your time.

Explain my project: cascading processes of best-practices transfer in the company. See how the mechanisms go from HQ to the end of the chain. I am talking of best practices in service lines, and more specifically, the ones in operations, not so much in management. 2 different services—catering and cleaning—and compare how they use these mechanisms in different countries (Spain, UK and India or another). I would like to narrow my focus to offices (or conventional) cleaning and catering for schools.

Visibility of the sector in academic literature, especially in terms of K processes.

In addition, I am also interested in the processes you use in-country.

Ask for permission to record

Privacy statement: no name disclosure without permission

A) Your Background

1. Before ISS? When in ISS? Positions
2. Your current position: chart (who do you report to?)

B) Organization and Structure in your country

1. Structure of the company and your place there
2. View of the company (Here a question such as ‘What are you good at?’ or similar was formulated, as well as social perception of the company)
3. Your view of the Division and its current structure
4. Importance of the Division in terms of employees and revenue
5. Vision for (near) future
6. View of the (cleaning/catering) service (Both in terms of technical/quality development and social perception)
7. Which country do you see more mature? And less?

C) Mechanisms Fostered from HQ

Is there anybody coordinating? Knowledge...
Globally?

Catering/Cleaning Excellence concept: does it include:

1. K forums:
 - Did you participate? Who else?
 - In which ones? Could you describe one of them?
 - Do they require a lot of time?
 - Do you have a historical on the subject (i.e. how many K forums on cleaning/catering and themes)?
 - Reception and effects
2. ISS Academy Projects:
 - Which project did you receive?
 - When?
 - Who has been involved?
 - Could you describe their structure?
 - Could you describe how you move the knowledge down to the following level to finally reach front-line employees?

- Which level of implementation do you think you are at (according to HQ and comparing to other countries)?
 - What degree of compulsiveness/pressure/support/follow-up do you have from HQ? In what aspects?
 - Degree of freedom (leeway)
 - Any recent contribution from your side?
3. Are you pilot in any project?
 4. Written documents (or in e-format) about best practices
 5. IT tools (programs, etc.):
 - Cleaning calculation system (SimISS)/Systems for catering?
 - SharePoint
 - Which is the role of IT?
 6. Top Management Conference: is it really useful?
 7. Contentious issues. Disasters. Problems of implementation. 'This will never fit in [Country]'
 8. Examples of collaboration with other countries. Examples of contributions
 9. Other informal mechanisms
 10. Relationship with the Regional Director & HQ in all these things.
 11. What levels have access to all these things?
 12. Now talking about offices cleaning/schools catering

D) Mechanisms You Have Created and Used in your country

1. Did you create any kind of K centre, good practices repository, or someone following it?
2. Any unit specially good at cleaning/catering?

ANNEX 3

Interview with the Head of Process Innovation (excerpt)⁵⁴³

Int: Those are the people we work with on a day-to-day base. So we have **monthly governance meetings** with the Regional COOs, and that's where we decide, you know, where to prioritize, what to do if there's not progress, if we're missing resources, that kind of job.

RA: So you are reviewing country by country then.

Int: Yes, exactly.

RA: Great. So... when you started explaining your function, you said that, first of all, you capture standards. So, how do you **spot a best practice** or how it comes to HQ this best practice or... Because I understand that you work in parallel, so there's work you do and then you receive feedback from the countries, so it's a combination of both, but, how do you do it?

Int: Well, initially, if you look at the lifecycle, when we identify a new area that we want to standardize on and create a best practice, then we put together a project team to create that standard, which is industry experts—so from **outside ISS**—wherever we can find those—whether it's consultants, or it's other experts that we can find. Then we put together a team of people with the **best people within ISS**, so that's really about talking to people in the organization and understanding where we have experience, where we are most mature, in a given area, and then, allocating those to the project. And then, it's a series of **workshops** where we describe all the experience that they have, because, unfortunately—typically in ISS—we don't have things written down. It sits within the heads of people...

RA: Yeah, I've seen that you have made a great effort in this last year of writing down documents, even putting in the web the whitepapers and all these things, but it was not the same before, so...

(00:20)

Int: No. And that's one of the things that we're trying to drive, that's **process excellence**, to work with processes in a more structured way instead of just in the heads of people...

RA: No...

Int: And then basically we put it together and we*** it and it's a series of workshops until we get to **version 1**. And our ambition is not to use 2 years to get something perfect... it's to get something fairly quick, version 1...

RA: ...and then you improve...

Int: Exactly, accepting that it's not...

RA: ...perfect...

Int: ...so version 1, you could argue, it's maybe not best practice, it's good enough practice...

RA: ...it's a good practice, yeah...

Int: ...and then it gets through a sort of a series of approval sort of steps. There's always a **steering group**, which knows a little bit about the topic, they will **approve** it, and then it gets put on the **Group Management Board**, and they then finally approve it as a **group standard**. When that happens, we then [...]

⁵⁴³ Interviewee (Int) is explaining how certain practices become standard for the Group.

ANNEX 4

Interview with the IT Director of ISS UK (excerpt)⁵⁴⁴

- RA: So... I've seen this working in the... for example for security services, that's quite common, that when they go around for a surveillance, they pass a sort of control so you know that they have been there, but...
- Int: Yeah, but this takes it at a different level so... [he browses and shows me a map]
- RA: This is the McLaren thing...
- Int: Yeah, so what we're looking at here is...
- RA: This is the facility?
- Int: This is the facility and the idea is that each of the zones has an **RFID** [Radio-Frequency Identification]...
- RA: ...sensors
- Int: ...tag.
- RA: OK
- Int: A small tag — 25mm in diameter — we've stuck or screwed onto the wall, and then we use a mobile phone which has a NFC — Near Field [Communication] — technology built into the phone... I don't know if you have in Spain bar key card... have this wave-and-pay... so in your credit card or debit card you have a chip inside the card...
- RA: Yeah, yeah [now I see I did not understand]
- Int: ...you have this symbol on it and I can go to a shop and I just wave... I can wave my card over the reader and I can pay for goods...
- RA: I'm not sure we are still using... we are already using this...
- Int: OK. So for up to £15 — 20 € — I can...
- RA: I've seen the typical paying... no...
- Int: Yeah, yeah... so we're using...
- RA: ...putting the number and everything so...
- Int: ...yeah, but this is a... just a wave, wave and go. So the same technology in that debit card we're using on a mobile phone. So as they go around the building, they just place their phone... yes it's like the security model you were describing, but the difference is with the mobile phone, because you have a screen on the phone, when they get to a certain location... not many meeting rooms in this particular space but other locations — office blocks —, when they get to the location, so a meeting room and there was a spillage on the floor at 10 o'clock in the morning, and they're doing their cleaning in the evening, when they tax the tag in the meeting room, a message can be sent to the phone to say 'You have an extra job to do in this room, you need to clean the carpet, because there's a coffee spillage'. So not only we're making sure they've gone to the right place at the right time, we can also send them stuff to do in that place, and when they come out of that space we're tracking them leaving. And we can therefore **pay them for the actual time they work**, because we're not taking it from signed bits of paper anymore, we can accurate position it where they are. We're trying to roll it out into banking sectors so if you imagine Santander [...]

⁵⁴⁴ Interviewee (Int) is describing a system they are testing at the McLaren HQ.

ANNEX 5

Interview with the Divisional Managing Director of Defence and Education, UK

(excerpt)⁵⁴⁵

Int: Yeah, that's true. I mean, at the moment, because ISS

(00:05)

Education has only been in existence for a short time and because it started with the catering company, that's where we focused our effort, so we've taken a small catering company and we've grown it into a medium-size catering company. That doesn't mean that as and when a cleaning contract within a school or a college or something comes up, we won't go for it. In fact, we've just been awarded our first university contract which includes cleaning and post room and reception and other services, so an integrated contract, and we very much hope that'll be the first of many. But the way that the Government procures its services, at the moment, they **tend to do the services independently**, so there'll be a team of people that'll buy catering, and a different team that'll buy cleaning and a different team that'll buy...

RA: Ok, so the tenders are separate... they offer... or...

Int: Usually they are — for schools, for the government schools —, although we are seeing there's a... **we're beginning to see some tenders that require more than one service**. In fact, we're finding some tenders requiring more than one service in more than one sector, so the geographical area or authority might be buying all services for lots of things within it.

The **Defence** business is quite different. In our army contracts we supply catering, cleaning, waste control, pest control, window cleaning... all that sorts of non-core services across the whole army base or station. And in our **RAF** business we provide catering... what's called '**Catering, Retail and Leisure**' — CRL — within 22 RAF stations around the country. And that catering, retail and leisure means food consumed in the offices, junior ranks' mess, food consumed in the bars and coffee shops and — also beverages in those areas —, and shops: we run a number of retail shops on the bases as well...

RA: So you sell many different things. It's a sort of **supermarkets**?

Int: Well, supermarkets. Yeah. Exactly.

RA: OK.

Int: So that's...

RA: Yeah, these army supermarkets inside the...

Int: Yeah, we use **SPAR** — are you familiar with SPAR? —

RA: Yeah.

Int: Yeah... so we work with them. We... with their brand, we operate the shops. And we have that **in the Army as well**.

RA: And this is only for the Army because you don't usually run supermarkets or...

Int: No. This is just in the Defence market at the moment.

RA: In Defence.

Int: Yeah

RA: OK

Int: Although we are talking about or **looking at it for Healthcare** as well... [...]

⁵⁴⁵ Interviewee (Int) is describing the different services he is Head of.

ANNEX 6

Interview with the Managing Director of Food and Hospitality, UK (excerpt)⁵⁴⁶

- RA: ...engaged, yeah, that's true.
OK. If we go back to **the IT systems**, you were saying that you are designing some for your use. Do you think that at some point there will be something which will be corporate, you know, **similar to the SimISS** or this kind of things...
- Int: **I think there should be...**
- RA: ...they have...
- Int: Yeah, I think...
- RA: ...for the other divisions?
- Int: Yeah. I think there should be... I think **what we've now started to create through this Value Proposition** is a lot of things around procurement, and standardisation...
- RA: ...that's why... yeah
- Int: ...of back office. The beauty of ISS of course is around this we've got in our values of **entrepreneurship**, which allows people to go off and do these different things, and which is fantastic but I think that **we need to harness some of the standard processes** and to me those sorts of things are... you know... they're probably a couple of years away, to be honest, from a group corporate level, but I think **for the first time they're now being properly discussed** and... well all of these things of course it requires a lot of investment.
- RA: No, that's true
- Int: And what they are looking to the moment is... I think they are **looking at the countries that sort of develop stuff in-country** and then say that...
- RA: ...and then see which is the best...
- Int: ...and then say 'Perhaps we should use this'. And of course the likes of Spain and those sorts of guys that come over and seeing our systems and... you know, if they think they can get a better system, ISS allows them to do that...
- RA: Yeah, they can propose it and...
- Int: Yeah. But I think, yeah, if you look at where we need to go as an organisation from a food service prospective, **you need a common operating platform** for... particularly **for back-office** stuff...
- RA: Yeah, because there will be also the cultural component, which in food is quite important...
- Int: Yeah. And we, you know, we, at me moment, because we operate in-country, even our procurement, **we're not leveraging European procurement deals** that we can potentially do even global: we all buy Coke, we all buy Unilever product, we all buy Kraft, we all buy, you know,...
- RA: No, that's true... Yeah, there are some basic thinks that...
- Int: ...Nestlé, you know, and we're doing although everything in-country rather than doing it from a European perspective. Which...
- RA: Yeah, that would be cost-saving and...
- Int: And of course they don't have the data so they can't go to Nestlé or whoever and say 'This is the volume we can provide' because some countries have the system, some countries don't.[...]

⁵⁴⁶ Interviewee (Int) is describing how more IT systems could be developed, used and shared.

ANNEX 7

Interview with the Divisional Director of ISS Facility Services Education, UK

(excerpt)⁵⁴⁷

Int: Yeah. We **have a number of different menus** that we... normally there're **groups of schools** so in some parts of London the menu will be very different from Devon, for example. And then we have a full-time nutritionist who does our special diets and tries to make sure that we've got no allergies with the ones... and there is a very strict process to follow for anybody who has an allergy. And then — I don't know if you have it in Spain — **halal meat...**

RA: We don't... I think they have started avoiding pork and all these things but I am not sure if they have gone so far as buying there, I'm not sure.

Int: We have some where no pork and have *halal* meat and some...

RA: That's in addition?

Int: Yeah... and some... so it depends

RA: That's why it's so... I know that there's... already there are butchers there but it's something socially quite new. So I think parents are starting now asking for no pork but I don't know if they have gone so far as asking for halal, because it's more complicated. I'm not sure...

Int: Yeah. Well, I don't know about Spain but **we have meals of generally two, sometimes 3, choices of meat and a vegetarian**, so if a parent prefers to choose the vegetarian, then that's fine: we generally would make a vegetarian choice, called 'ethnically diverse' — so with curries and other things — so the... if the meat is a pork or non halal, then they've got a choice...

RA: ...they can choose this...

Int: Yeah. But we do find that in certain parts — particularly of London, which is very ethnically diverse — **if**

(00:45)

you get the menu right for that local population, your meal numbers [makes a gesture and sound of rising], 'cause **it's about trust**, so... Talking about culture, a lot of immigrants into the UK may have come from a culture where their children have school meals. So they want their child to have a school meal because that's what it's like, but they will need to trust the catering company to provide them with food that will not be against their religion or their culture...

RA: Yeah, something correct for them, yeah

Int: So if you get it right, then meal numbers grow...

RA: Ah, that's great

Int: ...I mean... and the London Borough of Redbridge is a good example: **3 years ago we started and we were doing 7.000 meals a day. We're now doing over 12.000 meals a day.**

RA: Wow

Int: Very Asian, very Asian population so we made sure that the menu and the ingredients suited that population...

RA: So you have to aim...

Int: And **the staff that we employ are Asian ladies** so they're cooking the food the way the way that eat it at home... And meal numbers have just gone [...]

⁵⁴⁷ Interviewee (Int) talks about addressing diversity in school meals.

ANNEX 8

Interview with the Divisional Director of London (Cleaning) (excerpt)⁵⁴⁸

Int: We've both going to Earl's Court... So my point was... about *Cleaning Excellence*, so basically: **great idea, great concept, the right way to go, all the rest of it, but the difficulty is in making it happen**. You can talk about it, and you can pool all the knowledge together, and you can put it all on the website, and you can write manuals...

RA: That's what I want to see: how the manuals go to the operation so...

Int: Yeah. So the point for me is that if you bombard

(00:35)

your operators with stuff telling them to do this and do that and read this and read that the best they're gonna do, unfortunately, is paying **lip service**, because **they're so busy** and everyone's just running around making the day job work... **And then, the nature of the service business** as well is that things can happen like this morning... you know I was just... had to fit a customer meeting in at 7 o'clock and we were just finishing the meeting at ¼ to 8 and the customer got a phone call to say that the waste hadn't been collected, and so we had to then go and make sure that that was sorted out... I just happened to be there and... it was a real-life situation... and we've done with it but then it just made me be a few minutes late... that can happen and that's the nature of this sort of business. So the point for me is that if you're gonna do this things, you have to put the resource and the effort in to give it the impetus to actually happen so what we've done now on *Cleaning Excellence*... they've... particularly for the Graduates scheme, we've bolstered that team with **a couple of graduates** and then...but not only... but it's not only going to the *Cleaning Excellence*, what I've done is **also taken another graduate** who reports to me, who is my *Cleaning Excellence* champion in London, so although she's gone a part (?) of the *Cleaning Excellence* team, she works for me and she's focusing on the London business and she's really helped to drive it. Because they all get pulled in different directions round the country, but she's only focusing on London, and so she's working...

RA: So you have a person focusing mainly in the **implementation** of this thing...

Int: Yes, yeah. So she's then in... because **she doesn't have an operational day job**, she can focus on the projects, she can focus on having a project plan and delivering it and making sure that she's getting the support and making sure that she understands...

RA: So she's the 'knowledge person'...

Int: Yeah, so she's the one who's then **transferring that knowledge into the business**, so... and making it happen, and that for me is key: you've got to have the resource, the project resource to support the operational management.

RA: And do you have any... **a perception of how this has been received** or if it's working on...?

Int: Yeah yeah yeah. And **it's working really well**...

RA: Yeah?

Int: ...and they... partly because we put the resources we have in and partly because of the personalities involved, deeply involved, but the resistance that we had [...]

⁵⁴⁸ Interviewee (Int) is describing how Cleaning Excellence goes down to operations.

ANNEX 9

Interview with the Director of Cleaning Excellence, UK (entering retirement)

(excerpt)⁵⁴⁹

RA: OK. In terms of the actual employee who's working—the front line employee—do you think that this change of system has given them more autonomy or simply they change the way they're doing things and that's all?

Int: No... I think...

RA: ...what do you think?

Int: I think there's probably some of both because, **as with managers, you have... with employees...** you have those employees that come to work because they need the job and need the money, then you've got those employees that come to work because it is their job, and amongst those there will be some that don't want to get on so... I think it gives the cleaners **more autonomy**, personally, and it gives them more authority and responsibility because **we encourage them to suggest**, because sometimes we may say 'This is the right way' and they look at you and go 'No no no. Have you thought about doing this?' and...

RA: So do they have this possibility of...

Int: Yeah! Of course...!

RA: ...having their say in the thing or...?

Int: Yes, when we go to the contracts to change or we go to the contracts to look at them first... so we... sometimes you can't talk to all the staff, but we will **talk to a lot of the staff**, we will go to the key areas and talk to them and say, you know, 'What can we do to make life better?' Sometimes you can't do a lot because it's like 'I need more over time, and I need higher ****pays**' So you can't... and we will say what we're thinking of doing, and I think... no, I definitely think it makes them to feel more **valued** by all the team, definitely *definitely*. 'cause they feel... what's the word I'm looking for... not just part of it but they feel valued, because if somebody comes in and you just say 'Nay, nay, nay, go and...', they are not motivated and they just think 'Ah, they don't care of what I do'. At first somebody might think 'I really don't like this, because they are on top of me' but, once they get used to it, I think they appreciate the benefits from it. And part of what we're doing is **we encourage team working**, 'cause a lot of it is a flow cleaning in **** time**, so if you've got a 10-storey building, instead of having... what we work from the floor so that helps the client to **reduce energy costs**, it's also good for carbon emissions... 'cause the other side what we're doing is we are trying to not just make some more money and drive out costs but become more carbon-efficient, so there's more green...

RA: Just to clarify, could you explain a little bit more how this is?

Int: Well, if you go into a big building,...

RA: ...the traditional way would be...?

Int: Yeah, yeah. I mean, a good one to look at is: there's a building if you look over there ******

RA: Yeah.

Int: This was one of our contracts—it was one of my contracts for 10 years—[...]

⁵⁴⁹ Interviewee (Int) is talking about the changes Cleaning Excellence has brought to workers.

ANNEX 10

Interview with the Country Manager of People and Culture (HR), Spain

(excerpt)⁵⁵⁰

RA: I després, en quins serveis esteu participant, així més en aquests projectes dels Knowledge Forums...?

Int: Nosaltres a tots.

RA: A tots els que hi ha?

Int: Si. Som molt participatius, eh?

RA: Vale, vale...

Int: Espanya, nosaltres som els que...

RA: O sigui que de seguida que es va començar

Int: Ens apuntem.

RA: ...us vou pujar al carro...

Int: si, sempre ens apuntem...

RA: ...de seguida

Int: ...a tot lo que podem i el [Spain CEO] és molt partidari sempre de que... estar a tot arreu i anar a aprendre, d'anar a copiar... Per exemple ara sé que la setmana que ve que tenim el TMC...

RA: Ah, on és aques any?

Int: És a Londres, eh?

RA: Ah... Ostres! A Londres, justament, he he

Int: Si si

RA: Vale vale

Int: I sé que el [Catering Division Director] i el [COO Spain] hi van uns dies abans per anar a visitar... pues no sé què del catering d'allà i també nosaltres fem Telefònica aquí a tota Espanya, pràcticament tot, i la Ciudad de las Telecomunicaciones a Madrid la fem, i a Anglaterra també fan Telefònica, que és molt gran allà...

RA: Si, és veritat.

Int: ...i també és un dels clients principals d'IFS, pues també el [IFS Division Director] se'n va a visitar Telefònica a Anglaterra, vull dir que aprofitem molt anar a aprendre i a copiar...

RA: Jo acabo d'intentar contactar amb ells, però no sé si me'n sortiré, he he

Int: Amb Telefònica?

RA: No, perquè vaig tenir... No no, amb els d'Anglaterra, perquè com és l'altre país que vull fer servir per la recerca...

Int: A Anglaterra ja estan en un moment de canvi perquè el Country Manager...

RA: ...va canviar...

Int: ...va canviar...

RA: ...se n'ha anat de...

Int: ...se n'ha anat de CFO, eh?...

RA: CFO, si, general

Int: ...i ara n'hi ha un nou que ve de fora, però em sembla fins el maig no comença. O sigui, ja se sap qui és, és un candidat extern, però no comença fins...

RA: Clar, jo vaig pensar 'No sé, a veure qui posaran', perquè a més, ha canviat [...]

⁵⁵⁰ Interviewee (Int) is talking about KT with different subsidiaries

ANNEX 11

Interview with the COO ISS Spain (excerpt)⁵⁵¹

Int: Sí. Bueno, hay una que sería una cuarta pata, que aquí también hacemos... hemos dicho Academy, K Forums

(00:10)

y traslado de procedimientos y maneras de hacer... hay una pata que es la libertad que te dan casi absoluta para viajar países. Yo el viernes, este viernes [the interview was being on Tuesday], voy a París a explicarles cómo hacemos el Cleaning. Ellos están teniendo un problema con la división de Limpieza allí — van perdiendo 100M € en 4 años— y aquí nos ha ido muy bien, incluso España yendo abajo, nosotros seguimos yendo siempre hacia arriba. Pues me han llamado para que explique cómo es la organización, qué hacemos... Y [Cleaning Division Director] me estaba llamando ahora...

RA & Int: ...para esto...

Int: ...para que, como le he pedido que me dé datos, ‘Oye, pues mándame no sé qué’ y ‘Yo te lo envío no sé cómo’ y...

RA: Sí. Esto lo tenía también porque sé que tenéis, o sea, digamos, de vías informales, todo lo que queráis...

Int: Todas. El TMC, esto, lo que te estaba explicando, [Catering Division Director] y yo nos fuimos... esto de la Innovación empezó a las 2, pues nos fuimos a las 9 de la mañana —llegamos antes— y nos fuimos a ver cómo hacen UK el catering.

RA: Ah, catering

Int: De ahí surgió una futura reunión de la parte de compras, o sea, cómo hacen...

RA: Ah, interesante

Int: ...cómo tienen el tema de proveedores y tal. Entonces, el nuestro de compras, se irá a UK dentro de 2 semanas o 3.

RA: Ah, bueno. Y el idioma, ¿qué tal? O sea...

Int: Es en inglés

RA: Ya, pero digo ¿tenéis problema de gente que os gustaría que participara en estas cosas y a lo mejor...?

Int: Sí, en algún caso, sí, en algún caso, sí, pero cada vez menos porque ya hace unos años, estamos...

RA: No, ahora ya sí... gente... sí

Int: ...fichando sólo gente que hable inglés, ya no... es curioso esto. Sí, es así. Entonces... hombre, ninguno, ni nosotros, es buenísimo en inglés, pero bueno, para...

RA: Bueno, pero es suficiente para... sí

Int: ...es suficiente para tal... Y luego, por ejemplo, en el... también cuando lo del TMC, hubo una reunión de cliente Telefónica. Ellos tiene a Telefónica O2 en UK, entonces pues nos sentamos Telefónica de aquí —la gente que lleva Telefónica de aquí... ¿ves?, éste no hablaba mucho inglés, por ejemplo...— y Telefónica de ISS...

RA: IFS, es esto, ¿no?

Int: IFS, sí sí. Y se sentaron, pues para compartir ideas, incluso ** a un cliente, tal y cual. Esto de la reunión informal funciona mucho y bien.[...]

⁵⁵¹ Interviewee is explaining contacts with other subsidiaries. The text triangulates with the former.

ANNEX 12

Interview with the Managing Director of Catering, Spain (excerpt)⁵⁵²

Int: ...**nosaltres tenim uns moments crítics** en què hem de donar el servei. Neteja pot fer el servei durant tot el dia... Si que és veritat que en un moment determinat, doncs en un hospital es pot tacar un terra o un quiròfan s'ha de netejar vull dir en aquell precís moment, no?, però en general, la neteja tens, com aquell qui diu, tot el dia per fer-la

(00:20)

i pots anar distribuint les tasques al llarg de tota la setmana. Manteniment passa el mateix: hi ha moments puntuals, però també hi ha un manteniment preventiu, correctiu, que es va fent al llarg de tota la setmana o al llarg de tot...

RA: Si... ho tens planificat i vas fent, si.

Int: Exactament. En canvi, en serveis de restauració, ja se sap: hi ha uns moments, que són els moments en què mengem, que en aquell moment té que sortir tot bé i tens la **punta de necessitat de mà d'obra en aquell moment...**

RA: Això m'interessa molt perquè jo, clar, he estat parlant... les vegades que he vingut he estat parlant amb gent de neteges i una mica també de control de plagues, però clar, no sé res de càtering, o sigui, tot lo que m'expliquis tu em ve de nou.

Int: És nou, és nou...

RA: Si

Int: Bueno, pues control de plagues passa el mateix. En el fons, també, contractes una empresa per a què faci el control i ve en uns moments determinants que ja està pactat, però que normalment és al llarg del mes...

RA: Si, ja es veu quan venen a fer els controls.

Int: Quan tens que acoplar-ho amb cuina, posem per cas control de plagues a cuina, a llavors, ja no. Perquè llavors hi ha uns moments determinats en què tu no pots entrar ni pots posar determinats productes...

RA: Clar... està la gent treballant...si.

Int: ...perquè pot haver-hi creuaments amb els aliments, eh? Llavors clar, per això és important veure aquesta diferència que en realitat, doncs en el servei de restauració hi ha uns moments del dia en què... bueno, estem condicionats per això, perquè necessites més volum de mà d'obra per a donar el servei en aquell moment. Llavors, el que **no es pot evitar** és el volum de mà d'obra per donar el servei, és a dir, tu **necessites un mínim de persones** —posem per cas, en un menjador de 100 o de 200 en una escola, en una empresa o el muntatge d'una cinta d'emplatat en un hospital— que, en aquell moment, tu no pots estalviar la mà d'obra. És quan necessites el...

RA: Sí. La gent *a full* treballant.

Int: Sí, sí, sí. A llavors, lo que s'ha fet en **innovació** en aquest sentit en càtering, ha sigut precisament que no estiguem tan condicionats per aquests moments, és a dir, que tu tinguis **el màxim de coses avançades** i...

RA: ...preparades...

Int: ...preparades, de forma que en l'últim moment facis l'ensamblatge, eh?, amb una condició: que el resultat final no en surti perjudicat. És a dir, que el client, per dir-ho... l'usuari final, en aquest cas, no té perquè notar doncs que tu has fet [...]

⁵⁵² Interviewee is describing differential traits of catering services.

ANNEX 13

Interview with the Managing Director of Cleaning, Spain (excerpt)⁵⁵³

- Int: Vale. Eh... a veure... No és el projecte, però és per a que ho vegis, eh?, espera un moment.
- RA: Si. No, és per veure una mica la pinta que té, saps? Perquè... sobre tot de la part aquesta que m'has dit, no?, 'La part d'operacions està força bé, no-sé-què', pues...
- Int: Mira. **Quan fem un *Cleaning Excellence***, vale?, en un centre, vale?, hem de fer aquest **master plan**, que es diu, vale? A llavors, lo que... això són totes les operacions que s'han de fer... tu ho veus, allò, oi? Si.
- RA: Si si, perfectament.
- Int: Vale? Hi han unes operacions que part... una és de **negociació** [negotiation], és a dir, 'En qué cliente lo hacemos, que esperamos del *Cleaning Excellence*, tal' Després hi ha una fase de **càlculs** [solution]. Després...
- RA: Ah. El **SimISS**, no? Vale.
- Int: Si. El coneixes el SimISS? És...
- RA: És l'eina que teniu electrònica o informàtica per calcular...
- Int: ...per calcular. Després et... ara t'explico la teoria i...
- RA: ...és el cleaning calculation system, això.
- Int: El SimISS, si. Després t'explicaré en lo que ens falla, vale?
- RA: Molt bé.
- Int: A llavors, després hi ha una part de... bueno, de **tancament**, de hacer el pedido de lavadora i tal i una part de **posta en marxa** [transition] i després hi ha una part de **seguiment** [operation], vale? I aquí nosaltres lo que hem decidit és: aquest document l'hem d'omplir per cada *Cleaning Excellence*, té assignades unes responsabilitats, això ho fa el Director de la Divisió, això ho fa el Gerent, això... bueno, ja... cada color vol dir 'responsable', 'colaborador' o 'autorizador', vale? A llavors, aquí són totes les fases. Tenen unes dates, tenen uns arxius que s'adjunten o no, tenen una sèrie de comentaris, i llavors... Això és un cronograma de com seria el *CE*. Cadascuna d'aquestes parts inclou unes feines i unes coses, unes van en el SimISS, altres són documentació que s'ha de fer per al client, etc. Amb lo qual, això vindria a ser un resum, no del *CE*, sinó de tots els passos que té el *CE*, vale? A llavors, **n'hi han alguns que són molt bons**. Aviam... **El SimISS**: nosaltres, fins ara, ja el SimISS... hi han excels ja que t'ho... **teníem un excel**, nosaltres fèiem anar un excel en comptes del SimISS. Quin problema té, l'excel? És editable i a això els danesos hi donen molta importància, perquè **no està blindat** contra malos usos... ells viuen molt desconfiats..., vale? Però també té altres problemes: que no es pot compartir informació, està **local**, costa més de comparar i de treure ratis agregats i tal... ui el 'buzón de voz', està intens avui... no sé si és que tinc alguna trucada... ara para... no li donem més voltes... vale [he leaves the mobile away]. I l'excel, bueno, pues era una manera que teníem a Espanya de tot... jo quan vaig entrar a Neca ja ho fèiem, un excel de '**cuadro de rendimientos**', que li dèiem. Tu mires les superfícies d'un edifici, cada tipus de zona —un despacho, un lavabo, una cocina...—
- RA: En quant de temps s'ha de fer i... vale. [...]

⁵⁵³ Interviewee (Int) is showing on his laptop the processes involved in *Cleaning Excellence*.

ANNEX 14

Interview with the Head of Procurement (Cleaning Division) & Cleaning Excellence Director, Spain (excerpt)⁵⁵⁴

- RA: ...què has fet tu després, **traspasar tots aquests coneixements, o enviar més gent a DK o...**
- Int: No. El que vam fer va ser...
- RA: ...com ho heu fet això?
- Int: ...el que vam fer va ser —perquè és molt complicat anar a DK— llavors el que vam ver va ser: **vam crear com dos pols de formació**, o dos pols de... vam sembrar la llavor tant a **Barcelona** com a **Madrid**, vale? A llavors, tant a Barcelona com a Madrid hem fet... No, **primer Barcelona**, a Barcelona vam fer: primer **va venir la persona de Cleaning Excellence de DK** a ajudar-nos a la formació, vale? Era un grup de... vam fer com **dos grups**: hi havia un grup de **planners**, que feien... es fa servir una eina per fer els càlculs, el dimensionament de...
- RA: El SimISS?
- Int: **El SimISS**. Doncs aquesta eina pues... s'ha d'aprendre, bueno...
- RA: Sí. És un programa, no?
- Int: És un programa de càlcul de freqüències i de temps... S'ha d'aprendre, no té més. A llavors va venir la persona de SimISS de DK i vam crear un petit grup, vale?, un grup que eren **12 persones de les unitats de negoci**. Això per al càlcul. **Per a la posta en marxa** hi va haver un grup de persones que fèiem la formació que dèiem la... **el grup dels 'supertrainers'**, vale? Llavors, què fem?...
- RA: Per a la implementació...
- Int: ...quan es posa en marxa un centre, la gràcia del sistema no és que dius: 'Això són els temps que s'han de complir: espavileu-vos!' No no: **anem 4, 5, 6 persones —una persona per cada treballador— i durant un dia, 2, 3, 4, 5 els expliquem**: 'Mira, tu tens assignada aquesta ruta. Com ho farem? Mira, ho farem d'aquesta manera... veus?'
- RA: Clar, perquè canvien sistemes de neteja, eines que es fan servir, o sigui, una mica...
- Int: ...rutes de treball,...
- RA: Clar, sí...
- Int: ...procediments, com t'has de moure dintre de les sales... I això ho pots explicar **amb un PowerPoint i amb una pel·lícula si tu vols, però...**
- RA: Sí, no, s'ha de fer in situ... sí.
- Int: **...lo millor és estar al seu costat** i llavors hi ha gent que és més llesta i de seguida ho agafa i hi ha gent que li costa més, pues has d'insistir més. La idea és anar un a un en una formació... Fem una formació primer introductòria molt general —què és la microfibra, per a què serveix el carro, com funcio[na]...— per a que sàpiguen de què va, però després diem 'No no, cadascú...'
- RA: Això ho teniu ja unificat, no?
- Int: Sí sí, **tot això està ja unificat**. A llavors és molt més fàcil a l'hora de treballar. Tenim aquest... llavors hi ha un grup de persones —inicialment eren 5— que són **els 'supertrainers'** que els hi dèiem, que aquests **van anar formant...** [...]

⁵⁵⁴ Interviewee (Int) describes how they have moved knowledge down to front line

ANNEX 15

Interview with the Business Unit Manager of Education Catalonia, Spain

(excerpt)⁵⁵⁵

Int: Molt diferents. **Molt diferents.** A la pública... **per a la privada, el servei de menjador és la millor forma de financiació de l'escola, per lo tant, és pràcticament obligatori** que tots els nens es quedin. Quan existeix una obligatorietat, normalment, baixes molt la guàrdia, i el problema més greu no és tant el procés educatiu —que ho fan els mestres i que per tant ja tenen el seu personal— com el **control de nens**. Perquè mentres que a una pública pues pots tenir menjadors d'una mitja de 150-200, una privada tens una mitja de **900** mínim. Per lo tant, l'element més diferencial és el control. I moltes privades tenen molts problemes de control sobre aquests usuaris. Per tant, per a mi són problemàtiques diferents, són coses diferents. Ara estem treballant amb una privada —justament avui se li ha presentat un projecte de dinamització de patis i de control d'usuaris dintre del menjador— i la veritat és que **quan nosaltres presentem les nostres propostes de lleure, els hi encanta**. Una altra cosa és que puguin assolir-ho, puguin pagar-ho... Pagar el dinar de 80 mestres no és el mateix que **pagar 25 monitors**, no és lo mateix, no té la mateixa incidència econòmica i, per tant, ells tindran que acabar veient si s'enganxen a aquest carro o no. I en aquests moments conec poc la privada com per dir...

RA: Vale vale vale

Int: Lo que sí sé és que nosaltres **sobre la pública hem treballat un temps de migdia** i hem buscat l'excel·lència en aquest temps de migdia i hem tingut en compte tots els elements.

RA: Abans, quan t'he preguntat lo de diferencial vostro, no era respecte els competidors sinó respecte de...

Int: El sector. Sí si si

RA: Vale vale... ja està, perfecte. Només per tenir-ho clar, dic no sé... I respecte els competidors és tota aquesta oferta que feu educativa adicional, no?

Int: Sí, la veritat és que t'haig de dir que els **competidors** estan... són capaços de **preparar documentació i de tenir tècnics comercials** molt ben preparats i molt bé. Hi ha una part de competència que és capaç de complir lo que diu i n'hi ha una gran quantitat que **'Donde digo digo digo Diego [sic] y no cumplo ni la mitad de la mitad'**. Lo que ens estem trobant no és que la competència no sàpiga fer una venda igual de bona que la nostra, lo que ens estem...

RA: ...sinó després la realitat de la vida, clar.

Int: ...és després, és **després**. Nosaltres, com que ho vivim amb aquesta passió i com que ens ho creiem i com que tal, pues, home,

(01:10)

clar que fallem, ens equivoquem molt, però per a nosaltres, **el fet del compliment del contracte és algo que està...**

RA: No, si ho teniu incrustat, sí, he he he, sí [...]

Int: ...**en nuestros genes**, vull dir, ja està, m'entens?, ja està inclòs, llavors...

RA: No, perquè a més ho sabeu, és 'Pan para hoy, hambre para mañana', sinó...

Int: Però bueno... [...]

⁵⁵⁵ Interviewee is discussing the difference between catering for private and public schools.

ANNEX 16

2nd Interview with the Managing Director of Catering, Spain (excerpt)⁵⁵⁶

- RA: És només... Mira, **amb IFS ells també donen càtering**.
- Int: Sí
- RA: Vale. Llavors tot això ho feu vosaltres o **els ajudeu**, els heu ajudat a montar-ho o...?
- Int: **Òbviament**, sí.
- RA: I el **seguiment i tot això el feu vosaltres** o com ho feu?
- Int: **Sí**, d'entrada... d'entrada, clar...
- RA: És que això se'm va oblidar totalment i és un tema de transmissió de coneixements que m'interessa.
- Int: D'entrada **ells**, clar, o sigui, **integren el nostre personal**. Llavors, hem de pensar que els contractes d'IFS **els primers han sigut** d'empresa i **d'empreses grans**, llavors, normalment, han agafat caps d'establiment —responsables— que ja tenen un cert nivell, o sigui, també es va fer així una mica expressament, eh?...
- RA: ...expressament
- Int: ...és a dir, a partir de **l'any** que ve, per exemple, ja **entraran altres contractes més petits** com són Kraft, Reccan i tots aquests que s'ha deixat aquest any. Perquè està fet expressament d'aquesta manera perquè **aquest primer any entren gent que ja te una formació d'un nivell més alt**, però també, a més a més, perquè hi ha una part molt tècnica, que és la de dietètica, que és la...
- RA: Sí, sí, per això
- Int: ...d'higiene alimentària i tot això i...
- RA: ...que els experts els teniu vosaltres...
- Int: ...i si necessiten un projecte doncs de cuina i tot això nosaltres, igualment, i ho fem... imagina't si ho fem... arribem a l'extrem de què **ja s'ha establert un fee mensual** des de la divisió de càtering a la divisió d'IFS que cobreix per dir-ho d'alguna manera pues que la [N], que és la responsable de qualitat, avui mateix, precisament...
- RA: ...vagi allà
- Int: ...avui anava al **Hewlett Packard** a fer la visita de **control d'higiene**... bueno, els assessorem en el tema dels anàlisis, tot això... la **contractació mateixa dels proveïdors és que l'estem fent nosaltres**: compren ells, amb el seu... de fet, de moment, **estan comprant amb el nostre sistema de compres** i amb les DS (?) existents encara, però bueno... O sigui que **cada mes hem de fer un transfer** d'una divisió a l'altra perquè de moment estan utilitzant tot lo que nosaltres tenim, és a dir... I de fet, **si nosaltres implantem un nou sistema informàtic** — que estem anant a això— **ells també el tindran que posar** per a fer les compres i per a fer...
- RA: Aquell que em vas comentar... que esteu provant...
- Int: Sí. I que si...
- RA: Vale
- Int: ...i si fem un pla de menús per a totes les empreses, la [Quality Head], o la dietista, la [N], ho passa també a aquestes 2 empreses que són Johnson i... O sigui, a veure, potser també en aquest temps **ens hem oblidat d'un tema**, no?, que és que **hem fet algunes sessions de formació**, però potser al ser més de [...]

⁵⁵⁶ Interviewee (Int) talks about the relationship with the IFS Division.

ANNEX 17

Interview with the CEO ISS India (excerpt)⁵⁵⁷

JK: Yeah. No, I come back to the **Cleaning Excellence**. See, you've got to understand **this is where the country differs**: Europe, most of the contracts are **output-based contracts** so you agree on this, say 'This is what I deliver to you and the company and the operators decide what kind of resources, what kind of equipments, what is required, so that I meet the **SLA** [Service-Level Agreement]. Moment I meet the SLA I get my money' The customer is not concerned whether I have 5 people working there or I have 2 people working there, I have X number of missions (?) and no other (?). Unfortunately in a country like India, **99% of our contracts starts** in the discussion **as an SLA** contract, but **when it gets signed** as a contract, **it becomes an input-based** contract. Because then they will say '**How many people** will be in my site?', so it becomes pure an input. Then you say 'OK, I have these many managers, these many employees...'. Then they will put that and then what they do is if there is anybody absent, they deduct money for that. So then you cannot have the same standard. What we can do here... so this is where it differs... correct?

RA: Yeah, I see, I see.

JK: Cleaning Excellence... because **Cleaning Excellence can only be successful if you are on an output-based contract**. Cleaning Excellence cannot be a success if you have an input-based contract. Because there is no chance you can do anything better, because moment you have... you agree that 10 people should be there for this contract, you have 9 people, you'll loose already month-pay (?)**money, so you've got to make sure every day there is 10 people, so where is the ** of then bringing in excellence there? Excellence is a motivation for the service provider, that I can... what is done today with 10 people, tomorrow I'll be able to do it with 9 people, then next after 5 months I'll be able to do it with 6 people so that I increase the productivity, I increase the standard, at the same time these people will earn little better and company also will make better margins. But if the input is fix, whether it is 1 year or 2 years or is 1 month, you have to have 10 people every day.

RA: Yeah. You end up... yeah

JK: There is no way that you have that excellence coming in. So what I see today... what I'd like to state here is: **the market is not mature enough** to understand that it is always beneficial for both the customer *and* for the service provider to have an output-based contract

(00:35)

which talks about agreed SLA and the motivation that the service provider is 'How can I increase my productivity? How can I help my employees have a **better living standard**? And at the same time, how can I improve my margins?' That's really happening only when the market's mature, and **here in India we have a long long way to go to that situation**.

RA: OK. And how do you **see the company now, placed in your market**?

JK: Er... If you ask me about our... from the **pure service standards and levels, I think we are leading**; we are the leading player in the market today. We [...]

⁵⁵⁷ Interviewee (Int) talks about challenges the market is posing to output-based contracts.

ANNEX 18

Interview with the COO Facility Services and Head of Cleaning Excellence, India (excerpt)⁵⁵⁸

Int: So I joined him and that time we were very very small: about 15 years back, if I take you over there, Cleantec **we just started in Mumbai**, we started 16 number of...

RA: 16?

Int: **16 number of employees**, Ok? We started on one site, and we were from the day when... **extremely quality conscious**. You know, that was a time, 15 years back... you see today **India is a bit changed**, you know, with the ** and a lot of globalisation which has been happening and the reformations which have been happening, but those were the days when people use to basically use the brooms, they used to use the acid, they used to use the phenyl, and the kind of products to do any kind of cleaning activities, you know...

RA: So you worked in hospitals or every...?

Int: No, we started with one of the **corporate office**...

RA: OK, always offices. Great

Int: Yes, we started in one of the offices, so, even in hospitals, for that matter, or the corporate office, the practices were to use only the acidic products, use the phenyl kind of products, use the brooms, you know, and **all sophisticated**... the mechanised vacuum cleaners, floor scrubber dryers, or any of the high-end cleaning agents, all those **were not there**. So **we were the one of the pioneer**, who **introduced those kind of products**, 15 years back, in this country, in Mumbai, and that became a kind of big success, you know. And with our quality consciousness all across, with the customer word-of-mouth, we spread across and we started getting a lot of inquiries...

RA: Ah, that's great...

Int: ...for our business, and that's how within India or within Mumbai we grew our business. And **in 2-years time we spread this business across the country** and by then — about **2002-2003** — Cleantec became a kind of brand known for the quality in housekeeping and cleaning services in India. We had **a good number of... the customers from every segment**, be it pharmaceuticals, be it the manufacturing, be it retail, be it the residential or even the corporate offices: banks, IT companies, call center BPOs, **... so anything and everything...

RA: So you had diversified...

Int: We had a huge diversification and we had a huge demand as well. Those were the years when we were **growing almost every... 80-90% organically a year**...

RA: Oh, that's amazing ha ha ha

Int: That's amazing, that *was* amazing. And that's where about **2005-2006**, somewhere, ISS came into our picture, **ISS came into India, acquired Cleantec and we all became ISS**. And then the...

RA: **What did this mean for you**, as a company?

Int: Oh, yeah! this was extremely good in sense... You know, we were already following lot of good practices over here. [...]

⁵⁵⁸ Interviewee (Int) is explaining how his original company was created and acquired by ISS.

ANNEX 19

Interview with the Chief Learning Officer, India (excerpt)⁵⁵⁹

Int: And what we do is whenever we have **any other challenges** that we would like to conduct, so and so and we don't have those best practices here or we feel... or we don't know how to go about it **we then go back to the Regional office** and we ask them and they ****[sounds like deferentially]** guide us where we can get the best practices. They may not have...

RA: OK. So... yeah, referring some other countries.

Int: ...country.

(02:05)

Like... **Indonesia** is another country which is **as big as India** in terms of ISS employees so... and they have **very good training systems**, so... I have **gone, personally to Indonesia to see how the training is conducted**

RA: Do you think it is useful to...?

Int: Yes! One thing which I picked up from them was **the skill matrix**...

RA: Ah, that's good

Int: Yeah. They do it in some different way, again, I had to tweak it a bit, but the main thing remains the same. They have a very good... then **Indonesian businesses are to cleaning**. So they **have a training academy for cleaning**, they have a **huge infrastructure** for training in terms of cleaning, so...

RA: So it's a building for this or some rooms for this...

Int: One building they have... I mean the **corporate office is huge**, in which they have one floor, which is close to around 50.000sq.ft. for training, plus... alone in Indonesia, including Jakarta, they have **30 training centres, small, small training centres, plus they have a Training Academy**. So they have a huge infrastructure...

RA: ...a lot of... Yeah

Int: ...and they really invest a lot in employees

RA: So **you don't have training academy as such?**

Int: **We have**, we have

RA: You do

Int: Yes. In fact, previously **we had very very beautiful training academies** but because the entire cost came too...as you know it became, you know, very **difficult** for us **to sustain**. This was prior to I to cover the Learning Department. **Now we have a Training Academy, one in Chennai and one near the east**, one of the places on Siliguri and **we are planning** to come up with **more training academies**. **Training centres**, yes, we have **in all the regions**, every region has a training centre, especially **Chennai has more**, because the spread is big and, as I told you, they have... they cannot bring all the people to the academy, so they have put up at the different places a training centre, which would not be a very well equipped but yes **it can cater to the Induction Program and the Basic Training program**.

RA: So you do it preferably **in this place** rather than **on the spot** where they are working or it's a mix of both?

Int: It's **a mix of both**. Like I told you of **the mobile bus** because we could not get people to the training centres or academies so we said 'Ok, let us go there,' [...]

⁵⁵⁹ Interviewee (Int) is explaining how they train, mainly in cleaning.

ANNEX 20

2nd Interview with the COO Facility Services and Head of Cleaning Excellence, India (excerpt)⁵⁶⁰

Int: ...and we always tell our customer that ‘Look, these are the 10 or 12 customers where we have it in Singapore, these are customer we have it in Bangkok or **Thailand**’, and this is how with that expertise we can able to provide that similar kind of service.

RA: And you thing that it is more applicable [sic] because you are more similar to them?

Int: Yes, absolutely, **more similar to them**. So **even customer it becomes easy**, you know, that if I’ll say UK, they say ‘That’s a different market’, you know, ‘UK is a different market. Will you be able to connect and provide such kind of services here?’ And then it becomes — really being honestly — *challenging* for us. But then customer when we see that, yes, Singapore was same couple of ** back and then they could able to manage, why cannot we? And that then becomes a better starting point for us.

RA: This is interesting. I don’t know what else, he he [looking at the questionnaire while he uses the laptop]

Int: I have asked [Assistant Operations Manager, Mumbai] tomorrow morning, when he’ll come here he will bring this... the **Quality Manual** that we have it.

RA: Ah, that’s good

Int: So every site what we have is a... **once we win the site**, OK?, once we get... the order gets confirmed, ok?... **Sales** goes to the market, they get the lead, they get the lead, pass it onto the Operations, **Operations and Planning & Costing** — remember I told you we have a **CCB Tracker** — so they get together, they do the **due diligence**, they make the **bid**, when we get successful, you know, we **get the contract**. Then the **Transition** people come into our picture, Transition start the transition process: they **create the document** and when the **Operations** actually take over, by the time, **Transition moves out**. But when they move out **they give them a kind of document that this is your Bible**. This Bible you have to refer, because this customer wants this sort of kind of services: this is the frequency, this is the chart, this is the escalation, this is how the job should get, ok? And that **Manual is handed over to the customer**, so everything and anything pertaining to that particular contract is drafted there. So...

RA: So all of them are **very much customised**, so...

Int: Absolutely, absolutely. So if it is a **pharma site**, and a pharma site normally go for a very stringent kind of audits, be it USFDA [US Dood & Drug Administration] audits or be it WHO —World Health Organisation— audits, so when this kind of audits they require **a lot of documental** evidences and a lot of processes so all of those processes...

RA: Yeah, you have to include them...

Int: ...**site-specific are in that manual**

RA: ...by force.

Int: So when those auditors come, they see that, yes, they feel that, yes, this is a [...]
(02:35)

⁵⁶⁰ Interviewee (Int) shows a digital copy of a Site Quality Manual to the researcher.

ANNEX 21

Interview with the VP Human Resources ISS India (excerpt)⁵⁶¹

Int: my first scheme (?). So there were 3 things that came out: **first** thing that I said was **employee engagement**, because in the ISS...

RA: ...the ISS... yes, of course...

Int: ...value chain, it's there in the ISS value chain, and I said 'Whatever I do then connect that with the vision and mission and the value chain of the company'. So we created a very clear cut process that employee engagement will be the key (?). So in **2010** we first launched the process called as **RARE**. Now, what was RARE? RARE was born out of the need and the idea that if we do not retain and engage our people, our clients cannot be happy, because I always believe your satisfied employees will ensure your customer's satisfied. If employees are not satisfied, you cannot ensure customers are happy. It is very important to engage them so that you get the employees' satisfaction, which in turn enables the customer satisfaction. So what we did: we created this platform called RARE, which was basically **Reward, Appreciation, Recognition and Engagement**. Incidentally, RARE also stands for an English word which means something **unique**, which is niche, not done ***, so it actually worked for us, because it was unique for ISS — I don't think any competitors were doing anything like this, and you would not believe, we have till date, even Jolly Kochery who's the Country Manager and me, we got various instances where **competitors have inquired about RARE**, they've asked us 'What is this RARE we keep hearing about it?'...

RA: Ah he he

Int: ...because it's a popular buzzword in ISS today, it's like an operating system. So if you recall, Remei, what I said, we acquired 12 companies.

RA: Yeah

Int: 12 companies had their own very small, small nuances of their own cultures. Now I had to **break these cultures and create one**...

RA: ...one...

Int: ...ISS culture. *RARE became the tool for doing that.*

RA: Ah, OK

Int: *That started breaking the cultural barriers* because people started realising that here is a tool which **recognises** them on a daily basis, on a weekly basis, on a monthly basis, on a quarterly basis, on an annual basis. There are various **award** categories, there are various recognition methods... For example, I'll give you a simple example: [He takes like a card] this is a part of our RARE initiative that is known as daily employee engagement or daily recognition. This is called as '**Pat on the back**'. This is the ISS 'Thank you' card. What you do:

(00:20)

if you are a superior and there are 10 people under you, all you have to do... there are 2 people that have done an *excellent* job on the day, you just need to write their name under here, write what good what they did in that day, sign over here and then you give it to them. This makes their day, it's... so the basic concept of RARE was 'One-minute management. Make their day' So we did a lot of research on this process and I brought all my experience and expertise [...]

⁵⁶¹ Interviewee (Int) starts explaining the RARE programme.

ANNEX 22

Interview with the Head of Catering ISS India (excerpt)⁵⁶²

(00:05)

you know, eliminate the possibility of any bacteria formation, and the **food is cooked and it is served within a span of 3h**. So if the lunch has to start at 12 o'clock, the food is cooked and ready by 10:30 and it is packed...

RA: ...packed and delivered. OK

Int: ...in good quality packing and it is transported and served. So there is no question of it being cooked in bulk [?] and then kept on a freezer or deep freezers, and then...

RA: Yes, it sometimes happens, he he, it's true.

Int: Because in a lot of the... in Europe and, let's say,... and US and... there's a lot of sauces... preparation of that means to be... prepared and then you just portion it out and ** when it's required. There's a lot of cold food also being served and we do not have that concept so everything is... And our meals are very... they're quite... I mean, today I went to a restaurant... our meal is very... what you call?... **there is a lot of components in the meal**. See, a large...

RA: Yeah, you can mix everything together, yeah, it's true

Int: Yeah. When you say in Europe or in US, when you see a lunch it's normally a main course, with a side of a salad or a vegetable or whatever it is... bread. Here there are many components: you have bread — Indian bread... are you familiar with *roti*?

RA: Yeah

Int: *Roti* is the Indian bread, then rice, and then there is something called *dal*, which is our lentils...

RA: Yes yes, lentils.

Int: Yeah. then we have one or two vegetable preparation. And you know, **most of our food preparation is vegetarian**, we **don't normally serve non-veg**, except in a few places. And then we have a bowl of yogurt, curd...

RA: What's this?

Int: Yogurt? Milk er...

RA: Milk curd, ok, yogurt. Sorry, sorry, sorry... I didn't understand...

Int: So that's a part of that, it's sore milk. And except for the yogurt everything else is cooked to high temperatures, so it is... And then this food, once it is served, there's no...

RA: Re-used... OK

Int: Re-used, yeah. And we cannot even prepare this food and keep it in storage.

RA: OK, so it's everything to deliver and that's... OK

Int: So whether we are running an on-site kitchen or we're running a central kitchen the food is the same.

RA: OK.

Int: So that is in terms of our operation.

Of course, in the **healthcare sector** the meal preparation itself it takes a totally different turn, 'cause we work with a **dietician**, who in turn tells us what the patient specifics...

RA: Yeah... requires and... [...]

⁵⁶² Interviewee (Int) starts explaining the idiosyncrasy of Indian food.

ANNEX 23

Interview with the Assistant General Manager (Catering, West Branch), India

(excerpt)⁵⁶³

Int: In Pune when I joined there was the acquisition of central kitchen from a local party — Shrinath's [?] Catering — so we acquired and started our business. The kitchen which they had was not enough set for what we... ISS wanted, so we demolished that kitchen and we started with the other one kitchen and...

RA: **So from scratch**, a new one.

Int: Yes. But clients remained the same. So it was a business of several 22 lakhs, 22 lakhs [=2.200.000INR], when we started that central kitchen acquiring [sic] a seller's kitchen. Then we added some good companies, some good clients and the business grew up to

(01:00)

50 lakhs [=5.000.000INR]. So manpower apparently increased, local sales increased, revenue increased, but the **challenges**, as you know, in central kitchen, that **remained same**. And we managed that kitchen in a very nice way and it was a state-of-the-art kitchen, but finally we decided to **close it down** because of the financial negativeness [mobile]... losses what we were incurring up there. But we have a few clients which we are operating from that kitchen, most of them clients which were in a small account you know, **

RA: Let me see if it's catching your voice. [I'm moving the machine]. It's catching your voice, don't worry. It's quite precise but I wanted to make sure, yeah.

Int: So we have external product (?) **called EON** — that is again **IT** — and that is... that is again at Kharadi, by Pune. We have 22-odd clients over there and the cafeteria, there're 2 cafeterias we are operating there, 2 *** — that is one of the biggest parks [EON IT Park, Kharadi] in India —, cafeterias, food ** in India, **. We're catering almost **2.000 at the time** at that premises, which means that at a time 2.000 people can sit and dine. The **maximum capacity of one park is 10.000**. One is totally filled, there is a footfall of 10.000 in one park. It's a huge business in fact. There is one more park (?) called ** Park, Spice Catering (?), so there are **20-odd campus we're operating**, it's a Bliss Café (?) model we are operating up there, and we are soon introducing one more cafeteria, maybe by August we'll be starting one more park. This is all about Pune operations.

In **Bombay**, as it is already told, we have a few segments like **healthcare**, is there we have 2 big hospitals, and we have taken out of Sodexo, so we are doing very nice, very good up there, in terms of health sector. **We have a school also**.

RA: The school.

Int: Yeah. That is AVM [Arya Vidya Mandir], that is called as AVM, that is at BKC [Road], in Bandra Kurla Complex, it's also a very nice IB school. Sorry, it's not an IB school, it's a **ICSE** [Indian Certificate of Secondary Education] **school**, in fact. And there are... we catering for **1.100 students** up there. [Someone coming in] We are getting **more calls for schools** as well in Pune and in Bombay also, so we may start a few more accounts...

RA: So you're thinking to expand into the schools... [...]

⁵⁶³ Interviewee (Int) explains operations in the West branch. His accent was difficult to understand.

Annex 24

Complete list of 161 items

1. Abroad: Contacts with India	21. Abroad: Support from UK
2. Abroad: Contacts with Israel	22. Abroad: Supporting Argentina
3. Abroad: Contacts with other countries	23. Abroad: Supporting France (in process)
4. Abroad: Contacts with Spain	24. Abroad: Supporting Ireland
5. Abroad: Contacts with Turkey	25. Abroad: Supporting Malaysia
6. Abroad: Exchange with UK	26. Abroad: Supporting Mexico
7. Abroad: Probing France	27. Abroad: Supporting other countries
8. Abroad: Probing Holland	28. Abroad: Supporting Spain
9. Abroad: Probing Israel	29. Abroad: Supporting Thailand
10. Abroad: Probing UK	30. Abroad: Supporting UK
11. Abroad: Probing US	31. Abroad: Supporting US
12. Abroad: Sourcing from Netherlands	32. Abroad: Travelling to other countries
13. Abroad: Sourcing from Australia	33. Academy Programmes
14. Abroad: Sourcing from Malaysia	34. Access
15. Abroad: Sourcing from Nordic	35. Advantage Course
16. Abroad: Sourcing from Norway	36. ApEs
17. Abroad: Sourcing from other countries	37. Chief Knowledge Officer
18. Abroad: Sourcing from Singapore	38. Calls
19. Abroad: Sourcing from Slovakia	39. Calls: Catering Excellence Conf call
20. Abroad: Sourcing from UK	40. Catering Excellence

41. Catering Hygiene Best Practices Manual
42. Catering Meeting (Next)
43. CCB Track Sheet
44. Cleaning Excellence
45. Cleaning Excellence Innovation Team (HQ)
46. Cleaning excellence master plan
47. Cleaning Excellence Training
48. Collaboration Area (Spain Intranet) (In project)
49. Competence Centres / Excellence Centres (future)
50. Contact with Country MT
51. Contacts with Cleaning
52. Contacts with clients
53. Contacts with employees
54. Contacts with HQ
55. Contacts with IFS
56. Contacts with other services: other catering Divisions
57. Contacts with other services: other verticals (Visit)
58. Contacts with peers
59. Contacts with Regional MT
60. Contacts with suppliers

61. Country Intranet
62. Customer Experience Survey
63. Customer surveys
64. Division Directors Meeting
65. Documents
66. Documents of Catering Excellence
67. Emails
68. Employee Forum (catering)
69. European Forums
70. Excel & other
71. Excel sheets
72. Exchanges within Units
73. Executive Development Programs
74. Expatriation
75. Experts
76. Experts list (attempt)
77. Food Force 5
78. Food Style Guide (SharePoint)
79. FSMax
80. Global mailbox

81. GMAO (in project)
82. Graduate Program
83. Handover of London position
84. Home Care brochure
85. Hygiene Manual team
86. Industry Magazines
87. Industry: FS Forums
88. Innovation Fair (TMC)
89. IT tools
90. Knowledge Forums (Sp)
91. Leisure activities
92. Lists of data
93. Meetings with CEO
94. Meetings (suggestion)
95. <i>Mitra</i>
96. Monthly Supervisors Meeting
97. News alert (country)
98. News alert (Global)
99. No sharing with other cleaning businesses
100. NOSE manual

101. Operations Process presentation
102. Outsourced: logistics
103. Outsourced: marketing
104. Partnership with another catering
105. Partnerships
106. People transfer
107. Personal experience
108. Planning and Costing Team
109. Presentations for clients
110. Previous experience
111. Procurement Portal
112. Procurement Team
113. Quality monitoring system (Service Track)
114. RARE program
115. Reference Centres / Centres of Excellence
116. Regional Conference
117. Saffron
118. Seminars
119. SharePoint (Global Intranet)
120. SharePoint Team Rooms

121. SimISS
122. Site Quality Manual
123. Sites: Regional road shows
124. Sites: Travelling to sites
125. Sites: Visits to sites
126. Group Head of Excellence Centres
127. Skype
128. Social network (Suggestion)
129. SOPs
130. Spain Convention
131. Staff survey
132. Staff tracking tool (vISSualise project)
133. Standard Procedures (local) (in progress)
134. Standard Process Frameworks
135. Support from clients
136. Support from HQ
137. Supporting clients
138. Supporting HQ
139. Supporting IFS
140. Supporting managers

141. Supporting Region
142. Tablets (in project)
143. Technical Management Team (in project)
144. Technical Manager
145. Time & attendance system
146. TMC
147. Trade Simple (in process)
148. Training workers
149. Training from HQ
150. Tupper News
151. UK Catering Division Conference
152. UK Conference
153. UK Executive Chefs meetings (in project)
154. University Programs
155. Value Proposition Team
156. Videoconferencing
157. Videos
158. Vocational training
159. Wikipedia-like Tool (Suggestion)
160. Written Documents
161. Zero-Totals Policy

