



OPEN INNOVATION AND COMPETITIVE ADVANTAGE: THE ROLES OF ORGANIZATIONAL STRATEGY AND CORPORATE RISK MANAGEMENT

Francisco Eugênio Musiello Neto

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**UNIVERSITAT
ROVIRA I VIRGILI**

Open Innovation and Competitive Advantage: The Roles of Organizational Strategy and Corporate Risk Management

FRANCISCO EUGÊNIO MUSIELLO NETO

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The Roles of Organizational Strategy and
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Dirigida por Dr. Jorge De Andrés Sánchez,
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HACEMOS CONSTAR que aquest treball, titulat “Open Innovation and Competitive Advantage: The Roles of Organizational Strategy and Corporate Risk Management”, que presenta FRANCISCO EUGÉNIO MUSIELLO NETO per a l’obtenció del títol de Doctor, ha estat realitzat sota la direcció dels professors Orlando Lima Rua (Center for Organisational and Social Studies (CEOS.PP), Polytechnic of Porto), Mario Arias Oliva i Jorge de Andrés Sánchez (Departament de Gestió d’Empreses d’aquesta universitat).

HACEMOS CONSTAR que este trabajo titulado “Open Innovation and Competitive Advantage: The Roles of Organizational Strategy and Corporate Risk Management”, que presenta FRANCISCO EUGÉNIO MUSIELLO NETO para la obtención del título de Doctor ha sido realizado bajo la dirección de los profesores Orlando Lima Rua (Center for Organisational and Social Studies (CEOS.PP), Polytechnic of Porto), Mario Arias Oliva y Jorge de Andrés Sánchez (Departamento de Gestión de Empresas de esta universidad).

WE STATE that the present study, entitled Open Innovation and Competitive Advantage: The Roles of Organizational Strategy and Corporate Risk Management”, presented by FRANCISCO EUGÉNIO MUSIELLO NETO for the award of the degree of Doctor, has been carried out under the supervision of the professors Orlando Lima Rua (Center for Organisational and Social Studies (CEOS.PP), Polytechnic of Porto), Mario Arias Oliva and Jorge de Andrés Sánchez (Management Department, University Rovira i Virgili).

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Dedicatória

- São palavras com que se dedica ou oferece a alguém uma produção literária, [...] pode ser explicada [...] pelas situações e dádivas que a vida lhe proporcionou e ainda proporciona. A minha manifesta GRATIDÃO envolve um sentimento de reciprocidade acompanhada por um desejo de RECONHECIMENTO pelo seu empenho, sua determinação e uma frase ficou registrada como apoio e incentivo “já estive mais distante”.
- Dedico o mesmo sentimento e respeito aos professores Orlando Lima Rua, Jorge De Andrés Sánchez y Mario Arias Oliva, pois estes digníssimos MAESTROS conduziram na perfeição todo processo da orientação da tese de doutoramento até o encontro final.
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Musiello-Neto, 29 de Maio de 2023

- Às minhas ETERNAS PEQUENAS FILHAS Maria Clara & Talinha, mas não tão pequenas..
- As minhas referencias de vida nessa vida, MAMÃE (*in memoriam*); e ao meu PAI (*in memoriam*).
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1. Musiello-Neto, F., Rua, O.L., Arias-Oliva, M., & Silva, A.F. (2021). Open innovation and competitive advantage on the hospitality sector: The role of organizational strategy. <i>Sustainability</i> , 13(24), 13650. https://doi.org/10.3390	JCR IF = 3.889 SSCI (Q2)	---
2. Musiello-Neto, F., Rua, O.L., Arias-Oliva, M., & Souto-Romero, M. (2022). The role of corporate risk management in the relationship between open innovation and organizational strategy. <i>International Journal of Innovation - IJI</i> , 10(1), 6-29. https://doi.org/10.5585/iji.v10i1.20703	JCR ESCI (Q4)	---
3. Rua, O.L., Musiello-Neto, F. & Arias-Oliva, M. (2023). Linking open innovation and competitive advantage: The roles of corporate risk management and organisational strategy. <i>Baltic Journal of Management</i> , 18(1), 104-121. https://doi.org/10.1108/BJM-08-2021-0309	JCR IF = 2.753 SSCI (Q4)	SJR 0.687 (Q2)
4. Andrés-Sánchez, J., Musiello-Neto, F., Rua, O.L., & Arias-Oliva, M. (2022). Configurational analysis of inbound and outbound innovation impact on competitive advantage in SMEs of the Portuguese Hospitality Sector. <i>Journal of Open Innovation: Technology, Market, and Complexity</i> , 8(4), 205. https://doi.org/10.3390/joitmc8040205	---	SJR 0.588 (Q1)
5. Andrés-Sánchez, J., Musiello-Neto, F., Rua, O.L., & Arias-Oliva, M. (2023, forthcoming). Influencia de la innovación abierta, la flexibilidad estratégica y la gestión de riesgos corporativos en la ventaja competitiva. Análisis en el sector hotelero portugués. <i>Revista de Métodos Cuantitativos para la Economía e la Empresa</i> , 36.	---	SJR 0.166 (Q4)

Capítulos de livro científicos

1. Musiello-Neto, F., Rua, O.L., & Arias-Oliva, M. (2022). Linking Open Innovation and Firm Performance. In O.L. Rua (Ed.), *Impact of Open Innovation on the World Economy* (pp. 220-241). Hershey, PA: IGI Global. <https://doi.org/10.4018/978-1-7998-8665-5.ch009>

2. Rua, O.L., Musiello-Neto, F., & Arias-Oliva, M. (2022). Impact of Open Innovation on the Competitive Advantage of Hospitality Sector SMEs. In O.L. Rua (Ed.), *Impact of Open Innovation on the World Economy* (pp. 1-26). Hershey, PA: IGI Global. <https://doi.org/10.4018/978-1-7998-8665-5.ch001>

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2. Rua, O.L., & Musiello-Neto, F. (2021). Relacionando fatores críticos de sucesso e mecanismos de gestão: Contributos da inovação aberta e do risco corporativo. *3rd SBRLab International Virtual Conference*. Universitat Rovira I Virgili, Virtual conference.

Resumo

Esta tese desenvolve-se a partir da premissa de que o modelo de inovação aberta potencia as capacidades inovadoras das empresas, influenciando a gestão do risco corporativo, a estratégia organizacional e a vantagem competitiva. O objetivo fundamental do estudo é, assim, analisar a relação da inovação aberta com a gestão do risco corporativo, estratégia organizacional e vantagem competitiva e, adicionalmente, o efeito mediador da gestão do risco corporativo na relação entre inovação aberta e estratégia organizacional nessa relação.

O referencial teórico-conceitual foi elaborado com base na revisão da literatura sobre o tema, do qual derivou a construção do modelo analítico, a partir do qual se formularam as hipóteses de investigação dos estudos. A contrastação empírica destas foi realizada a partir de uma metodologia quantitativa, que implicou o recurso à construção de um questionário que foi aplicado, sob a forma de inquérito online, a uma amostra de 251 gestores de topo de empresas do setor da hospitalidade em Portugal. Os dados primários recolhidos foram sujeitos a tratamentos de análise estatística descritiva e inferencial, destacando-se a aplicação do modelo das equações estruturais.

Os resultados desta tese confirmam que (1) a inovação aberta potencia positivamente a gestão do risco corporativo, a estratégia organizacional e a vantagem competitiva e (2) a gestão do risco corporativo potencia positivamente a estratégia organizacional e a vantagem competitiva. Adicionalmente, (3) a gestão do risco corporativo apresenta um efeito mediador entre a inovação aberta e a estratégia organizacional.

Ao identificar o modo como a inovação aberta influencia a vantagem competitiva, este estudo orientará, por um lado, os gestores de topo das empresas do setor da hospitalidade em Portugal na definição de estratégias que permitam desenvolver os recursos e capacidades relevantes para o alcance da vantagem competitiva em mercados competitivos. Por outro lado, poderá contribuir para a definição de programas governamentais eficazes de apoio às empresas desse setor.

Palavras-chave: inovação aberta, estratégia organizacional, gestão do risco corporativo, vantagem competitiva, setor da hospitalidade, Portugal.

Abstract

This thesis is developed from the premise that the open innovation model enhances the innovative capabilities of firms, influencing corporate risk management, organizational strategy and competitive advantage. The main objective of the study is thus to analyse the relationship of open innovation with corporate risk management, organizational strategy and competitive advantage and, additionally, the mediating effect of corporate risk management on the relationship between open innovation and organizational strategy in this relationship.

The theoretical-conceptual framework was elaborated based on the literature review on the subject, from which the construction of the analytical model was derived, from which the research hypotheses of the studies were formulated. The empirical contrasting of these was carried out based on a quantitative methodology, which involved the construction of a questionnaire that was applied, in the form of an online survey, to a sample of 251 firms' top managers in the hospitality sector in Portugal. The primary data collected were subjected to descriptive and inferential statistical analysis treatments, highlighting the application of the structural equations model.

The results of this thesis confirm that (1) open innovation positively enhances corporate risk management, organizational strategy and competitive advantage and (2) corporate risk management positively enhances organizational strategy and competitive advantage. Additionally, (3) corporate risk management presents a mediating effect between open innovation and organizational strategy.

By identifying how open innovation influences competitive advantage, this study will guide, on the one hand, the top managers of companies in the hospitality sector in Portugal in defining strategies to develop the resources and capabilities relevant to the achievement of competitive advantage in competitive markets. On the other hand, it may contribute to the definition of effective governmental programmes to support companies in this sector.

Keywords: open innovation, organizational strategy, corporate risk management, competitive advantage, hospitality sector, Portugal.

Resum

Aquesta tesi es desenvolupa a partir de la premissa de que el model d'innovació oberta millora les capacitats innovadores de les empreses, influint en la gestió del risc empresarial, l'estratègia organitzativa i l'avantatge competitiu. L'objectiu principal de l'estudi és, doncs, analitzar la relació de la innovació oberta amb la gestió del risc corporativa, l'estratègia organitzativa i l'avantatge competitiu i, addicionalment, l'efecte mediador de la gestió del risc corporativa en la relació entre la innovació oberta i l'estratègia organitzativa.

El marc teòric-conceptual es va elaborar a partir de la revisió bibliogràfica sobre el tema, de la qual es va derivar la construcció del model analític, a partir del qual es van formular les hipòtesis de recerca dels estudis. La contrastació empírica s'ha dut a terme a partir d'una metodologia quantitativa, que ha suposat la construcció d'un qüestionari que s'ha aplicat, en forma d'enquesta en línia, a una mostra de màxims directius de 251 empreses del sector de l'hostaleria a Portugal. Les dades primàries recollides van ser sotmeses a tractaments d'anàlisi estadística descriptiva i inferencial, destacant l'aplicació del model d'equacions estructurals.

Els resultats d'aquesta tesi confirmen que (1) la innovació oberta millora positivament la gestió del risc empresarial, l'estratègia organitzativa i l'avantatge competitiu i (2) la gestió del risc corporativa millora positivament l'estratègia organitzativa i l'avantatge competitiu. A més, (3) la gestió del risc corporativa presenta un efecte mediador entre la innovació oberta i l'estratègia organitzativa.

En identificar com la innovació oberta influeix en l'avantatge competitiu, aquest estudi guiarà, d'una banda, els màxims directius de les empreses del sector de l'hostaleria a Portugal en la definició d'estratègies per desenvolupar els recursos i les capacitats rellevants per a l'assoliment de l'avantatge competitiu en mercats competitius. D'altra banda, pot contribuir a la definició de programes governamentals efectius de suport a les empreses d'aquest sector.

Paraules-clau: innovació oberta, estratègia organitzativa, gestió del risc corporatiu, avantatge competitiu, sector de l'hostaleria, Portugal.

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Introdução

Apresentação do tema da investigação

A inovação aberta tornou-se um tema cada vez mais estabelecido na literatura da gestão no início deste século (Lee et al., 2010). Alexy et al. (2016) argumentam que uma das principais discussões académicas está associada à influência da inovação aberta na vantagem competitiva, tornando-se, assim, um dos principais tópicos em inovação na gestão no que se refere à explicação das diferenças de desempenho nas organizações com características semelhantes e que operam sob condições de mercado equivalentes (Nayak et al., 2022). A vantagem competitiva é o núcleo da gestão estratégica (Rua et al., 2018; Nayak et al., 2022). Embora difícil quantificar, está no centro das políticas estratégicas das empresas (Nayak et al., 2022). Já para Aranha et al. (2017), o aumento considerável da quantidade de estudos académicos nos últimos anos acerca da inovação aberta não reflete robustez no conceito, que, ainda, necessita de entendimento e aprofundamento dos princípios da inovação aberta voltados para PME.

No que concerne à relação entre inovação aberta e vantagem competitiva, a competência de gestão da empresa depende da aptidão dos gestores de topo em mobilizar e distribuir os recursos disponíveis, o que inclui conhecimento sobre o desenvolvimento do ecossistema de negócios (fornecedores, clientes e restantes *stakeholders*), na senda da criação de valor organizacional proposta por Alavi e Leidner (2001), visto que o impacto do modelo de gestão da inovação aberta tem sido atualmente um dos tópicos de maior discussão no seio da gestão (Huizingh, 2011). Tal reflete, de forma positiva, os resultados alcançados pelas empresas ao alavancarem as respetivas cadeias de valor, com objetivos estratégicos dos negócios alinhados por meio da inovação da gestão (West et al., 2014), utilizando intencionalmente fluxos de entrada e de saída de conhecimento com o propósito de acelerar a inovação interna e expandir os mercados para retenção do conhecimento externo, assumindo os contornos do paradigma da *closed innovation* (Chesbrough & Crowther, 2006).

Este estudo analisa os efeitos da inovação aberta, dos fatores intrínsecos organizacionais e das práticas de gestão de risco corporativo na vantagem competitiva das PME do setor hoteleiro português. As PME são as empresas dominantes em Portugal, representando 99,3% de todas as empresas (Almeida, 2021).

Inicialmente, estudar-se-á o papel da inovação aberta como estratégia nos diferentes modelos de gestão, com vista à vantagem competitiva da organização (Finkelstein et al., 2009). Essa posição é considerada estratégica (competência da gestão de topo), tendente à identificação de fatores-chave para reconhecimento de oportunidades e tomada de decisões que afetam os processos organizacionais (Diaz-Fernandez et al., 2015). Os gestores de topo desempenham um papel crítico, pois as suas ações e decisões criam contextos organizacionais, respostas aos gestores intermédios e desempenhos com impacto final para a organização (Smith, 2014). Os gestores (1) identificam e desenvolvem novas ideias, com vista à construção, apoio e estímulo dos colaboradores envolvidos na aprendizagem e processos, (2) contribuem para a eficiência e a coordenação das capacidades existentes, que suportam as novas capacidades organizacionais e (3) contribuem com lideranças que potenciam a competitividade (Lopez-Cabrales et al., 2015).

A inovação aberta é baseada num forte conhecimento prévio desenvolvido na literatura de gestão da inovação, incluindo abordagens relacionadas com a externalização de I&D, ou seja, terceirização, colaboração entre empresas e interação organização-ambiente (Ferreira & Teixeira, 2018). A inovação aberta surge, assim, como um paradigma emergente a fim de substituir o paradigma anterior, definido por como inovação fechada (Chesbrough, 2003).

A natureza da inovação aberta sugere que a geração de produtos inovadores seja facilitada por uma maior abertura para fontes externas de conhecimento nas organizações, sendo que essa abertura encoraja a fluidez do conhecimento e da informação entre as empresas (Chesbrough & Crowther, 2006; Crescenzi et al., 2016; Shearmur & Doloreux, 2016). Huizingh (2011) reconhece a evolução do conceito nas suas diversas perspetivas, concluindo, contudo, serem necessárias maiores discussões para a sua compreensão e implantação devido aos escassos estudos académicos, nomeadamente relacionados com PME.

Nesse contexto, as práticas dos gestores do topo das PME são particularmente vitais para (a) verificar se há uma relação eficaz entre as atividades da inovação da gestão, uma vez que as fronteiras das organizações estão cada vez mais permeáveis à concorrência e ao(s) seu(s) ambiente(s) influenciador(es) e (b) se são impulsionadas pelos

desenvolvimentos tecnológicos, que correspondem à tendência crescente para a interconexão de pessoas, soluções e organizações (Martins & Lino, 2014).

Benz e Seebacher (2018) afirmam que a noção de ecossistemas está tornando-se popular para descrever um sistema de relações complexas entre diversos atores em analogia com os ecossistemas naturais. Desse modo, e com base na junção de vários ecossistemas, o modelo da inovação aberta tem sido replicado cada vez mais nas organizações, o que possibilita a criação de valor de mercado e vantagem competitiva para o negócio (Martins & Lino, 2014). De igual modo, as empresas que implantaram a inovação aberta, como processo de inovação na gestão, de forma a direcionar a organização ao aproveitamento dos recursos disponíveis, adaptando-se ao novo ambiente competitivo diante novos procedimentos estratégicos, reduziram o risco organizacional, ampliaram a vantagem competitiva e a adaptabilidade ao meio ambiente, com o intuito de obter desempenho superior (Lião et al., 2015). Ainda assim, segundo estes autores, a inovação aberta tornar-se-á uma ferramenta prática de gestão que permite criar novos mecanismos da gestão que acrescentam valor aos produtos/serviços disponibilizados pela empresa, exigindo novas estratégias e decisões dos gestores de topo para a exploração de atividades inovadoras

As empresas esperam respostas célere em ambientes de negócios pautados pela incerteza e vulnerabilidade, em que os gestores de topo são obrigados a ter capacidade flexível e diversificada para vencer a instabilidade do mercado, a fim de se adaptarem a dinâmicas de mercado altamente competitivas num ambiente globalizado e, simultaneamente, essas organizações utilizam estratégias integradas de negócios como bússola para se orientarem face à concorrência empresarial (Lião et al., 2015). Fayoumi e Loucopoulos (2016) sustentam que as organizações têm várias linguagens de negócios propondo-se atender a determinados elementos dos negócios (e.g., regras, decisões, metas, processos, estrutura organizacional, etc.), daí advindo retornos mais rentáveis do seu investimento, independente da natureza do mesmo, maximizando assim o aumento da cadeia de valor da organização, à medida das qualificações e competências que os recursos humanos conseguem efetivamente colocar em prática. Essa dinâmica de mercado, na qual as empresas estão instaladas, acelera a intensificação da competição e cria novos conceitos de produtos, processos, ciclos de vida dos produtos e serviços mais curtos, flexibilidade para o atendimento ao mercado, novas entradas (*inputs*) e mudanças

nos padrões de organização da produção, sendo estes alguns dos elementos que configuram a chamada nova competição, que se opõe à oferta generalizada de produtos padronizados em que as capacidades da gestão desempenham papel de mediador ou moderador para o capital intelectual e para o desempenho da inovação (Wendra et al., 2019).

Nesse sentido, a dinâmica do mercado (vulnerabilidade e incerteza) diz respeito ao modelo de negócio da inovação aberta, recriando ambientes de colaboração e parceria com instituições de investigação e desenvolvimento (I&D), a fim de desenvolver e comercializar propriedade intelectual e criar valor económico à organização (Chesbrough, 2003a; Weiblen, 2014). Portanto, para Weiblen (2014) o termo “aberto”, em modelos de negócios, está fundamentado na lógica da colaboração da empresa com o seu ecossistema, colaboração essa orientada para a conceção do modelo no qual decisões estratégicas enfocam a criação de valor à organização.

Torna-se, pois, fundamental gerir o risco para execução dos projetos I&D, com ênfase na aceleração do tempo de ciclo de vida do produto, situação que permitirá ao gestor integrar ações e mecanismos para minimizar os riscos, alcançando os resultados, para que a empresa possa avaliar as tecnologias externas e, conseqüentemente, inseri-las nas suas ações (Bature et al, 2018). Ressalta-se que as tecnologias internas já apresentam risco suficiente para interferir na conclusão do projeto e as tecnologias externas são capazes de aumentar esse risco, uma vez que são provenientes de variações tecnológicas (Chesbrough, 2012).

Justificação da investigação

Fundamentadas no conjunto de partes independentes do ecossistema da organização, as decisões dos gestores de topo tornam-se estratégicas, pois envolvem a inovação entre organizações (fontes internas e externas), o que traz à inovação aberta uma atenção redobrada entre os investigadores que estudam a inovação na gestão, embora as empresas procurem, continuamente, novas formas de melhorar o desempenho e obter vantagem competitiva (Zhang et al., 2012). Embora haja um interesse crescente pelos investigadores em explorar a inovação aberta, as aplicações conceituais e potenciais do uso pela inovação aberta no setor da hospitalidade são raramente exploradas, uma vez

que as PME têm, frequentemente, um impacto dominante nas economias nacionais, não devendo o seu potencial inovador ser negligenciado (Vrgovic et al., 2012).

A capacidade de prospeção de conhecimento é um desafio complexo (Martins & Lino, 2014), a literatura científica orienta diferentes práticas de prospeção, em particular o conhecimento oriundo de fontes externas (e.g., sistemas de inovação, redes de inovação, modelos de inovação aberta, etc.) que atribuem importância ao papel das fontes de conhecimento que se encontram fora da empresa, por meio das quais o conhecimento é transferido para a empresa por meio de uma variedade de canais (Chesbrough, 2003a).

A mudança do modelo de gestão (de *closed innovation* para *open innovation*) enfatiza a experiência do gestor e exige uma força de trabalho mais qualificada, especialmente em relação às habilidades interpessoais, encontrando-se as empresas do setor da hospitalidade a ajustar as suas estratégias de atração, retenção e desenvolvimento de colaboradores para oferecer uma visão revisada aos clientes (Reilly, 2018). Para essa reorientação estratégica, a inovação aberta pode ser considerada um mecanismo para as PME em termos de conhecimento (interno e externo) e tecnologia, visto que não seria possível a conexão entre fronteiras organizacionais, leia-se limites organizacionais, onde estas estão cada vez mais permeáveis, o que resulta num melhor desempenho em gestão e reduz o tempo de recolocação do produto no mercado (Krause & Schutte, 2015). Esses argumentos por si já seriam suficientes para justificar a elaboração e aplicação deste estudo.

Nesse contexto, a justificação desses pressupostos (modelo da inovação aberta e desempenho superior) encontra-se nos factos que sucedem a vasta literatura sobre teoria das organizações, gestão estratégica e modelos de gestão, com particular ênfase na inovação aberta e nas dificuldades ligadas à gestão enraizadas no conceito da inovação fechada (Aranha et al., 2017). Alguns autores (e.g., Almirall & Casadesus-Masanell, 2010; Leiponen & Helfat, 2010; Huizingh, 2011) sustentam que são poucos os estudos publicados na literatura científica sobre os benefícios da implementação do modelo da inovação aberta nas organizações da inovação aberta, especialmente nas PME.

Hansen e Birkinshaw (2007) afirmam que a simples adoção de melhores práticas de inovação da gestão não garante o sucesso das organizações, se ignoradas as especificidades organizacionais (e.g., cultura organizacional). Estudar, de forma científica, essas questões limitadoras do modelo da inovação aberta em PME, acrescido

pela escassez de estudos científicos sobre este tipo de inovação no setor da hospitalidade, justifica a importância da temática do presente estudo. Nessa arquitetura, a percepção de que este modelo surge como um fator estratégico para a gestão da inovação alarga a sua discussão e aplicação para as pequenas e médias empresas, facto excluído pela literatura (Lee et al., 2010). Assim, a discussão sobre a eficácia da inovação da gestão nas PME ainda está em curso, pois não há consenso entre os investigadores, acerca de qual o melhor modelo da inovação da gestão, tornando-se, pois, pertinente abordar a questão na perspectiva das PME (Trentini, 2011).

A inovação aberta torna-se, assim, um paradigma emergente com base na seguinte suposição de que as “ideias valiosas podem vir de dentro ou de fora da empresa, bem como, podem ser lançadas no mercado dentro ou fora da empresa. Essa abordagem coloca ideias externas e caminhos externos para o mercado no mesmo nível de importância para ideias internas e caminhos internos para o mercado durante a inovação fechada.” (Chesbrough, 2003a, p. 59).

Com base no modelo de inovação aberta é realizado um estudo aplicado às PME do setor de hospitalidade em Portugal, com a intenção de gerar contributo científico e prático. Por meio dos resultados deste estudo, espera-se que a gestão do setor da hospitalidade tenha condições de identificar aspetos relevantes para suas decisões futuras, associando a inovação ao desempenho sustentável. Esse contributo poderá ser alargado para encontrar-se soluções mais eficazes para os diversos problemas organizacionais, suprimindo as necessidades atuais (internas e externas), sem comprometer as necessidades futuras. Além do contributo prático, espera-se que o contributo teórico possa agregar fatores mediadores na relação entre inovação e o desempenho.

Problema, objetivos e questões de investigação

Gomides (2002) afirma que o problema de uma tese consiste em dizer, de maneira explícita, clara, compreensível e operacional, qual a dificuldade com que o investigador se defronta e o que se pretende resolver. Portanto, o objetivo da formulação do problema da pesquisa é individualizado. Para torná-lo específico, em relação ao contexto de investigação deste estudo, torna-se fundamental considerar a forma como as PME portuguesas do setor da hospitalidade utilizam a inovação. Em termos operacionais, o estudo pretende interagir com as organizações estudadas, consubstanciando-se, dessa

forma, os objetivos específicos, bem como as etapas que devem ser cumpridas para que se possa atingir o objetivo geral do estudo (Costa & Costa, 2014).

Para Hruznov (2009) os mecanismos de gestão organizacional são complexos, caracterizando um conjunto de vínculos que surgem entre os diferentes elementos da gestão da organização. Estes integram as ações para implementar o controlo da gestão e a regulação das relações entre ambiente interno e externo para a tomada de decisão. A utilização de mecanismos relativos ao desempenho das organizações estabelece assim novos processos participativos e decisórios mais qualificados de gestão (Ashfaq et al., 2014).

Goffin e Mitchel (2005) afirmam que há elevado número de fatores que influenciam a necessidades de as empresas serem inovadoras, destacando-se: (1) a instabilidade constante no ambiente organizacional, (2) a intensidade da concorrência, (3) a diminuição do ciclo de vida dos produtos, (4) as mudanças nas necessidades humanas e (5) os gostos e expectativas dos consumidores. Lião et al. (2015), ao se depararem com ambientes adversos, referem que uma das principais preocupações da gestão de topo é iniciar e sobreviver dentro de um contexto de negócios globalizados, em constante vulnerabilidade e incerteza, para além da adaptação à capacidade dinâmica do mercado com vista a melhorar o desempenho e a quota de mercado das empresas.

Porquanto, a presente tese pretende responder ao seguinte problema de investigação:

- Qual o impacto das estratégias da inovação aberta na vantagem competitiva e suas relações com a gestão do risco corporativo e a estratégia organizacional das PME do setor da hospitalidade em Portugal?

Com a presente investigação procurou-se avaliar a relação entre inovação aberta e vantagem competitiva. As questões de investigação (QI) são as seguintes:

QI1: Qual é a interação entre inovação aberta, gestão do risco corporativo, estratégia organizacional e vantagem competitiva?

QI2: Qual é a influência da estratégia organizacional na vantagem competitiva?

QI3: Qual é a relação entre gestão do risco corporativo, estratégia organizacional e vantagem competitiva?

QI4: A gestão do risco corporativo tem um efeito mediador na relação entre a inovação aberta e a estratégia organizacional?

O objetivo geral desta investigação consubstancia-se, assim, na análise do impacto das estratégias de inovação aberta na vantagem competitiva das PME do setor da hospitalidade em Portugal.

Ao escolher uma estratégia para responder ao objetivo geral e ao problema de investigação propostos, partindo da abordagem do realismo crítico como paradigma de informação do modelo da inovação aberta, após concetualização, pretendem-se, analisar de forma sistemática, os seguintes objetivos específicos:

Relativamente à primeira questão de investigação (Q11), formulamos os seguintes objetivos específicos:

- (1) Compreender até que ponto existe uma relação positiva entre a inovação aberta, gestão do risco corporativo, estratégia organizacional e vantagem competitiva. Pretendemos, dessa forma, perceber:
 - (a) de que modo a inovação aberta das empresas do setor da hospitalidade influencia a gestão do risco corporativo;
 - (b) de que modo a inovação aberta das empresas do setor da hospitalidade influencia a estratégia organizacional;
 - (c) de que modo a inovação aberta das empresas do setor da hospitalidade influencia a vantagem competitiva.

A segunda questão de investigação (Q12) pode ser dissecada no seguinte objetivo específico:

- (2) Compreender até que ponto a estratégia organizacional influencia a vantagem competitiva. Desejamos, então, entender:
 - (a) de que modo a estratégia organizacional das empresas do setor da hospitalidade influencia a vantagem competitiva.

A terceira questão de investigação (Q13) pode ser traduzida nos seguintes objetivos específicos:

- (3) Compreender até que ponto a gestão do risco corporativo influencia a estratégia organizacional e a vantagem competitiva. Pretendemos verificar:
 - (a) de que modo a gestão do risco corporativo das empresas do setor da hospitalidade interfere na estratégia organizacional.
 - (b) de que modo a gestão do risco corporativo das empresas do setor da hospitalidade interferem na vantagem competitiva.

A quarta e última questão de investigação (QI4) pode ser expressa no seguinte objetivo específico:

- (4) Compreender o efeito mediador do risco corporativo na interação entre inovação aberta e estratégia organizacional. Desejamos, pois, verificar:
 - (a) de que modo a gestão do risco corporativo medeia a relação entre inovação aberta e estratégia organizacional das empresas do setor da hospitalidade.

Pretende-se, relacionar objetivos gerais e específicos com o problema a ser investigado para o desenvolvimento deste estudo sobre o conceito do modelo *open innovation* e a sua aderência para as pequenas e médias empresas do setor da hospitalidade em Portugal. Consultaram-se, nomeadamente, artigos e comunicações científicas a partir da base de dados *Web of Science* e *Scopus*, tendo a busca sido orientada para as palavras-chave deste estudo.

Esta etapa introdutória é de suma importância para o amadurecimento e definição da diretriz do estudo, visando a definição dos objetivos e a forma como se inter-relacionam com a problemática da investigação. Entender a evolução do conceito de inovação aberta, as perspetivas da gestão e o impacto da inovação na gestão, bem como os mecanismos que estão correlacionados aos estudos das diversas áreas de conhecimento foram determinantes para a identificação de uma das principais limitações desse modelo para a investigação empírica.

Espera-se que o objetivo geral, os objetivos específicos e o problema de investigação sejam confrontados com os resultados analisados e interpretados e, dessa forma, contribuir para futuros estudos e investigações que, porventura, possam ser realizados, particularmente, no contexto das pequenas e médias empresas nos países em desenvolvimento.

Contribuição para a investigação

Três lacunas significativas de conhecimento foram identificadas como motivação para a realização do estudo:

- (1) embora a investigação sobre inovação aberta esteja cada vez mais alargada, há uma “restrição” relativamente às PME, particularmente no setor da hospitalidade;

(2) insuficiência de estudos acerca da realidade das PME relacionando o modelo da inovação aberta em países que não se encontram na fronteira tecnológica (países emergentes); e

(3) por último, escassez de conhecimento sobre as práticas de gestão de topo no contexto da inovação aberta quando relacionadas a gestão do risco corporativo, estratégia organizacional e vantagem competitiva, especificamente nas PME portuguesas que utilizam a inovação aberta como modelo de gestão.

Consequentemente, com este estudo tem como um dos seus principais contribespera-se preencher as relevantes lacunas no conhecimento acerca do modelo da inovação aberta, com implicações no pensamento estratégico que conduza a estratégias de gestão emergentes.

Capítulo 1 – Open innovation and competitive advantage on the hospitality sector: The role of organizational strategy

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Article

Open Innovation and Competitive Advantage on the Hospitality Sector: The Role of Organizational Strategy

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Abstract: This paper assesses the relationship between open innovation and competitive advantage and the mediating effect of organizational strategy. Using a quantitative methodological approach with survey data from 251 Portuguese hotel executive directors' small and medium-sized enterprises (SMEs), this research adopted a quantitative methodological approach, thereby conducting an exploratory and transversal study. Findings show that (1) open innovation influences organizational strategy and (2) organizational strategy enhances competitive advantage. Moreover, the results also highlight that (3) organizational strategy has a mediating effect between open innovation and competitive advantage. The paper provides relevant insights that will lead the firms' top managers to design and implement strategies and define effective government policies, programs, and incentives to support the development of the firms' open innovation model in the hospitality sector considering the new smart society and smart cities growing environment.

Keywords: open innovation; competitive advantage; organizational strategy; hospitality sector; structural equations model



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1. Introduction

Open innovation became an increasingly established topic in the management literature since the beginning of this century [1], with the impact of the open innovation management model currently a topic of significant discussion within academia [2]. For Aranha et al. [3], the recent considerable research on open innovation does not reflect robustness in the concept, which still needs understanding and deepening of the principles of open innovation aimed at SMEs, usually organizations that present more significant restrictions in its implementation. Smith [4] recognizes the evolution of open innovation in its various forms but concludes that further discussions are needed for its understanding and implementation due to few academic studies, mainly about SMEs.

The innovation management literature has developed solid prior knowledge that has given rise to open innovation, antagonistic to closed innovation, with the contribution of R&D outsourcing, i.e., outsourcing, inter-firm collaboration, and organization–environment interaction [5]. Open innovation thus emerges as an emerging paradigm to replace the previous paradigm, defined by Chesbrough [6] as closed innovation. As a strategy of different management models, the role of open innovation aims to obtain a competitive advantage by organizations [7]. For this purpose, strategic positioning tends to identify key factors for recognizing opportunities and making decisions that affect organizational processes [8]. The development of innovative products by organizations derives from the openness to external knowledge [9–11].

The firms' management competence depends on the ability of top managers to mobilize and distribute available resources, which includes knowledge about the development of business ecosystems (suppliers, customers, and other stakeholders) that enhance the creation of organizational value [12]. This capacity reflects, in a positive way, (1) the results achieved by firms by leveraging their value chains, with strategic business objectives aligned through management innovation [13], and (2) the intentional use of knowledge to promote internal innovation and to develop markets, taking on the contours of the paradigm of closed innovation [9]. In this context, SMEs top managers' practices are particularly vital to verify if there is an effective relationship between the activities of management innovation, since the boundaries of organizations are increasingly permeable to competition and its influencing environments and technological developments, with an increasing tendency to the interconnection of people, solutions, and organizations [14].

Firms seek answers in business environments marked by uncertainty and vulnerability. In this sense, top managers must have the flexible and diversified capacity to overcome market instability and thus promote adaptation to competitive markets. These organizations use integrated business strategies as a compass to guide themselves in the face of business competition [15]. Inclusively, Fayoumi and Loucopoulos [16] maintain that organizations have various business languages seeking to meet particular business' variables (e.g., goals, decisions, rules, processes, and organizational structure, etc.) to boost possible profitable returns on their investment. These market dynamics accelerate the intensification of competition and create new solutions for products, processes, shorter product and service life cycles, flexibility for market service, new inputs, and changes in production organization patterns) [17]. These elements configure the so-called new competition (open innovation). Thus, with associated vulnerability and uncertainty, market dynamics concern the business model of open innovation, recreating a collaborative and partnership environment with research and development (R&D) institutions to develop and commercialize intellectual property and create economic value to the organization [18,19]. Therefore, for Weiblen [19], the term "open" is linked with a firm's collaborative ecosystem. This linkage is oriented toward the model's design in which strategic decisions focus on value creation, making it essential to manage the execution risk of R&D projects.

Managers identify and develop new ideas to build, support, and stimulate employees involved in learning and processes. This framework contributes to the efficiency and coordination of existing capabilities, which support new organizational capabilities and gain competitiveness, as each leadership style contributes to the transformational competencies of the firm [20]. Thus, this paper aims to investigate the effect of open innovation in competitive advantage by examining the mediating effect of organizational strategy by addressing the following research questions: Does open innovation have a positive effect on competitive advantage? Additionally, does organizational strategy mediate the relationship between open innovation and competitive advantage?

This paper is organized as follows: First, the theoretical foundations for this study are presented, leading to the hypotheses' development and proposed model. In the following section, we put forward the methodology, including the research design and measures. Then, results are analyzed. Finally, we discuss these results and present our conclusions.

2. Theoretical Framework

2.1. Open Innovation

The concept of the open innovation model is not completely new [21,22]. Cohen and Levinthal [23] previously developed the concept of absorptive capabilities, i.e., the ability of firms to recognize the importance of external information that, after an assimilation process, can be applied to valuable, marketable products. Besides, these researchers had already explored the relationship between innovation and dynamic capabilities, mainly a firm's ability to interact, develop, and define internal and external capabilities in competitive environments. For Teece et al. [24], it translates into exploring new possibilities originating in exploiting old certainties (closed innovation) related to organizational learn-

ing. According to Chesbrough [6] (p. 24), this leads to the emergence of open innovation, characterized as something that “embraces, connects and integrates a range of existing activities,” defined as “a paradigm that assumes that companies can and should use both external and internal ideas, and internal and external paths to market as companies seek to advance their technology”. Following the consolidation of the open innovation concept, intentional knowledge inputs and outputs can boost internal innovation and enhance external innovation on complex markets [9]. For Lichtenthaler [25] (p. 77), open innovation allows “systematically realizing the exploration, retention, and exploitation of knowledge within and outside the boundaries of an organization throughout the innovation process”.

Chesbrough and Bogers [22] argue that the concept of open innovation proposes that the R&D model is transformed into knowledge inputs and outputs that they can manage purposefully, where firms can (1) develop input processes to seek and transfer external knowledge for their innovation activities, (2) create output channels to move new internal knowledge within the firm to other organizations in the surrounding environment, and (3) define specific mechanisms designed to direct these knowledge inputs and outputs. The open innovation model defines requirements of the relationship between innovation and organizational processes, which generates new internal and external ideas and allows the formation of a new architecture, systems, and management platforms [26]. In addition to providing guidelines, management is responsible for delivering the active support needed to manage the change in business processes that new technologies impact, which facilitates the mitigation of stakeholders’ resilience and increases the chances of success [27].

However, for Chesbrough and Crowther [9], factors such as organizational culture, the role of the top manager (innovation process), intellectual capital (employee talent), and organizational structures have begun to be reviewed based on the concept of open innovation. Firms seeking to structure or remodel new management processes will need to deal with a greater flow of ideas from various sources outside the corporation. For Van De Vrande et al. [28] and Huizingh [2], some activities favor the firm in acquiring new knowledge and technologies outside the boundaries of the organization (e.g., partnerships), allowing an intentional flow of knowledge input that will capture and benefit from external sources of knowledge. According to these authors, partnerships can also evolve into formal alliances or the acquisition of technological capabilities to (i) establish external participations by investing in start-ups to maintain market opportunities, (ii) outsource R&D to acquire external, licensed, or purchased knowledge, and (iii) bring in key knowledge developed outside the boundaries of the organization.

Open innovation enables the acquisition of new inter-organizational competencies by offering a perspective for developing dynamic capabilities [24]. The promotion of knowledge for managing success or failure and competence as a transition from the management process complement each other, as organizations of different branches and sizes can benefit from open innovation, even when they are not the developers of new products, services, and technologies [24].

Thus, it is intended to test the following research hypothesis:

Hypothesis 1 (H1). *Open innovation has a positive effect on organizational strategy.*

2.2. Organizational Strategy

Firms need to create a heterogeneity that enhances exploiting resources and implementing innovation strategies [29]. The implications and consequences of implementing organizational strategies increasingly focus on the human factor, the management of new knowledge, and best practices to expand business [30]. Therefore, there seems to be a reasonable degree of consensus on the effectiveness of the strategy concept and its implications as a guide for long-term organizational management [31,32].

In dealing with the challenges of the organizational environment, firms must strengthen their R&D capabilities and promote innovative cultures and work teams [33]. This way, service firms should design the refined categorization of technological innovation to aid business renewal with new marketing approaches, new management practices (structural

or technical), and new work processes, thus developing innovative forms of employee management that foster internal and external relations [34]. Technological advances, such as the internet, transportation, logistics, and materials, etc., have changed firms' performance and generated many new companies with new businesses and new business models, where these technologies certainly influence the expectations and dissemination of "new technologies" [35].

The organizational strategy concentrates the resources to achieve the desired results; strategy drives organizational practices and decisions associated with allocating resources and seeking opportunities [36]. However, Spyropoulou et al. [37] argue that there is a need to align organizational characteristics with competitive strategy and managerial risk mechanisms to build management to achieve superior performance. There are significant interactions between organizational characteristics (decision-making style, organizational structure, and management style) and the strategies employed by organizations [38]. Management mechanisms facilitate alignment between technology and business strategies, thus establishing a market orientation that significantly affects organizational innovation [39].

Any competitor cannot simultaneously implement a strategy that leads the organization to a competitive advantage [40–42]. Organizations launch innovative products to achieve sustainable competitive advantage [43]. The linkage between innovation and competitive advantage allows the organization to effectively use its resources (internal and external) to manage them for the generation of innovations, which are likely to gain a competitive advantage. However, Nuryakin [44] argues that market orientation for product and service innovation is empirical evidence on the importance of competitive advantage to enhance superior performance in SMEs by top managers.

This leads us to posit the following hypothesis:

Hypothesis 2 (H2). *Organizational strategy positively influences competitive advantage.*

2.3. Competitive Advantage

For Porter [45], competitive advantage is gained when a firm adds value for customers; it is not just about production cost—it is also about market solutions that competitors cannot deliver, and it must accomplish a firm's position or its market leadership. Firms can thus take advantage of their capabilities and competencies to promote business growth and gain competitive advantages [46,47]. The author mentions the example of developed countries; as a result, they are more competitive than others (developing countries), by using internal productive capacities and structures capable of transforming into competitive advantages, something that companies from these (developing) countries cannot. This author also identifies two sources of competitive advantage for the organization. The first refers to the lower production cost achieved by the firm, which provides greater productivity by marketing its product more effectively and choosing more competitive prices. The second refers to the differentiation of products and services, the ability to offer the customer a superior final value product or service in terms of product quality, specific features, and/or support services. According to Porter [46,47], these sources are embedded in the competitive process, directly implying the creation of competitive advantages and their long-term sustainability.

However, Barney [48] and Rua [49] mentions that the firm must consider the available resources that can be the differential for the construction and consolidation of the market. Thus, a competitive advantage is accomplished when an organizational strategy can create innovative products for the customer. Therefore, the most significant opportunities for value creation are being seized by retail chains; these are decisive for improving the quality of the firm's products and services and maintaining competitive advantage [50,51]. For Simão and Franco [52], the difference between the firm's product or service with its competitors should be durably grounded in the market. Analyzing the impact of different sources of knowledge (internal and external) for organizational innovation adoption and decision making can stimulate the introduction of new management practices because external sources are the main drivers for innovative ideas [48].

Hong et al. [53] maintain that open innovation can positively influence competitive advantage as available organizational resources are essential for better performance in the organization. Innovative firms' introduction of unique products or services allows them to be more competitive and successful than their competitors [54]. Innovative firms can convert competitive threats into opportunities by delivering differentiated products or services; innovative firms are increasingly globalized and segmented market-oriented than in minimally competitive markets [55,56]. For Wang and Wu [57], resources only become significant when they are abundant.

Thus, we intend to empirical test the following hypotheses:

Hypothesis 3 (H3). *Open innovation has a positive effect on competitive advantage.*

Hypothesis 4 (H4). *Organizational strategy has a mediating effect on the relationship between open innovation and competitive advantage.*

Figure 1 presents the proposed research model and hypotheses.

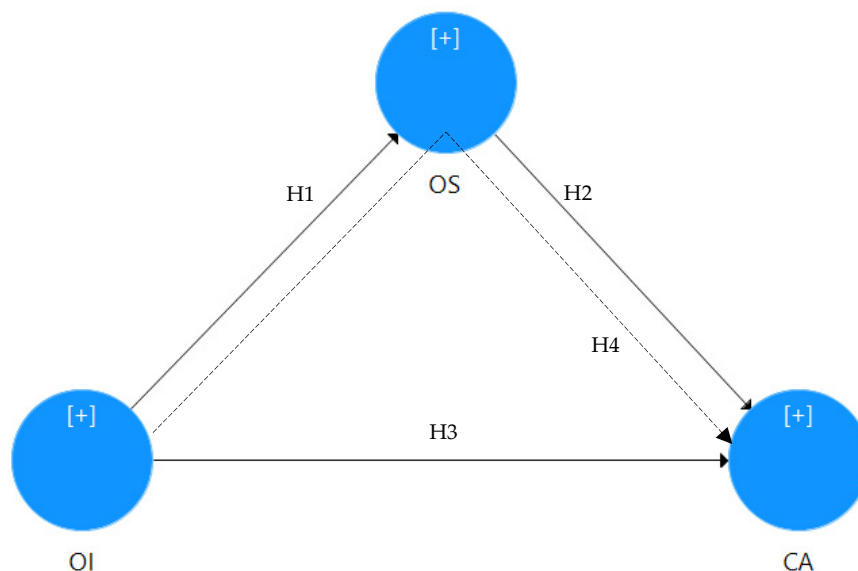


Figure 1. Research model and hypotheses. Notes: OI—Open Innovation; OS—Organizational Strategy; CA—Competitive Advantage. Source: Own elaboration.

3. Research Methods

3.1. Sample Design and Data Collection

The sample was drawn from Portuguese hospitality sector firms. A questionnaire was used as the primary data source and was carried out from 28 October 2018 to 27 April 2019. The identification of firms was made through Portugal's Hotel, Restaurant and Similar Association (Associação da Hoteleira, Restauração e Similares de Portugal—AHRESP) database, which features 1727 hotels, of which 717 were disregarded for not having active e-mail. Thus, in this study, we have used non-probabilistic and convenient sampling.

Hotel executive directors were the elements of research, and the unit of analysis is individual. 348 responses were received, of which 97 were eliminated because (1) the survey was not fully covered, (2) the hotel had no employee designated for this purpose, and/or (3) the manager did not have time to respond to the survey. Thus, 251 complete and validated questionnaires were obtained, and the sample size was considered appropriate according to Krejcie et al. [58]. This score corresponds to a response rate of 24.85%, which is regarded as good as the average response rate of the top management survey is in the range of 15–20% [59]. According to Hair et al. [60], this sample size is considered suitable for data analysis using structural equation modeling of partial square composition (PLS-SEM), as it allows analysis even with small sample sizes.

3.2. Measures

The constructs of this study were measured with scales from previous research. The two dimensions of open innovation, inbound and outbound, were assessed using 6 items from Sisodiya et al. [61] and 5 items from Cheng and Huizingh [62]. The three dimensions of organizational strategy, environmental dynamism, organization structure, and strategic posture, were measured using the 21 items proposed by Morgan et al. [63]. The three dimensions of competitive advantage, cost, service, and product were analyzed according to the 10 items recommended by Kaleka et al. [64]. All items are presented in Appendix A.

We followed Brislin's [65] recommendations when translating the questionnaire from English into Portuguese. The two versions were compared to avoid any discrepancies and differences between the two. This process was ensured by the Porto School of Accounting and Business (Portugal).

4. Results

4.1. Non-Response Bias and Common Method Bias

We tested the non-responses bias to verify whether the responses obtained reflect whether the sample is representative of the population. Thus, we used the extrapolation method suggested by Armstrong and Overton [66] to test the non-existence of differences between two groups of respondents, the group of early respondents (first quartile), and the group of later respondents (fourth quartile). For these authors, the responses of non-respondents are similar to those of the last respondents. The second group is considered representative of the population if there are no significant differences between these two groups. The response dates of the elements of the first group are between 28 October and 31 December 2018 (82 responses) and the second group between 1 January and 27 April 2019 (169 responses). We compared the first answers (first quartile) with the last answers (fourth quartile).

To assess differences between groups, we compared the means of responses obtained for respondents in the first group (first quartile) and the second group (fourth quartile) for all variables included in the model. For this purpose, the Mann–Whitney U test was used, which showed that most of the means of the later responses are higher than the means of the initial responses. Still, the differences are not statistically significant ($p > 0.05$), so the null hypothesis of equality of means between the initial and later answers. We then conclude that the sample is representative of the population.

Ten specialists validated the instrument's content—five executive directors and five professors specialized in hotel management. A pilot study was carried out by sending the questionnaire to 32 executive directors of hotels to ensure its clarity. This process did not lead to amendments to the questionnaire. Reliability was also assessed to verify the internal consistency of the scales used in the study, which proved to be excellent (0.934).

4.2. Descriptive Analysis

The reliability analysis was performed using Cronbach's alpha. It is possible to sustain the responses' consistency, stability, and heterogeneity, according to Pestana and Gageiro [67]. The sample reliability is excellent for all variables (0.958).

Table 1 shows the descriptive statistics of the sample's demographics.

4.3. Partial Least Square Structural Equations Modeling (PLS-SEM)

PLS-SEM path modeling was used to test our hypotheses [60,68]. This technique is the most adequate to estimate our research model since: (1) this study focuses on prediction and explanation of constructs variance (in our case, three), and (2) the relationship between open innovation and competitive advantage can be measured directly and indirectly via organizational strategy.

Table 1. Standardized factor analysis loadings, AVE, and CR.

Item	%
Gender:	
Male	62.5
Female	37.5
Age (years old):	
18–25	19.3
26–35	26.9
36–45	42.6
46–55	8.4
>55	2.8
Academic qualifications:	
Vocational qualification	55.6
Bachelor degree	28.9
Master degree	12.6
PhD	2.9
Professional experience (years):	
<1	7.3
1–5	48.7
6–10	30.8
>10	13.2

4.4. Results of Measurement Model Assessment

The reliability of the variables was studied by analyzing the internal stability and consistency of Cronbach's alpha, which must be greater than 0.7 [69,70]. The Cronbach's alpha is excellent, ranging between 0.931 and 0.978 (Table 1) [67]. Results show that the measurement model meets all general requirements. First, all reflective items have a load higher than 0.707, which means that the reliability of individual indicators (loading) is higher than 0.5. Second, all-composite reliability values and Cronbach's alpha values are higher than 0.70, suggesting acceptable model reliability. Third, the average variance extracted (AVE) values of all constructs are higher than 0.50, indicating an adequate convergent validity and implying that our set of indicators represent the same underlying construct [60].

The composite reliability coefficient was also used to test the convergent validity [71]. As can be seen from Table 1, using the parameters of Gefen and Straub [72] that advocate a minimum level of 0.6, the variables exponentially exceed the required value. In this study, the method proposed by Fornell and Larcker [73] was used, which suggests using the AVE with a minimum value of 0.5 to prove convergent validity. As can be seen in Table 2, all variables did also reach the required value.

Discriminant validity is determined by construct and is related to the level at which it differs and stands out from the other constructs of the model, thus making it necessary to have no correlations with other latent variables, and it can be gauged from the principle that all cross loads cannot be higher than the loading of each indicator [60]. Henseler et al. [74] propose Heterotrait–Monotrait Ratio (HTMT) to assess the discriminant validity, which is a new and advanced criterion and is one of the effective methods to evaluate it. Therefore, HTMT was used to assess the discriminant validity of the constructs, and its values are given in Table 3. All the values were less than 0.90, as recommended by Gold et al. [75]; hence, discriminant validity had also been established for all constructs.

Table 2. Standardized factor analysis loadings, AVE, and CR.

First-Order Constructs	Items	Loadings	CR	AVE	Mean	SD
Open innovation ($\alpha = 0.957$)	OI_9	0.903	0.962	0.698	4.74	1.482
	OI_10	0.897			4.71	1.523
	OI_3	0.892			4.84	1.653
	OI_2	0.888			4.67	1.666
	OI_5	0.884			4.68	1.653
	OI_8	0.862			4.84	1.497
	OI_4	0.716			5.03	1.535
	OI_7	0.698			4.53	1.622
	OI_6	0.690			4.65	1.671
	OI_11	0.686			4.53	1.621
OI_1	0.635	5.12	1.605			
Organizational strategy ($\alpha = 0.970$)	OS_13	0.859	0.974	0.650	4.92	1.117
	OS_18	0.858			4.97	1.073
	OS_15	0.858			5.08	1.043
	OS_5	0.840			4.91	1.147
	OS_11	0.824			4.89	1.181
	OS_7	0.823			4.93	1.146
	OS_9	0.822			5.02	1.103
	OS_16	0.818			4.94	1.127
	OS_12	0.804			4.90	1.144
	OS_10	0.805			4.87	1.179
	OS_6	0.789			4.99	1.100
	OS_20	0.788			5.17	0.990
	OS_4	0.784			4.91	1.150
	OS_2	0.726			4.88	1.145
	OS_21	0.744			5.03	0.998
	OS_8	0.723			4.85	1.142
	OS_1	0.691			4.88	1.169
	OS_3	0.690			5.03	1.110
	OS_19	0.657			5.11	0.907
	OS_14	0.652			5.04	0.906
OS_17	0.633	5.12	1.201			
Competitive advantage ($\alpha = 0.949$)	CA_3	0.962	0.974	0.650	4.92	1.171
	CA_4	0.952			4.94	1.158
	CA_2	0.925			4.93	1.165
	CA_1	0.904			4.93	1.170
	CA_8	0.893			4.87	1.172
	CA_7	0.870			4.81	1.214
	CA_5	0.845			4.88	1.216
	CA_6	0.841			4.74	1.209
	CA_10	0.793			4.98	1.156
	CA_9	0.766			5.06	1.177

Table 3. HTMT.

HTMT	1.	2.	3.
1. Competitive advantage			
2. Open innovation	0.341		
3. Organizational strategy	0.397	0.547	

The measurement model is displayed in Figure 2.

4.5. Results of Structural Model Assessment

For this purpose, the significance of the model was assessed based on path coefficients, t -values, and standard errors. The hypotheses tested the direct and indirect effects through the bootstrapping procedure using Smart PLS 3 [74]. The PLS algorithm followed by bootstrapping techniques were used to calculate the relative strength of each exogenous construct.

All hypotheses were significant according to Chin [71], who advocates a minimum structural coefficient of 0.2. As displayed in Table 4, open innovation had a significant and positive relationship with organizational strategy ($\beta = 0.532$, $t = 10.050$; LL = 0.426, UL = 0.625) and competitive advantage ($\beta = 0.175$, $t = 2.646$; LL = 0.049, UL = 0.311); thus, H1 and H3 were supported because the lower limit and the upper limit included zero, indicating that this relationship was insignificant. Moreover, organizational strategy had a significant and positive relationship with competitive advantage ($\beta = 0.289$, $t = 4.011$; LL = 0.160, UL = 0.437); thereby, H2 was supported.

Table 4. Path analysis: direct effects.

Hypotheses	Original Sample (O)	Sample Mean (M)	Standard Error (STERR)	T Statistics (O/STERR)	L.L.	U.L.	Decision
H1: OI -> OS	0.532	0.533	0.053	10.050 *	0.426	0.625	Supported
H2: OS -> CA	0.289	0.294	0.072	4.011 *	0.160	0.437	Supported
H3: OI -> CA	0.175	0.177	0.066	2.646 *	0.049	0.311	Supported

Note: *: $p < 0.001$.

The significance of the mediating effect was tested using the Sobel test [76]. This test, considered valid for testing the statistical significance of the indirect effects, is widely used in recent research [77–79]. The Sobel test results [Sobel test statistic = 3.66623892 (>1.96)] confirm that organizational strategy mediates the relationship between open innovation and competitive advantage, as shown in Table 5.

Table 5. Sobel test (mediation test).

Sobel Test	Values
A (IV β)	0.532
B (DV β)	0.289
SE _(A)	0.050
SE _(B)	0.074
Sobel test statistic	3.66623892 (>1.96)
One-tailed probability	0.00012307 (<0.05)
Two-tailed probability	0.0002961 (<0.05)

We conclude also that open innovation justified 28.3% of organizational strategy ($R^2 = 0.283$) and that organizational strategy justified 16.8% of competitive advantage ($R^2 = 0.168$).

The following figure (Figure 3) makes it possible to observe the structural research model assessment, already considering both direct and indirect effects.

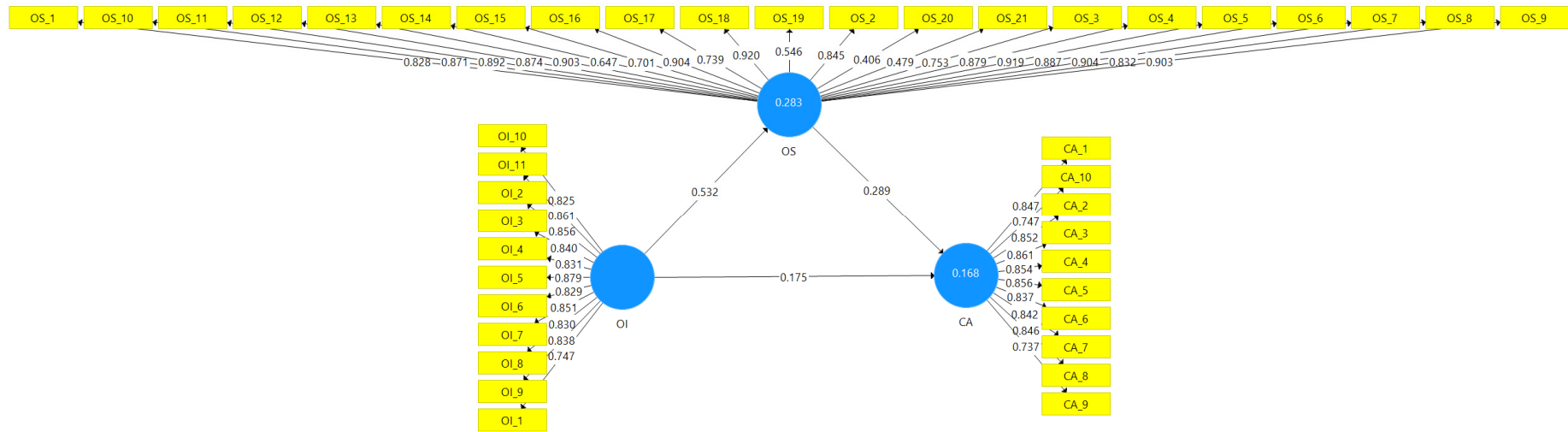


Figure 2. Measurement model assessment. Source: Own elaboration.

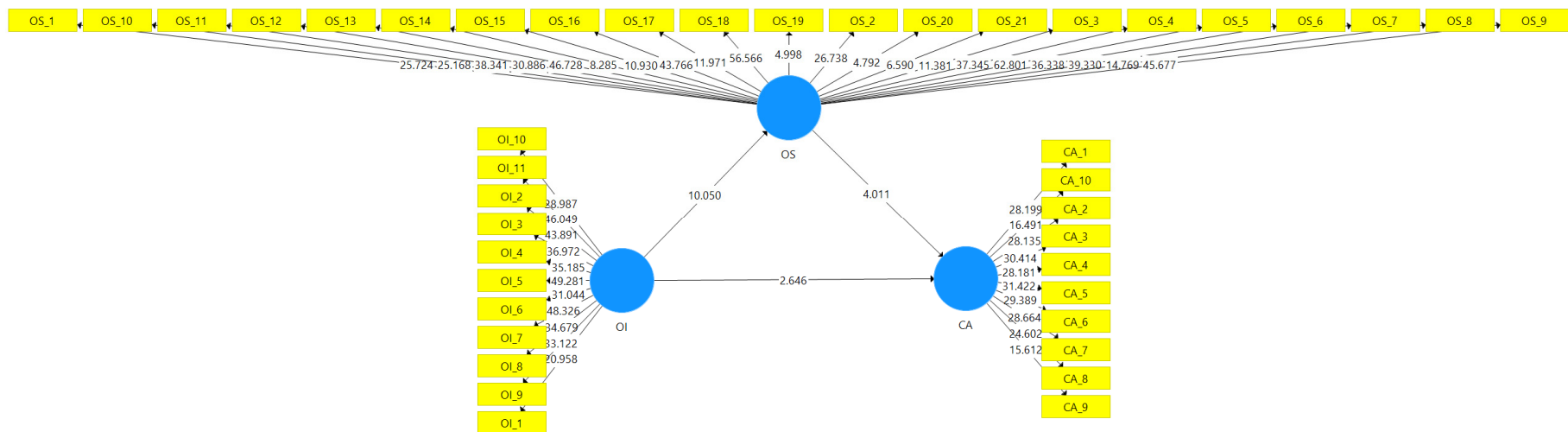


Figure 3. Structural model assessment. Source: Own elaboration.

5. Discussion and Conclusions

Hypothesis 1 assesses the relationship between open innovation and organizational strategy. The results support it ($\beta = 0.532$; $t = 10.050$; $p < 0.001$). A blazing business model indicates the degree or intensity that organizational strategy may have as a competitive advantage to replicate that model by competitors. Therefore, the guiding element of the business model is the discovery of how to profit from innovation; new product development must be aligned with a business's model "go to market" and "value capture" strategies [80]. Business models contribute to the firm's value capture [80], namely in capturing the value of innovation [81] and in the search for a new paradigm of management innovation [6].

However, it is emphasized that identifying open innovation as an organizational strategy has been essential in discovering the risk factors to which organizations are subject. Chesbrough and Rosenbloom [81] state that a business model should (1) articulate the value proposition, (2) identify the market segment, (3) define the firm's value chain structure, (4) estimate the cost structure and profit potential, (5) describe the firm's position in the value network linking suppliers and customers, and (6) formulate the competitive strategy, through which the innovative firm will gain and maintain an advantage over rivals with structured communication channels and restricted access to important financial and operational information of the corporation.

Wendra et al. [18] state that technological innovation by itself does not guarantee economic success (of the firm), being necessary to discover how to share value with stakeholders and capture part of it so that, in this way, these values are indispensable in the design of a successful business model. The role of this model is based on its ability to transform ideas into profits. This scholar says that firms seeking innovation should not rely solely on internal knowledge, that is, they should not depend exclusively on the knowledge of their employees, but should go further by seeking external knowledge (partnerships). From this perspective, the employee is no longer the only essential part of the development of projects. There is now another fundamental part in this process, which is nurtured by the organizational collective knowledge.

The results also do not support hypothesis two, which analyzes the relationship between organizational strategy and competitive advantage ($\beta = 0.289$; $t = 4.011$; $p < 0.001$). In the face of the constantly evolving technological landscape, the firm's performance requires an organizational strategy to purposefully create, extend, or modify its resource base strategy. Therefore, the ability to sense the market, seize opportunities, and readjust or reconfigure portfolios of products/services or processes is essential for sustained competitive advantage [82]. On the other hand, for these authors, the lower ability of the top manager to sense and act in the face of an unstable market to create new emerging opportunities can cause strategic "insensitivity".

The results reinforce the paradigm described by Barney [40]. The firm's valuable, rare, imperfectly imitable, and non-substitutable resources are the cornerstone for strategies to achieve sustainable competitive advantages. Firms with dynamic strategic planning seek market opportunities in a constantly changing environment. Thus, sustainable planning allows firms to adjust their strategies to pursue environmental adaptations. However, non-adaptive planning may limit adjustments to the turbulence of the uncertain environment, and its formulation is central to achieving sustainable competitive advantage [83,84].

Understanding the main organizational capabilities, dimensions, and processes must contain a set of strategies that contribute to generating competitive advantages, which implies that the firm is transparent in using available resources. This process allows firms to optimize available resources for potential actions and thus meet changing environmental requirements. It enables the selection of strategic goals, which implies that companies prioritize the interests of the critical value of partners [85].

This strategy (of partnerships) helps minimize the loss of market leadership with key value-changing partners if a firm and its top managers cannot adequately manage their external environment. Shared responsibility implies that not only one individual (manager/leader) is responsible for failure in dealing with change, but the entire firm is responsible for failure or success [82]. Barney [40] maintains that planning is based on competitive advantage, flexibility, and the firm's ability to change uses new environmental opportunities/threats to emerge. Finally, strategy as a competitive advantage in SMEs [85], technological capability, strategic flexibility, product innovation [84], and resource-based view are valuable perspectives for strategic management research.

The results support the relationship between open innovation and competitive advantage, thus proving hypothesis 3 ($\beta = 0.175$; $t = 2.646$; $p < 0.001$). In this sense, open innovation requires identifying and understanding (emerging) technologies to expand its technological knowledge base to maintain cutting-edge technology, which is essential for creating competitive advantage [86]. The acquisition of external technologies is crucial for a firm in a complex environment, and it enables it to eliminate firm inertia and capture the value of entrepreneurial capability [87]. On the other hand, a firm depends on existing market knowledge (external) and technological knowledge (internal) to fulfill organizational goals and objectives. Therefore, management innovation allows the firm to introduce new or improved products before its competitors, thus thriving and creating competitive advantages [88].

For Bao et al. [89], innovation in products and services creates value for organizations and consumers. In turn, this connection can lead to a long-lasting relationship between stakeholders. This theoretical contribution meets what is stated by [86] when they show that innovation increases competitive advantages in organizations in the external factors (e.g., partnerships) that influence and amplify innovation in SMEs. This linkage between stakeholders and positive outcomes for the organization promotes the growth of the entire regional and national economy [87]. The maintenance of a firm's market position, requiring it to possess financial, organizational, and relationship capacities, has a significant and positive contribution to gaining a competitive advantage [87].

Hypothesis four, which examines the mediating effect of organizational strategy on the relationship between open innovation and competitive advantage, is supported ($\beta = 0.154$; $t = 3.691$; $p < 0.001$). Innovation can be a key driver of competitiveness. Still, it can also be risky and create uncertainty [88], and open innovation is a strategy that firms use to create a competitive advantage by introducing superior, cheaper, and faster services [6]. For Goksoy et al. [88], the business environment is highly dynamic. Organizations need to develop new competitive advantages to keep up with the speed of technology changes in customer demands and global competition. The strategy enables the organization to create competition in the long run by bringing together knowledge, skills in technology, experience in creativity, development by introducing new ideas in product innovation, process innovation, or business model innovation. This perspective brings positive results and promotes the entire regional and national economy [90]. Porter [46,47] states that the components of competitive advantage originate in a firm's ability to maximize the efficiency of its production process. The positive effect confirmed in this hypothesis thus relates to (1) competitive advantage [45,86,88,91], (2) technology acquisition as capturing firm value [87], and (3) organizational strategy with the theory of open innovation, diversity, and divergence [92].

6. Implications

6.1. Theoretical Implications

This study provides a theoretical framework for understanding the relationships between four constructs (open innovation, organizational strategy, and competitive advantage) in the Portuguese hospitality sector, so far not exploited by scholars.

This research was developed based on the conceptual model proposed by Chesbrough [6] for a better knowledge of the relationship between open innovation, corporate

risk, organizational strategy, and management mechanisms, with the following contributions. First, the model understands using different measurement scales to validate it with more robust measurement instruments for analysis. This study analyzes in-depth the psychometric properties of all latent variables of the structural model (PLS-SEM), representing the differentiated paths between endogenous and exogenous constructs. Second, the role of the open innovation model was emphasized, in the proportion in which it can potentiate or influence the attraction of resources necessary for the development of the hospitality sector activity, namely organizational and technological resources. Thus, we consider that this research allows us to fill the existing gaps in the literature.

6.2. Practical Implications

The results of this study contribute to the development of new instruments and programs to support SMEs. By identifying resources, technologies, and dynamic capabilities that influence competitive advantage, directly or indirectly, this study is beneficial for top managers by stimulating entrepreneurial behavior, consubstantiating a factor of raising resources and capabilities needed by the firm and the involvement of other sectors of the economy, because the hospitality sector has proved vital for improving the performance of firms in Portugal.

The relationship between the constructs will allow top managers to strengthen corporate resources and capabilities, thus promoting entrepreneurial policies that boost the relationship between open innovation and competitive advantage. Finally, this study will allow governments (national, regional, and local) to create policies, programs, and incentives to deepen the open innovation model, thus promoting the exchange of internal knowledge with the external, thus strengthening the dynamics of the business ecosystem.

7. Limitations and the Future Directions

Some limitations stand out in the course of this scientific study. First, it refers to the survey. We have chosen to apply this one to firms whose e-mail address was registered on the AHRESP's database. Although the number of firms' responses is considered significant (251), we believe that a more comprehensive sample would allow a more refined analysis of the results. Besides, it is a non-probabilistic sample for convenience. Second, we choose only executive hotel directors, and the survey does not characterize whether this top manager has responded to it. We also understand that evaluating the different constructs of this study based on a single person's opinion (hotel executive director) may not reflect the firm's reality since the decisions made by a team may have different views *about the studied activity*.

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Conflicts of Interest: The authors declare that there are no conflicts of interest.

Appendix A. Questionnaire

Appendix A.1. Open Innovation

Appendix A.1.1. Inbound Open Innovation

(seven-point scale: 1 = “strongly disagree” and 7 = “strongly agree”).

OI1. Constantly scan the external environment for inputs such as technology, information, ideas, knowledge, etc.

OI2. Actively seek out external sources (e.g., research groups, universities, suppliers, customers, and competitors, etc.) of knowledge and technology when developing new products.

OI3. Believe it is good to use external sources (e.g., research groups, universities, suppliers, customers, and competitors, etc.) to complement our own R&D.

OI4. Often bring in externally developed knowledge and technology to use in conjunction with our own R&D.

OI5. Seek out technologies and patents from other firms, research groups, or universities. OI6. purchase external intellectual property to use in our own R&D.

Appendix A.1.2. Outbound Open Innovation

(seven-point scale: 1 = “strongly disagree” and 7 = “strongly agree”).

OI7. External partners, such as customers, competitors, research institutes, consultants, suppliers, government, or universities are directly involved in all our innovation projects.

OI8. All our innovation projects are highly dependent upon the contribution of external partners, such as customers, competitors, research institutes, consultants, suppliers, government, or universities.

OI9. Our firm often buys R&D-related services from external partners, such as customers, competitors, research institutes, consultants, suppliers, government, or universities.

OI10. Our firm often buys intellectual property, such as patents, copyrights, or trademarks, from external partners to be used in our innovation projects.

OI11. Our firm invests in other firms because we would like to obtain synergies that are beneficial to our innovation projects.

Sources: [61,62].

Appendix A.2. Organizational Strategy

(seven-point scale: 1 = “strongly disagree” and 7 = “strongly agree”).

Appendix A.2.1. The Environmental Dynamism Scale

Table A1. The Environmental Dynamism Scale.

Please circle the number in each scale that best approximates the actual conditions in your business unit’s principal industry.		
OS1. Our business unit must rarely change its marketing practices to keep up with the market and competitors	1-2-3-4-5-6-7	Our business unit must change its marketing practices extremely frequently (e.g., semiannually)
OS2. The rate at which products/services are getting obsolete in the industry is very slow (e.g., basic metal like semiconductors)	1-2-3-4-5-6-7	The rate of obsolescence is very high (as in some fashion goods and copper)
OS3. Actions of competitors are quite easy to predict (as in some basic industries)	1-2-3-4-5-6-7	The actions of competitors are unpredictable
OS4. Demand and consumer tastes are fairly easy to forecast (e.g., for milk companies)	1-2-3-4-5-6-7	Demand and tastes are almost unpredictable (e.g., high-fashion goods)
OS5. The production/service technology is not subject to very much change and is well established (e.g., in steel production)	1-2-3-4-5-6-7	The modes of production/service change often and in a major way (e.g., advanced electronic components)

Appendix A.2.2. The Organization Structure Scale

Table A2. The Organization Structure Scale.

In general, the operating management philosophy in my firm favors . . .		
OS6. Highly structured channels of communication and highly restricted access to important financial and operating information	1-2-3-4-5-6-7	Open channels of communication with important financial and operating information flowing quite freely throughout the organization
OS7. A strong insistence on a uniform managerial style throughout the firm	1-2-3-4-5-6-7	Managers' operating styles ranging freely, from the very formal to the very informal
OS8. A strong emphasis on giving the most to say in decision making to formal line managers	1-2-3-4-5-6-7	A strong tendency to let the expert in a given situation have the most say in decision making even if this means temporary bypassing of formal lines of authority
OS9. A strong emphasis on holding fast to tried and true management principles despite any changes in business conditions	1-2-3-4-5-6-7	A strong emphasis on adapting freely to changing circumstances without too much concern for past practice
OS10. A strong emphasis on always getting personnel to follow the formally laid down procedures	1-2-3-4-5-6-7	A strong emphasis on getting things done even if this means disregarding formal procedures
OS11. Tight formal control of most operations by means of sophisticated control and information systems	1-2-3-4-5-6-7	Loose, informal control; heavy dependence on informal relationships and norm of cooperation for getting work done
OS12. A strong emphasis on getting line and staff personnel to adhere closely to formal job descriptions	1-2-3-4-5-6-7	A strong tendency to let the requirements of the situation and the individual's personality define proper on-job behavior

Appendix A.2.3. The Strategic Posture Scale

Table A3. The Strategic Posture Scale.

In general, the top managers of my firm favor...		
OS13. A strong emphasis on the marketing of tried and true products or services	1-2-3-4-5-6-7	A strong emphasis on R&D, technological leadership and innovation
How many new lines of products or services has your firm marketed in the past five years (or since its establishment)?		
OS14. No new lines of products or service	1-2-3-4-5-6-7	Many new lines of products or services
OS15. Changes in product or service line have been mostly of a minor nature	1-2-3-4-5-6-7	Changes in product or service line have usually been quite dramatic
In dealing with its competitors, my firm . . .		
OS16. Typically responds to actions which competitors initiate	1-2-3-4-5-6-7	Typically initiates actions which competitors than respond to
OS17. Is very seldom the first business to introduce new products/services, administrative techniques, or operating technologies, etc.	1-2-3-4-5-6-7	Is very often the first business to introduce new products/services, administrative techniques, or operating technologies, etc.
OS18. Typically seeks to avoid competitive clashes, preferring a "live-and-let-live" posture	1-2-3-4-5-6-7	Typically adopts a very competitive, "undo-the-competitors" posture
In general, the top managers of my firm have...		
OS19. A strong proclivity for low-risk risk projects (with normal and certain rates of return)	1-2-3-4-5-6-7	A strong proclivity for high projects (with chances of very high returns)
In general, the top managers of my firm believe that . . .		
OS20. Owing to the nature of the environment, it is best to explore it gradually via timid, incremental behavior	1-2-3-4-5-6-7	Owing to the nature of the environment, bold, wide-ranging acts are necessary to achieve the firm's objectives

Table A3. Cont.

When confronted with decision-making situations involving uncertainty, my firm . . .		
OS21. Typically adopts a cautious, wait-and-see posture in order to minimize the probability of making costly decisions	1-2-3-4-5-6-7	Typically adopts a bold, aggressive posture in order to maximize the probability of exploiting potential opportunities

Source: [63].

Appendix A.3. Competitive Advantage

(seven-point scale: 1 = “much worse” and 7 = “much better”).

Appendix A.3.1. Cost

CA1: Production cost per unit.

CA2: Cost of goods sold.

CA3: Selling price to end-users overseas.

Appendix A.3.2. Service

CA4: Product accessibility.

CA5: Technical support/after-sales service.

CA6: Delivery speed and reliability.

CA7: Product line breadth.

Appendix A.3.3. Product

CA8: Product quality.

CA9: Packaging.

CA10: Design and style.

Source: [64].

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Capítulo 2 – The role of corporate risk management in the relationship between open innovation and organizational strategy

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THE ROLE OF CORPORATE RISK MANAGEMENT IN THE RELATIONSHIP BETWEEN OPEN INNOVATION AND ORGANIZATIONAL STRATEGY

O PAPEL DA GESTÃO DE RISCO CORPORATIVO NA RELAÇÃO ENTRE INOVAÇÃO ABERTA E ESTRATÉGIA ORGANIZACIONAL

EL PAPEL DE LA GESTIÓN DE RIESGO CORPORATIVO EN LA RELACIÓN ENTRE INNOVACIÓN ABIERTA Y ESTRATEGIA ORGANIZATIVA

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Abstract

Objective of the study: This study aims to analyze the relationship between open innovation and organizational strategy. Additionally, the mediating effect of corporate risk management on it was assessed.

Methodology/approach: A quantitative study was conducted in Portugal based on a survey with 251 executive directors of SME hotels. Structural equations modeling was used in this study.

Originality/relevance: While other studies have analyzed the relationship between open innovation and organizational strategy, this study deepens the knowledge of the mediating effect of corporate risk management on it.

Main results: The results show that (1) open innovation improves corporate risk management and organizational strategy, (2) corporate risk influences organizational strategy, and (3) corporate risk management has a mediating effect on the relationship between open innovation and organizational strategy.

Theoretical/methodological contributions: This study provides a theoretical framework for understanding the relationships between three constructs (open innovation, corporate risk management and organizational strategy) in SMEs in the hospitality sector, not yet explored by academics.

Social/management contributions: This study will guide managers of SMEs in the hospitality sector in defining strategies to develop the relevant resources and contribute to the definition of effective government policies, programs and incentives to support the adherence or expansion of the open innovation model for companies in this sector.

Keywords: Open innovation. Organizational strategy. Corporate risk management. Hospitality sector. Structural equation modeling.

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Resumo

Objetivo do estudo: O objetivo fundamental deste estudo é analisar a relação entre inovação aberta e estratégia organizacional. Além disso, tem como objetivo adicional estudar o efeito mediador da gestão de risco corporativo na referida relação.

Metodologia/abordagem: Um estudo quantitativo baseado em uma pesquisa com 251 diretores executivos de hotéis de PMEs foi realizado em Portugal.

Originalidade/relevância: Enquanto outros estudos analisaram a relação entre inovação aberta e estratégia organizacional, o presente aprofunda o estudo da mesma através do efeito mediador da gestão do risco corporativo.

Principais resultados: Os resultados mostram que (1) a inovação aberta melhora a gestão de risco corporativo e a estratégia organizacional, (2) o risco corporativo influencia a estratégia organizacional e (3) a gestão de risco corporativo tem um efeito mediador na relação entre a inovação aberta e a estratégia organizacional.

Contribuições teóricas/metodológicas: Este estudo fornece uma estrutura teórica para compreender as relações entre três construtos (inovação aberta, gestão de risco corporativo e estratégia organizacional) em PMEs no setor da hospitalidade, ainda não exploradas por acadêmicos.

Contribuições sociais/gerenciais: Este estudo orientará os gestores das PMEs do setor da hospitalidade na definição de estratégias para desenvolver os recursos relevantes e contribuirá para a definição de políticas governamentais eficazes, programas e incentivos para apoiar a adesão ou expansão do modelo de inovação aberta das empresas neste setor.

Palavras-chave: Inovação aberta. Estratégia organizacional. Gestão de riscos corporativos. Setor da hospitalidade. Modelo de equações estruturais.

Resumen

Objetivo del estudio: El principal objetivo de este estudio es analizar la relación entre innovación abierta y estrategia organizacional. Además, se estudia el efecto mediador de la gestión de riesgo corporativo en esta relación.

Metodología/enfoque: En Portugal se llevó a cabo un estudio cuantitativo basado en una encuesta a 251 directores ejecutivos de hoteles en PYMEs.

Originalidad/relevancia: Mientras que otros estudios analizaron la relación entre innovación abierta y estrategia organizacional, este profundiza su estudio a través del efecto mediador de la gestión de riesgos corporativos.

Principales resultados: Los resultados muestran que (1) la innovación abierta mejora la gestión del riesgo corporativo y la estrategia organizacional, (2) el riesgo corporativo influye en la estrategia organizacional y (3) la gestión del riesgo corporativo tiene un efecto mediador entre la innovación abierta y la estrategia organizacional.

Aportes teóricos/metodológicos: Este estudio proporciona un marco teórico para comprender las relaciones entre tres constructos (innovación abierta, gestión de riesgos corporativos y estrategia organizacional) en las PYMEs del sector de la hospitalidad, aún no explorado por académicos.

Contribuciones sociales/gerenciales: Este estudio guiará a los gestores de las PYMEs del sector de la hospitalidad en la definición de estrategias para desarrollar los recursos relevantes y contribuirá a la definición de políticas, programas e incentivos gubernamentales efectivos para apoyar la adhesión o expansión del modelo de innovación abierta de las empresas de este sector.

Palabras clave: Innovación abierta. Estrategia organizacional. Gestión de riesgo corporativo. Sector de la hospitalidad. Modelo de ecuaciones estructurales.

1 Introduction

Some authors (e.g., Almirall & Casadesus-Masanell, 2010; Leiponen & Helfat, 2010; Huizingh, 2011) support the existence of scarce studies published in the scientific literature on the benefits of the

implementation of the open *innovation model* in organizations, especially in small and medium enterprises (SMEs). The impact of this model on organizations is one of the major topics discussed in management at the beginning of this century (Huizingh, 2011). Two orders of magnitude justify it. First, value chain leverage enhances the firm's results to pursue strategic business objectives aligned through managerial innovation (West et al., 2014). Second, the intentional use of knowledge input and output flows accelerates internal innovation and expands markets to retain external knowledge (Chesbrough & Crowther, 2006).

For the European Commission (2003), companies that employ fewer than 250 people, have an annual turnover not exceeding 50 million euros and/or have a balance sheet total value not exceeding 43 million euros are considered SMEs. These companies are the predominant form of business in Europe, representing approximately 99.8% of all firms and 67% of total employment in the business fabric (Baumann-Pauly et al., 2013).

Large firms see stakeholder engagement increase their reputation and competitiveness with a more strategic and social approach towards SMEs (Cantele & Zardini, 2020; Kumar et al., 2020). SMEs' organizational growth should be measured in terms of sales and internal culture development, policies, and structure to support and encourage effective top management development (Gray & Mabey, 2005). On the other hand, large companies differ from SMEs in the way they view their social responsibility. This difference affects their social responsibility activities (Dias et al., 2019). When comparing the approaches of SMEs with large firms, Russo and Tencati (2009) observed that although SMEs did not correctly integrate their strategic processes, they identify the commitment to a social approach given the specific peculiarities that differentiate these approaches. These scholars also maintain that the sense of identity in SMEs tends to be stronger than in large firms, given the frequency of interactions of middle managers with top managers and operational employees. In addition, SMEs are, by definition, less diversified than large companies with fewer hierarchical levels (Baumann-Pauly et al., 2013).

Although there is a growing interest of researchers in exploring the open innovation, the conceptual applications and potential of the use of this model in the hospitality sector are rarely explored, because SMEs often have a dominant impact on national economies; therefore, their innovative potential should not be neglected (Vrgovic et al., 2012). The change in the innovation model (closed innovation to open innovation) emphasizes the managers' experience and it requires a more qualified workforce, especially on interpersonal skills, leading firms in this sector to adjust their strategies for attracting, retaining, and developing knowledge to offer a revised vision to customers (Reilly, 2018). For this strategic reorientation, open innovation can be considered an important management mechanism for SMEs in terms of knowledge (internal and external) and technology, since it is the best way to connect organizational boundaries that lead to better results on management performance (Krause & Schutte, 2015). These arguments would already be enough to justify the preparation and application of this study.

Milutinović, Stošić and Mihić (2015) state that SMEs innovation policy objectives still suffer substantial restrictions due to the lack of innovation in the marketing of the products/services they offer. The number of studies discussing this issue regarding SMEs is still scarce (Chesbrough & Brunswicker, 2014; Dahlander & Gann, 2010; Wikhamn & Wikhamn, 2013; Greco et al., 2015). Portugal is no exception, in 2018 the country had 1,294,037 SMEs (Pordata, 2021a,b), which corresponds to 99.9% of total companies.

Based on open innovation, this research was carried out with companies in the hospitality sector in Portugal. It is intended, thus, to generate theoretical and practical contributions to the field of study to find more effective solutions to the problems of SMEs in this sector within the innovation management, meeting the current needs (internal and external). Furthermore, it is expected that the theoretical contribution of this study may add mediating variables in the relationship between open innovation and organizational strategy, such as corporate risk management.

2 Theoretical framework

2.1 Open Innovation

Chesbrough (2003) perceived that the managerial innovation model was closed about new ideas and their diffusion in the market, arguing that the immobility of knowledge makes it impossible to keep the best research and development (R&D) talents given that these have a high cost for the organization. Firms need to look outside in search of alternative contents (ideas and conceptions) to generate innovation, share costs and benefits, and allow these transformations to be quickly exchanged in fast-changing environments and capitalized by firms (Lopes & De Carvalho, 2018). Thus, open innovation becomes part of a continuous flow, which can be the internal or external environment and vice versa, in a collaborative process (Chesbrough, 2003). The main areas with simultaneous emphasis are (1) *e-business* and the use of information technology for companies, (2) the strategy focused on value creation and competitive advantage, (3) innovation and technology management, and (4) the creation and acquisition of value by companies, based on the organization of their internal processes and external relationships with customers and suppliers (Zott et al., 2011).

The concept of open innovation has rapidly gained great prominence among the business community and as a theoretical concept intensively studied by researchers (Podmetina et al., 2018). The open innovation model highlights the need for firms to acquire valuable resources from third parties and share internal resources to develop new products and services (Teplov et al., 2019). However, this model does not clarify how and when a firm obtains external knowledge and shares internal knowledge (Kuo-Nan & Tidd, 2012). This issue leads to the definition of an innovative management conceptual model that confronts managers with the complex analysis and interpretation of the specificities of each firm and market, with specific management models (Kuo-Nan & Tidd, 2012).

According to Kreiser et al. (2021), theoretical and empirical evidence suggest that corporate entrepreneurship, as an organizational strategy, is the appropriate response to the increasing levels of environmental hostility through the expansion of knowledge frontiers, with reflections on the firm's performance. Innovation as an organizational strategy improves results, growth, learning, and new knowledge (Bierwerth et al., 2015; Cucculelli & Bettinelli, 2015). In addition, the knowledge produced and disseminated through the incidence of organizational strategy, has policy implications for the company, given the likelihood that this knowledge becomes a competitive advantage in organizations (Audretsch & Lehmann, 2006).

2.2 Organizational strategy

Firms need to create heterogeneity that increases the ability to exploit resources and implement innovation strategies (Erdil & Özdemir, 2016). The implications and consequences of implementing organizational strategies increasingly focus on the human factor, the management of new knowledge and best practices to expand business (Ostos et al., 2016). Therefore, there seems to be a reasonable degree of consensus on the effectiveness of the strategy concept and its implications as a guide for long-term organizational management (Wijethilake et al., 2018).

In dealing with the challenges of the organizational environment, firms should strengthen their R&D capabilities and promote innovative work cultures and teams (Huo et al., 2014). Thus, service firms should embrace technological innovation as an aid to the renewal of their core business model and internal processes; since this innovation may include new marketing approaches, new management practices (structural or technical) and new ways of organizing work processes, establishing alternative forms of human resource management that foster internal and external relationships (Kaše & Skerlavaj, 2016). Technological advances based on flexible information and communication technologies have changed the performance of existing firms and generated many new ventures with new businesses and new business models, where new technologies dissemination is granted (Roland & Schoormans, 2004).

The organizational strategy concentrates the resources to achieve the desired results; the strategic orientation is manifested in the firm's culture and serves as a backdrop for the organizational practices and decisions associated with the allocation of resources and the search for opportunities (Balodi, 2014). According to some scholars (e.g., Van de Vrande et al., 2009; Huizingh, 2011), some activities favor the firm to acquire new knowledge and technologies outside its boundaries. This situation enables an intentional knowledge flow that will capture and benefit from external sources of knowledge to improve current development. The acquired knowledge to learn from the successes and failures of organizational projects is vital to increase the firm's competitiveness as a management mechanism of innovative strategies (Slowak & Regenfelder, 2017).

This context leads us to postulate the following research hypothesis:

H1: Open innovation positively influences organizational strategy.

2.3 Corporate risk management

Risk is an essential component for project management and plays a key role as the number of firms that invest with inherent risks at different stages of projects increases (Bature et al., 2018). These authors identified risk as a manager's assignment, with a value and scale of priorities, continuously integrating actions and mechanisms to minimize risks. It is essential to ensure the survival of companies and create sustainable value, being especially relevant for SMEs that are more exposed to the harmful effects of risks due to limited resources and structural characteristics (Verbano & Venturini, 2013).

Risks may be related to the ownership and responsibility of third parties, a situation that leads risk managers to adapt, deploy, and reconfigure tools and to analyze the practices used so that they can interact and communicate with other managers (Acuña-Carvajal et al., 2019). In addition, risk assessment tools are imperfect and sometimes unavailable to managers who usually address this gap by applying a variant of the organizational planning framework (Bradley, 2018).

Innovation usually differentiates according to the degree of technological uncertainty, development time, and process complexity, creating new opportunities for SMEs and allowing them to establish a dominant position in the market, despite exposing them to a higher level of risk (Parida et al., 2012). Corporate risk management is simultaneously associated with known outcomes. The probability of recurrences is well calculated, and uncertainty about unknown variables makes corporate risk management different from uncertainty management (Teece et al., 2016). García-Sánchez et al. (2018) highlight the scarcity of literature associating corporate risk with management in SMEs, therefore, related corporate risk management with the open innovation model.

Open innovation has become one of the tools that have evolved the most in the search for accelerating the development and reducing the cost of creating a new product/service, aiming at the firm's superior performance (Temel & Venhaverbeke, 2020). Thus, the open innovation process forces suppliers to be more creative and innovative because the knowledge providers induce strategic partners to develop high value-added products (Chesbrough & Crowther 2006; Laursen & Salter 2006). This framework requires strategies to increase firms, universities, and research centres (Chesbrough & Bogers, 2014; Bogers et al., 2017). This approach involves a joint learning and mutual sharing of skills to accelerate the internal innovation process; the goal is to improve competitiveness in developing new technologies for external innovation (Brunswick & Vanhaverbeke, 2015; Temel & Venhaverbeke, 2020).

Adopting the open innovation model allows companies to integrate external technological and market knowledge at different stages of new venture creation to leverage the experience with partners and their commercialization channels for external exploitation of the business (Drechsler & Natter, 2012; Fey & Birkinshaw, 2005).

Eftekhari and Bogers (2015) found that startups operating within an innovation ecosystem, involving stakeholders in the definition of the business model, are characterized by an environment in which there is the ability to overcome resource constraints and enhance rapid growth. Therefore, it facilitates the initial development of resources and social and organizational capital. Mitchell et al. (2007) state that new ventures establish intra-organizational connections through electronic technologies that impact the performance of SMEs.

The literature thus suggests that a firm's ability to identify and control its risks depends mainly on how well it can adapt to environmental changes, accept changes and better execute its operations which are linked to its ability to capitalize on opportunities (Odor, 2019). Therefore, corporate risk assessment is considered one of top managers' most widely used strategies (Agarwal & Ansel, 2016). The limit of living with risk is to establish controlled risks to achieve effective and proactive governance (IRDA, 2017).

Thus, we aim to test the following research hypotheses empirically:

H2: Open innovation has a positive effect on corporate risk management.

H3: Corporate risk management has a positive effect on organizational strategy;

H4: Corporate risk management has a mediating effect on the relationship between open innovation and organizational strategy.

3 Methodology

3.1 Sample and data collection

The sample for this empirical study was drawn from Portuguese hotels. A questionnaire was used as the primary data source from October 28, 2018 to April 27, 2019. The identification of the companies was done through the database of the Association of Hotels, Restaurants and Similar Services of Portugal (AHRESP), which presents 1,727 hotels, of which 717 were disregarded for not having active *email*. Thus, in this study, we used non-probabilistic convenience sampling.

The elements under investigation in this study were hotel executive directors, and the unit of analysis is individual. 348 responses were received, of which 97 were eliminated because (1) the survey was not fully covered, (2) the hotel had no employee assigned for this purpose, and/or (3) the manager did not have time to respond to the survey. Thus, 251 completed and validated questionnaires were obtained, and the sample size is considered appropriate according to Krejcie and Morgan (1970). The response rate is 24.85% which is regarded as good given that the average response rates of top management surveys are in the range of 15%-20% (Menon & Bharadwaj, 1999). According to Hair et al. (2016), the sample size is considered adequate for data analysis using the structural equations model, with partial least squares (PLS-SEM), because it allows the analysis even with a relatively small sample.

3.2 Measures

The constructs of this study are measured with scales used in previous research. The two dimensions of open innovation, input and output, are assessed using 6 items from Sisodiya et al. (2013) and 5 items from Cheng and Huizingh (2014) respectively. Corporate risk management is analyzed according to the 3 items recommended by Covin and Slevin (1989). The three dimensions of organizational strategy, environmental dynamism, organizational structure and strategic posture, are measured using the 21 items proposed by Morgan et al. (2000). According to a 7-point Likert scale, all items are measured from “1 - Strongly Disagree” to “7 - Strongly Agree”.

We followed Brislin’s (1970) recommendations when translating the questionnaire from English into Portuguese. The original questionnaire was initially translated into Portuguese by a first translator. Later on, such translation was back-translated into English to compare versions to avoid discrepancies and differences. This process was ensured by the translation services of the Instituto Superior de Contabilidade e Administração do Porto (Portugal).

4 Results

4.1 Structural equation model: partial least squares (PLS-SEM)

We used *Partial Least Squares* (PLS-SEM) modeling to test the research hypotheses, using SmartPLS 3.0 software (Hair et al., 2016; Sarstedt et al., 2014). We believe that PLS-SEM is more suitable to estimate the research model since (1) this study focuses on predicting and explaining the variation of several constructs (in this case three), and (2) the relationship between open innovation and organizational strategy can be measured directly and indirectly through corporate risk management, and (3) the sample (n=251) is relatively small.

4.2 Results of the evaluation of the measurement model

Through Cronbach’s alpha stability and internal consistency, the reliability of the variables used in the research is calculated, with a minimum required level of 0.7 (Nunnally, 1978; Chin, 2010). The present study’s internal consistency levels achieved between 0.891 and 0.970 are considered excellent, as shown in Table 1 (Pestana & Gageiro, 2008). The results show that the measurement model meets all general requirements. First, all items have a loading greater than 0.707, which means that the reliability of the individual indicators (loadings) is greater than 0.5. Second, the reliability values of all components and Cronbach’s alpha values are greater than 0.70, which suggests a quite acceptable model reliability. Third, the average variance *extracted* (AVE) values of all constructs are greater than 0.50, indicating adequate convergent validity and implying that the set of indicators represents the same underlying construct (Hair et al., 2016).

The composite validity coefficient (CR) was also used to test the construct validity (Chin, 1998). As can be seen in Table 1, using the parameters of Gefen and Straub (2005) who advocate a minimum level of 0.6, the variables exponentially exceeded the reference value. This study used the method proposed by Fornell and Lacker (1981), which suggests using the AVE with a minimum value of 0.5 to prove convergent validity. All constructs exceeded the required value.

Table 1

Loadings of the standardized factor analysis, AVE and CR

1st order constructs	Items	Loadings	CR	AVE	Mean	SD
<i>Open Innovation</i> ($\alpha = .957$)			,962	,698		
	OI_9	,903			4,74	1,482
	OI_10	,897			4,71	1,523
	OI_3	,892			4,84	1,653
	OI_2	,888			4,67	1,666
	OI_5	,884			4,68	1,653
	OI_8	,862			4,84	1,497
	OI_4	,716			5,03	1,535
	OI_7	,698			4,53	1,622
	OI_6	,690			4,65	1,671
	OI_11	,686			4,53	1,621
OI_1	,635			5,12	1,605	
<i>Risk management corporate</i> ($\alpha = .891$)			,932	,821		
	CR_3	,891			5,03	1,114
	CR_2	,846			4,80	1,341
	CR_1	,835			5,03	1,114
<i>Strategy organizational</i> ($\alpha = .970$)			,974	,650		
	OS 13	0,859			4,92	1,117
	OS 18	0,858			4,97	1,073
	OS 15	0,858			5,08	1,043
	OS 5	0,840			4,91	1,147
	OS 11	0,824			4,89	1,181
	OS 7	0,823			4,93	1,146
	OS 9	0,822			5,02	1,103
	OS 16	0,818			4,94	1,127
	OS 12	0,804			4,90	1,144
	OS 10	0,805			4,87	1,179
	OS 6	0,789			4,99	1,100
	OS 20	0,788			5,17	0,990
	OS 4	0,784			4,91	1,150
OS 2	0,726			4,88	1,145	
OS 21	0,744			5,03	0,998	

1st order constructs	Items	Loadings	CR	AVE	Mean	SD
	OS_8	0,723			4,85	1,142
	OS_1	0,691			4,88	1,169
	OS_3	0,690			5,03	1,110
	OS_19	0,657			5,11	0,907
	OS_14	0,652			5,04	0,906
	OS_17	0,633			5,12	1,201

Notes: OI - Open innovation; CR - Corporate risk management; OS - Organizational strategy.

Source: Data analysis based on SmartPLS 3 (2021).

Discriminant validity is determined by the construct and is related to the level at which it differs and stands out from the other constructs of the model; thus making it necessary not to have correlations with other latent variables, and can be gauged from the principle that all cross-loadings cannot be higher than a load of each indicator (Hair et al., 2016). Chin (1998) proceeded to separate the explanatory power between moderate and substantial. Satisfactory results were obtained regarding discriminant validity and, consequently, the constructs are significantly different (Table 2).

Table 2

Discriminant validity

FLC	1.	2.	3.
1. Corporate risk management	.907		
2. Open innovation	.535	.836	
3. Organizational strategy	.616	.532	.806

Source: Data analysis based on SmartPLS 3 (2021).

The Fornell-Larcker (1981) criterion (FLC) argues that the AVE should be greater than the variance between constructs of the same model. On the other hand, Henseler, Ringle, Sarstedt (2015) propose a new and advanced criterion - Heterotrait-Monotrait Ratio (HTMT) - to assess discriminant validity and agree that the FLC is one of the effective methods to evaluate this type of validity. However, FLC does not assess the lack of discriminant validity in various research situations. Therefore, HTMT was used to determine the discriminant validity of the constructs and its values are shown in Table 3. All of these were lower than 0.90, as recommended by Fornell-Larcker (1981); therefore, discriminant validity was also established for all constructs.

Table 3

HTMT

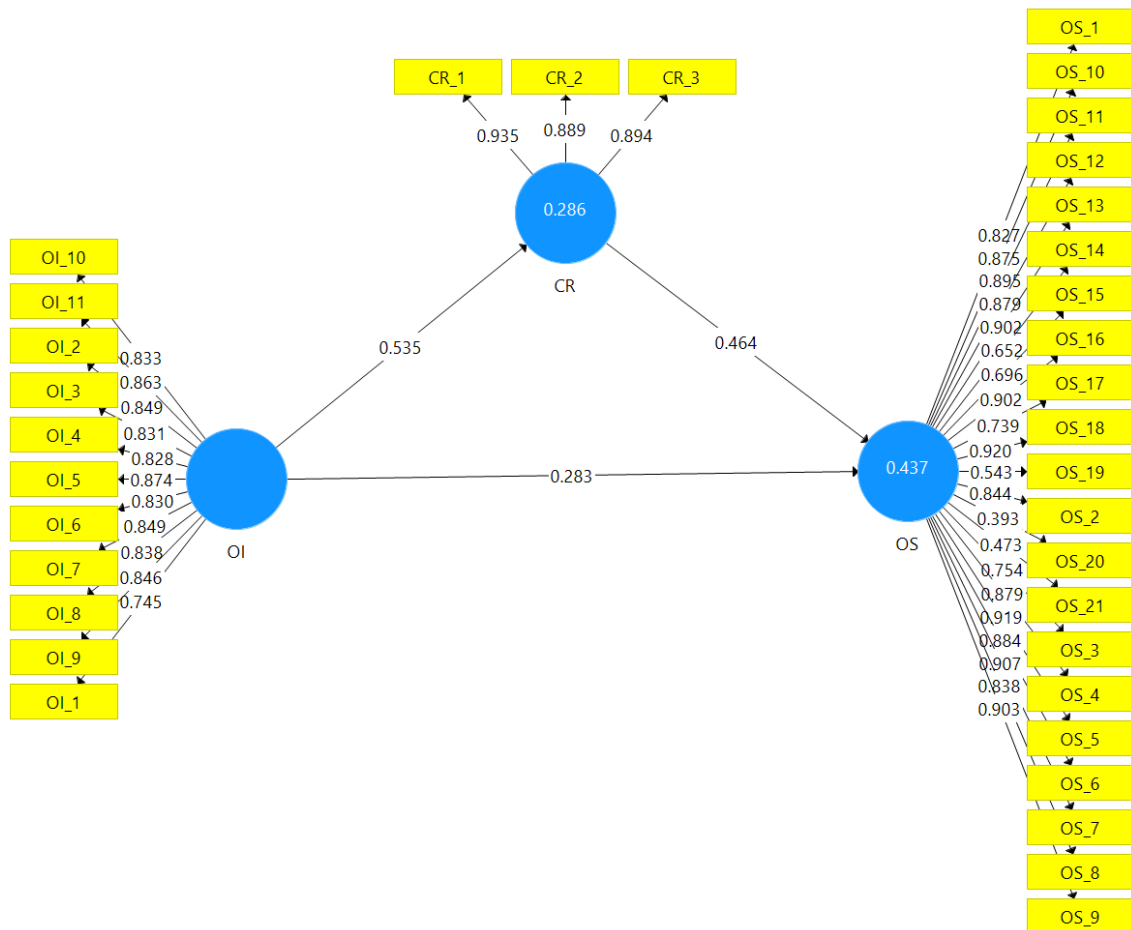
HTMT	1.	2.	3.
1. Corporate risk management			
2. Open innovation	.574		
3. Organizational strategy	.653	.547	

Source: Data analysis based on SmartPLS 3 (2021).

The measurement model is presented in Figure 1.

Figure 1

Evaluation of the measurement model



Source: Data analysis based on SmartPLS 3 (2021).

4.3 Results of the structural model evaluation

For this purpose, model significance was assessed based on path coefficients, *t-values* and standard errors. The hypotheses were tested for main and indirect effects by bootstrapping procedure

using Smart PLS 3 (Ringle et al., 2005). The PLS algorithm followed by *bootstrapping* techniques were used to calculate the relative strength of each exogenous construct.

According to Chin (1998), all hypotheses are significant, who advocates a minimum structural coefficient of 0.2. Open innovation has a significant and positive relationship with organizational strategy ($\beta=0.296$, $t=5.626$; LL=0.194, UL=0.399) and corporate risk management ($\beta=0.543$, $t=11.583$; LL=0.447, UL=0.630); thus, H1 and H2 were supported. Furthermore, corporate risk management has a significant and positive relationship with organizational strategy ($\beta=0.447$, $t=6.814$; LL=0.312, UL=0.567); thus, H3 was likewise supported. The lower and upper bounds included zero, thus indicating significant relationships (Table 4).

Table 4

PLS Structural model results

Hypotheses	Original sample (O)	Sample Average (M)	Standard Deviation (STDEV)	T-statistic (O/STDEV)	L.L.	U.L.	Result
H1: OI -> OS	0,296	0,296	0,053	5,626*	0.194	0.399	Supported
H2: OI -> CR	0,542	0,543	0,047	11,583*	0.447	0.630	Supported
H3: CR -> OS	0,447	0,446	0,066	6,814*	0.312	0.567	Supported
H4: OI -> CR -> OS	0,242	0,243	0,045	5,444*	0.159	0.330	Supported

Note: * $p < 0.001$.

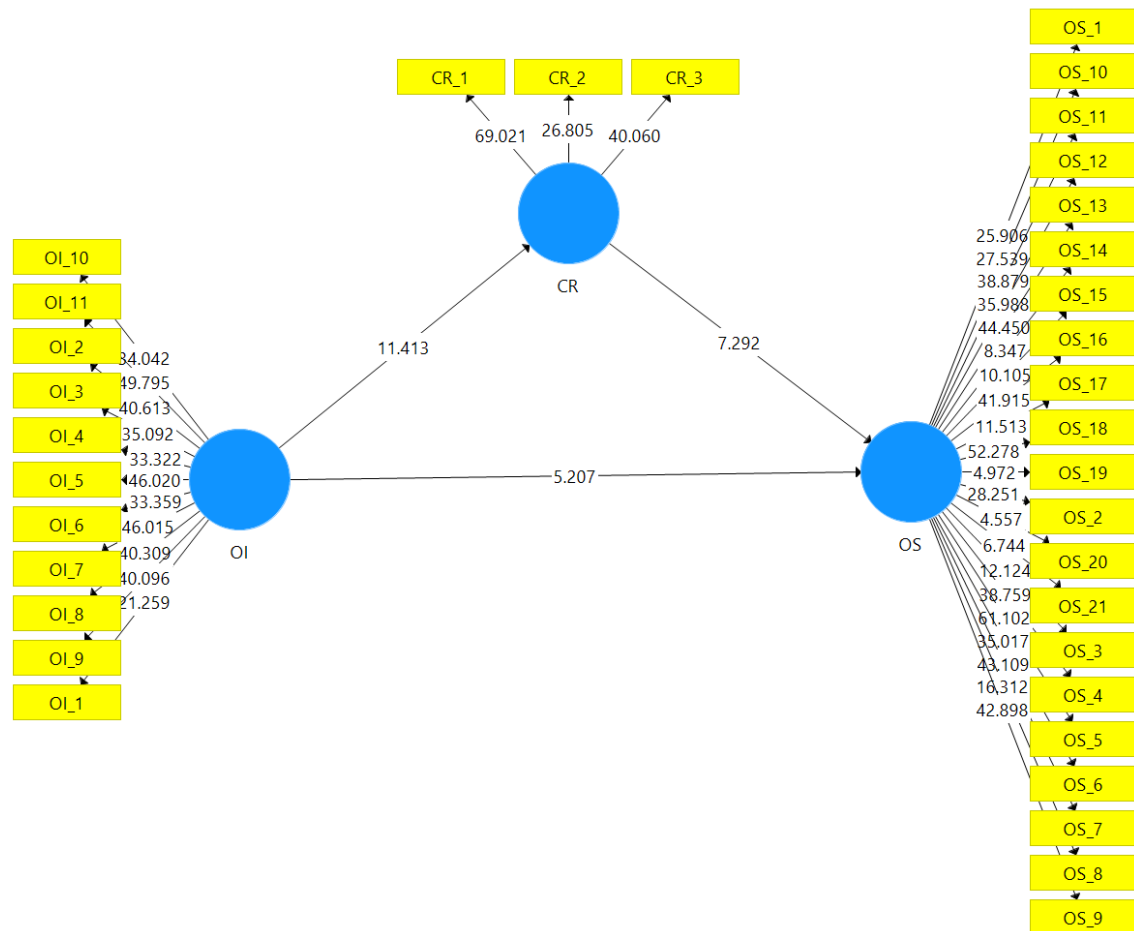
Source: Data analysis based on SmartPLS 3 (2021).

Corporate risk management exhibits a significant mediating effect on the relationship between open innovation and organizational strategy ($\beta=0.243$, $t=5.444$; LL=0.159, UL=0.330); consequently, H4 was also supported (Table 4).

In Figure 2, it is possible to observe the evaluation of the structural research model, considering both the direct and indirect effects.

Figure 2

Evaluation of the structural model



Source: Data analysis based on SmartPLS 3 (2021).

5 Discussion and conclusions

The positive and significant relationship between open innovation and organizational strategy expressed in hypothesis 1 was supported ($\beta=0.296$; $t=5.626$; $p<0.001$). The process of identifying open innovation as an organizational strategy has been an essential step to discover the risk factors to which companies are subjected (Chesbrough & Rosenbloom, 2002). The business model should indicate the degree or intensity that the organizational strategy can have as a competitive advantage so that its replication by competitors is difficult to conceptualize (Chesbrough & Rosenbloom, 2002). Therefore, the guiding element of the business model lies in the discovery of how to leverage innovation, i.e., where all the energy released in the development of new products should be combined with the development of a business model that defines the “going to market” and the “value capture” strategies (Denicolai et al., 2014). The role of the model is based on its ability to transform ideas into profits, in which companies that seek innovation should not be at the mercy only of internal knowledge; in other words, they should

not depend exclusively on the knowledge of their human resources, they should go beyond and seek external knowledge (partnerships) (Chesbrough, 2003).

Hypothesis 2 was supported by confirming the positive and significant relationship between open innovation and corporate risk management ($\beta=0.543$; $t=11.583$; $p<0.001$). Thus, the larger the field of research in open innovation, the more diverse the threats reside in this context, as collaboration between firms can lead to new risks and threats (Lee et al., 2010). These results are in line with the perspective that decision-making is the most critical moment of the organization, since it requires the allocation of irreversible, necessary and scarce resources in actions mediated by risks and uncertainties in which the results may affect the entire organizational structure, since the decision-making process is characterized by novelty, complexity and openness (Mintzberg et al., 1976). Innovation is a risky business, generates a high failure rate between the initial idea and the materialization of the launch of a product or service in the market unless the process is carefully managed (Tidd et al., 2009). In this sense, it is up to top management to identify how best to deal with the corporate risks that are presented to it in conducting the business, to achieve the organization's goals with greater security, where the performance of open innovation should be seen and discussed in the light of the degree of novelty created by the projects approved by top management (Lassen, 2017).

The results support hypothesis 3 ($\beta=0.447$; $t=6.814$; $p<0.001$), in which the causal relationship between corporate risk management and organizational strategy is analyzed, thus demonstrating a positive and significant relationship. Yilmaz and Flouris (2017) argue that an organization should develop different strategies to improve reputation and reduce risk, thus implementing corporate risk management policies indispensable to build a strategy. Corporate risk management practices are vital for financial performance and improve the non-financial performance of firms (Rasid et al., 2014). Consequently, top management is responsible for organizational strategy such as cost reduction and long-term planning and needs to be aware of corporate risk practices that influence organizational strategy (Meidell & Kaarbøe, 2017). Thus, the decision-making process is fundamental to creating value and improving the firm's image, increasing the reputation of strategic capability and responding successfully to new opportunities (Foroudi, 2016). The results converge with those of Acharyya and Mutenga (2013) because the risk manager is seen as a central function for various types of businesses to ensure opportunities based on decision-making as a proactive measure to ensure the organization's sustainability.

Hypothesis 4 was supported. The results confirm the mediating effect of corporate risk management on the relationship between open innovation and organizational strategy ($\beta=0.243$; $t=5.444$; $p<0.001$). Chesbrough and Crowther (2006) state that adopting open innovation tools is a choice of company strategy that provides arguments for collaboration with external partners. For business, corporate risk management as an organizational strategy is an informative source of open innovation and innovation platforms, becoming an essential part of the business model, especially in

digital changes (Chesbrough & Brunswicker, 2014). Open innovation practices differ across firms and across types of corporate risk, such as finding ways to increase turnover and develop new products (Chesbrough, 2003). Besides the direct impact on the firm's strategy, there are also additional opportunities for innovation practices, including access to external knowledge, resources, markets, or skills requirements, reduced product development time and cost, risk-sharing, and faster market launch (Chesbrough & Crowther, 2006). The corporate risks of open innovation include loss of knowledge, essential technologies and organizational skills, technological and market uncertainty and complexity of managing interactions with external partners (Chesbrough, 2003). In addition to the high degree of innovation, openness can lead to difficulties for firms in intellectual protection, ownership and appropriation of the benefits of innovation (Lazarenko, 2019). Reluctance to changing traditional organizational practices, particularly when sharing knowledge and intellectual property with external partners, also restricts open innovation practice. Most of the problems faced by firms in implementing the management model of open innovation lies in the activities of top management in addressing resistance to change from the organizational point of view and establishing a new corporate culture, often makes it difficult to change the management model in the organization (Lazarenko, 2019).

6 Conclusions

The research allowed to classify three specific objectives through the studied constructs to weigh the areas involved with open innovation and to understand to what extent (1) there is a positive relationship between open innovation, corporate risk management and organizational strategy and (2) the mediating interaction of corporate risk management in the relationship between open innovation and organizational strategy.

As for the first objective, some guiding points were highlighted as a contribution to the advancement of the theory on innovation. It was observed that the relationship between open innovation and organizational strategy operates predominantly in the innovation generation stage of the company, as well as the constant and systematic updates of the literature have printed greater robustness to the conceptual research model of the study and found relevant evidence of the external environment of technology input (e.g. information, ideas, knowledge, with open innovation output), in which the company often forms external partnerships with customers, competitors, research units, consultants, communities, open-source, suppliers, governments or service universities for research and development activities (user open innovation). For Hippel (2013), the generation of innovation takes place in corporate structures, particularly with R&D. From the user's point of view, the process of innovation generation can happen both for the individual (managers/employees) and for firms, which at times play the role of users. In this logic, the innovation generation process uses the term *open user innovation* to designate the innovation generated by users.

Regarding the second objective, it was observed that the corporate risk interferes with the organizational strategy. For Enkel, Gassmann and Chesbrough (2010), this relationship is consistent with the open innovation model. Therefore, the industries' external actors form innovation generating partnerships and play a key role in users. To achieve partnerships, firms need to develop absorptive capabilities (Hossain & Kauranen, 2015), which means the firm's ability to perceive, evaluate, assimilate and apply new knowledge, thus requiring firms to develop disruptive capabilities, which means the ability to exploit external knowledge. On the other hand, organizational strategy has proven relevant with management mechanisms (Oyewobi et al., 2016).

As for the third and last objective, there is a mediating effect of corporate risk in the relationship between open innovation and organizational strategy, from the open innovation model in SMEs. Hinteregger et al. (2018) list the difficulties these firms face when implementing the open innovation model; studies show that these firms are afraid to reveal their innovations and introduce their best practices of open innovation (partnerships). Hossain and Kauranen (2015) add in this dialogue that when connecting to a globalized market, SMEs are still very dependent on their R&D structure. In addition, the managers' skills, innovation practices and the firm's ability to attract government investments in R&D and technological development are barriers to the implementation of open innovation in SMEs.

It is important to highlight the **theoretical implications of the research**. This study provides a theoretical framework for understanding the relationships between three constructs (open innovation, corporate risk management and organizational strategy) in SMEs in the hospitality sector, not yet explored by academics, with the following contributions: (1) the research model comprises the use of different measurement scales to validate it with more robust measurement instruments for analysis; this study analyzes in depth the psychometric properties of all latent variables of the structural model (PLS-SEM), presenting the differentiated paths between endogenous and exogenous constructs and (2) the role of the open innovation model was emphasized, in the proportion that it can enhance or influence the attraction of resources needed for the development of the hospitality activity, that is, organizational and technological resources. Thus, we consider that this research allows us to fill existing gaps in the literature.

This study presents relevant **practical implications**. The results of this study contribute to the development of new instruments and programs to support SMEs in the hospitality sector. By identifying resources, technologies and dynamic capabilities that influence open innovation and organizational strategy, directly or indirectly, with the contribution of corporate risk management, this study is useful for top managers, stimulating entrepreneurial behavior and thus consubstantiating a factor of attracting resources and capabilities needed by the company and the involvement with other sectors of the economy, since the hospitality sector is important to improve the performance of companies.

The relationship between the constructs will allow top managers to strengthen the resources and business capabilities, thus promoting policies that promote the relationship between open innovation,

corporate risk management and organizational strategy in different contexts, creating causal links with an inductive effect on top management for the development of management capacity. Finally, this study will allow governments (national, regional and local) to create policies, programs and incentives that allow companies to join or deepen the model of open innovation, thus promoting the exchange of internal knowledge with the external, thus allowing to strengthen the dynamics of the entrepreneurial ecosystem.

Some limitations stand out in the course of this scientific study. Firstly, the sample size. Although the number of responses from firms is deemed significant (251), we believe that a more comprehensive sample would enable a more refined analysis of results. Furthermore, this is a non-probabilistic sample by convenience. Secondly, only hotel executive directors were surveyed, and the survey does not characterize whether this senior manager responded to this one. We also understand that assessing the different constructs based on a single person’s opinion may not accurately reflect the firm’s reality.

Authors’ contributions

Contribution	Musiello-Neto, F.	Rúa, O.L	Arias-Oliva, M.	Souto-Romero, M.
Contextualization	X	X	X	X
Methodology	X	X	X	----
Software	X	X	X	----
Validation	X	X	X	----
Formal analysis	X	X	X	X
Investigation	X	X	----	----
Resources	X	----	----	----
Data curation	X	X	----	----
Original	X	X	----	----
Revision and editing	----	----	X	X
Viewing	----	----	X	X
Supervision	----	X	X	----
Project management	----	X	----	----
Obtaining funding	----	----	----	----

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Capítulo 3 – Linking open innovation and competitive advantage: The roles of corporative risk management and organisational strategy

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Linking open innovation and competitive advantage: the roles of corporate risk management and organisational strategy

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Abstract

Purpose – This study aims to analyse the effects of (1) open innovation on corporate risk management, organisational strategy and competitive advantage, (2) corporate risk management on organisational strategy, and (3) organisational strategy on competitive advantage. In addition, it assesses (4) the mediating effects of corporate risk management on the relationship between open innovation and organisational strategy.

Design/methodology/approach – This exploratory and transversal study takes a quantitative methodological approach based on survey data from 251 hotel executive directors from Portuguese small and medium-sized enterprises (SMEs).

Findings – The results confirm relationships between open innovation and corporate risk management, organisational strategy, and competitive advantage. They also confirm the importance of corporate risk management for organisational strategy and organisational strategy for achieving competitive advantage. The research demonstrates that corporate risk management has a mediating effect between open innovation and organisational strategy.

Research limitations/implications – The present study proposes a model which provides better knowledge of the relationships between open innovation, corporate risk management, organisational strategy and competitive advantage. The model uses various scales to create a robust analytical measurement instrument. This research provides an in-depth analysis of the psychometric properties of the structural model's latent variables through PLS-SEM and shows the differentiated paths of the endogenous and exogenous constructs. Finally, the importance of the role of open innovation in the process of attracting the resources necessary, that is, organisational and technological resources, to successfully operate in the hotel sector is highlighted. Thus, this research fills existing gaps in the literature.

Practical implications – This research can contribute to the development of new instruments and programmes to improve the operational performance of SMEs in the hospitality sector. Understanding the relationship between the constructs will allow top managers to strengthen corporate resources, technologies and dynamic capabilities, and to promote entrepreneurial policies to enhance the relationship between open innovation and competitive advantage. Ultimately, the results of this study will allow governments, national, regional and local, to create policies, programmes and incentives to help firms adopt or extend the open innovation model, thus promoting the exchange of internal and external knowledge and strengthening the dynamics of the business ecosystem.

Originality/value – The paper discloses the relationships between open innovation, corporate risk management, organisational strategy, and competitive advantage, by identifying the main characteristics of



the constructs and revealing the linkage between them. This pioneering study analyses the mediating effect of corporate risk management between open innovation and organisational strategy and those mentioned above.

Keywords Open innovation, Corporate risk management, Organisational strategy, Competitive advantage, Hotel industry, Structural equations model

Paper type Research paper

Linking open
innovation and
competitive
advantage

105

1. Introduction

The impact of the open innovation model is one of the major discussion topics in management innovation (Huizingh, 2011). This model has emerged as a strategic factor in applying innovation management in SMEs but is relatively undeveloped in the literature (Lee *et al.*, 2010).

Hansen and Birkinshaw (2007) claim that open innovation can represent one of the most important and sustainable sources of competitive advantage for firms, mainly due to the specific nature of the organisational context. This statement makes any study on this topic particularly relevant to practice and essential in studying sustainable competitive advantage, a binding domain of strategic management and other academic areas. Besides, several studies have been carried out to establish a relationship between the open innovation model and corporate risk management (Lee *et al.*, 2010), organisational strategy (Crema *et al.*, 2014), and competitive advantage (Skordoulis *et al.*, 2020). However, firms' capacities to manage the uncertainties arising from the strategies they adopt to respond to environmental changes are recognised through dynamic capabilities (Williams *et al.*, 2021).

Open innovation requires the organisation to identify and understand emerging technology trends and expand its technological knowledge base to obtain a competitive advantage (Distanont *et al.*, 2018). For Goksoy *et al.* (2013), the business environment is highly dynamic, where organisations need to develop new competitive advantages to keep up with the speed of change in technology, customer demands, and global competition.

The need and novelty of this study are justified and supported in the literature. Therefore, this study is a response to the call of some scholars to identify new and effective ways to improve the firm's capacity for innovation to achieve competitive advantage (Yang *et al.*, 2018), considering that open innovation has a crucial contribution made in pursuing this goal. The perception that the open innovation model emerges as a strategic factor for innovation management extends its discussion and application in SMEs, excluded by the literature (Lee *et al.*, 2010). The debate over the effectiveness of management innovation in SMEs is still ongoing; researchers have no consensus about the best model of management innovation, making it pertinent to address the issue from the perspective of SMEs (Trentini, 2011). Besides, despite the abundant literature on open innovation, there is a lack of systematic research organisations tracking the concept's evolution (Bigliardi *et al.*, 2021). Directing these studies to the hospitality sector makes this study unprecedented.

2. Theoretical framework

2.1 Open innovation and corporate risk management

The open innovation concept is an emergent paradigm that is based on the assumption that "firms can and should use external ideas as well as internal ideas, and internal and external paths to market" (Chesbrough, 2003a, p. 59). According to Huizingh (2011), some activities favour acquiring new knowledge and technologies outside the organisation's boundaries, thus allowing an intentional flow of knowledge input that will capture and benefit from external sources of knowledge to improve current development. Than *et al.* (2019) argue that knowledge sharing is an essential path that stimulates employees to share ideas and knowledge for innovation and competitive advantage.

Chesbrough and Rosenbloom (2002) highlight the contribution of open innovation to identifying business risks. Some open innovation risks in SMEs have been identified in the

literature: (1) relational and performance risks derived from strategic alliances (Das and Teng, 2001), (2) excessive partner diversity, non-pecuniary disadvantages (Thomas and Trevino, 1993) and (3) conflicts of interest resulting from the variety of employees in knowledge sharing (Lichtenthaler, 2011). Moreover, the literature suggests that a firm's ability to identify and control its risks largely depends on how well it can accept and adapt to environmental changes; its ability to improve its operations is linked to its capacity to capitalise on its opportunities (Odor, 2019). Corporate risk management is thus associated with calculating risks to allow companies to reduce the uncertainty of introducing innovations (Teece *et al.*, 2016).

Thus, we propose to test the following hypothesis:

H1. Open innovation has a positive effect on corporate risk management mitigation.

2.2 Resources, capabilities and competitive advantage

The resource-based view (RBV) develops from the premise that strategic resources (and capabilities) enable firms to gain a competitive advantage (Barney, 1991; Peteraf, 1993). Resources become capabilities when they are articulated in performing some business function (Barney, 1991). Capabilities refer to the firm ability to perform a coordinated set of tasks using business resources to achieve a specific outcome (Helfat and Peteraf, 2003). Makadok (2001) defines capability as a particular type of resource, specifically, an embedded and non-transferable, organisationally firm-specific resource whose purpose is primarily to improve the productivity of the firm's other resources.

The organisational strategy provides the basis for decision-making/practices related to allocating resources, developing capabilities and exploring opportunities (Balodi, 2014). There are significant interactions between organisational characteristics (e.g. decision-making style, management style and organisational structure) and the strategies employed by organisations (Oyewobi *et al.*, 2016).

Thus, we posit the following hypothesis:

H2. Open innovation positively influences organisational strategy.

Barney (1991, p. 102) defines a firm's competitive advantage as the "strategic implementation that enables value creation and is not simultaneously implemented by all current or potential competitors". Competitive advantage involves optimising the firms' exploration and exploitation strategy (van Lieshout *et al.*, 2021). A firm's specific resources and capabilities are central to creating a competitive advantage, introducing different factors to explain its dynamics among competitors that represented an opportunity for alternative strategic approaches (Rua *et al.*, 2018; Rua and Ferreira, 2021). Collis (1994, p. 151) concluded that "Some organizational capabilities can be valuable sources of sustainable competitive advantage in industries" and Lenz (1980, p. 233) has the previous state that "The strategic capability of an organization derives from its: knowledge-technique base and value creation, capacity to generate and acquire resources, and general management technology."

Innovation is one of the crucial antecedents of firms' competitive advantage (Nguyen *et al.*, 2019). Van Lieshout *et al.* (2021) state that open innovation strategies will enable firms to obtain a competitive advantage by developing their dynamic capabilities; this situation leads to a change in firms' value proposition. Empirical research has found a positive relationship between open innovation and competitive strategy with varying intensity levels (Crema *et al.*, 2014).

Thus, we posit the following hypotheses:

H3. Organisational strategy has a positive effect on competitive advantage.

H4. Open innovation has a positive effect on competitive advantage.

2.3 Corporate risk management and dynamic capabilities

Some limitations to the RBV theory have been pointed out. Eisenhardt and Martin (2000) consider that it overemphasised internal resources and capabilities and neglected the influence of external factors on the firm. Business risk is related to these external factors because it is based on the probabilistic nature of the firm's activities and the relative situational uncertainty in which they are carried out (Semenets, 2019).

Barreto (2010) argues that dynamic capabilities are the firm's potential to systematically solve problems given its propensity to identify opportunities and threats, make timely, market-driven decisions, and change its resource base. Thus, innovative and proactive strategies will only succeed when accompanied by effective corporate risk management (Naldi *et al.*, 2007). Corporate risk management is considered a critical managerial competency and plays a central role in firms' risk mitigation (Bature *et al.*, 2018). Firms need to create sustainable value to decrease their risk exposure, especially SMEs, which are more exposed to risk due to their structural characteristics and limited resources (Verbano and Venturini, 2013). Risk managers adapt, deploy and reconfigure tools to analyse their firms' management practices to maximise inter-manager interaction and communication (Acuña-Carvajal *et al.*, 2019).

Factors such as organisational environment, capacity to integrate stakeholders, absorptive capacity, and technological skills influence corporate risk management (García-Sánchez *et al.*, 2018). These factors have repercussions on firms' results due to the uncertainty and complexity of the environment in which they operate. Its relationship with stakeholders requires the firms to constantly update, collaborate, and innovate products, processes, and systems.

Thus, we propose to test the following hypothesis empirically:

H5. Corporate risk management has a positive effect on organisational strategy.

2.4 Mediating role of corporate risk management on the relationship between open innovation and organisational strategy

Open innovation can be hindered by "risks related to insufficient financial resources, inexperienced, unmotivated and unwilling to cooperate people, poor adaptation to technological advances in the industry, knowledge sharing risks, weak social capital and noteworthy regulation risks" (Coras and Tantau, 2013, p. 324). García-Sánchez *et al.* (2018) found academic shortages that associate corporate risk management in SMEs and relate this chain of ideas (corporate risk versus SMEs management) with the open innovation model. Corporate risks arising from open innovation include loss of knowledge, core technologies and organisational skills, technological and market uncertainty, and the complexity of managing interactions with external partners (Chesbrough, 2003a).

Corporate risk management plays an essential role in the open innovation model since it is a global process directed toward business process innovation, and its implementation needs to be supported by a knowledge base coupled with a decision support system (Verbano and Venturini, 2013). On the other hand, the managers' risk perception influences management actions, as risk is the fundamental principle in recognising future uncertainty, deliberating possible risks and their effects, and formulating strategies to deal with these risks and reduce or eliminate their impact on the firm (Tim *et al.*, 2015).

Barney (1991) states that the sets of resources and capabilities to constitute the necessary condition of the RBV must be heterogeneous across firms and immobile (not transferable from firm to firm without cost). These heterogeneity and immobility are essential but insufficient conditions to obtain sustainable competitive advantage since this is also based on developed resources/capabilities. Based on these principles, Barney (1995) developed the VRIO (valuable, rare, imitable, organisation) model, arguing that firm resources should be organised in such a way as to be transformed into competitive advantages. Besides, dynamic capabilities refer to a firm's ability to renew competencies to achieve coherence between the

business environment and innovative response when the time to market is critical (Teece *et al.*, 1997).

Dynamic capabilities emphasise the key role of strategic management in integrating and reconfiguring firms' internal and external competencies, resources, and functional skills to meet the requirements of a changing environment (Teece *et al.*, 1997). The firm's capacity to successfully develop its activity implies adopting an integrative risk function spectrum (Andronache *et al.*, 2021). For these scholars, corporate risk management has been reconfirmed as an integrating mechanism that conducts a unified risk supervision approach that helps firms cope with a multidimensional risk spectrum. Therefore, corporate risk management is a structured process for top management decision-making to encourage or conduct the established goals and values of the firm (Jokonya and Lubbe, 2009). It can configure a dynamic mediating capability because it enhances the firm's ability to integrate, build, and reconfigure internal and external competencies to respond quickly to changes in the business environment (Teece *et al.*, 1997).

Corporate risk management will enable the firms to pursue their strategies aggressively and efficiently and anticipates the risk of each activity undertaken to achieve superior results at a reduced cost thus. It also will enable firms to better deal with uncertainty to concentrate the potential to mitigate firm performance volatility (Verbano and Venturini, 2013). The practices associated with open innovation involve a propensity to take risks (Wiklund and Shepherd, 2005), due to the uncertainty involved in its implementation (Kim *et al.*, 2015). Corporate risk management is a mediating effect between open innovation and organisational strategy because it identifies the firm's possible internal and external risks, enabling proactive and decentralised management based on strategies to eliminate or mitigate risk (Nocco and Stulz, 2006).

Thus, we propose to test the following hypothesis empirically:

H6. Corporate risk management mediates the relationship between open innovation and OS.

Figure 1 presents the proposed research model and hypotheses.

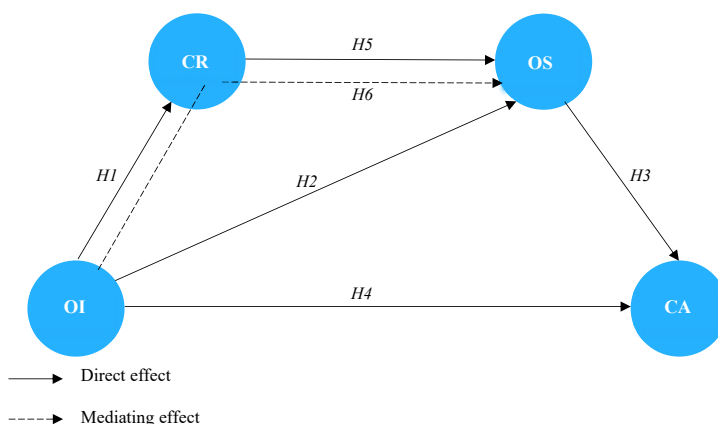


Figure 1.
Research model and
hypotheses

Note(s): OI – Open innovation; CR – Corporate risk management; OS – Organisational strategy; CA – Competitive advantage

3. Research methods

3.1 Sample design and data collection

The sample for this empirical study was drawn from the Portuguese hotel industry. A questionnaire was used as the primary data source. The data collection was carried out between October 28, 2018, and April 27, 2019. The firms were identified using the database of the Portuguese Hotel, Restaurant and Related Trades Association (AHRESP). The database includes 1,727 hotels, but 717 were disregarded as they do not have active email. Thus, in this study, we used non-probabilistic and convenience sampling.

The study subjects were hotel executive directors, and the unit of analysis was the individual. These were chosen for their supervision skills in the hotels' management functions.

The research survey was sent to the professional email of the hotel executive directors, and the addresses in the AHRESP database were verified and validated. The participants were informed about the survey content to enhance the efficiency of the responses, and they responded in a consenting way. Whenever one of the following situations occurred, the responses were discarded to avoid possible bias: (1) surveys that did not include all of the responses, (2) when the hotel did not have a manager designated for this purpose, and (3) surveys passed on to another type of manager.

A total of 251 fully completed and validated questionnaires were returned. This return corresponds to a response rate of 24.85%, considered entirely satisfactory, given that the average top management survey response rate is 15–20% (Menon *et al.*, 1999). Hair *et al.* (2021) argued that this sample size is suitable for data analysis using partial least squares structural equation modelling (PLS-SEM).

3.2 Measures

The constructs under study were measured using scales adopted from previous research. The two dimensions of open innovation, inbound and outbound, were assessed using six items from Sisodiya *et al.* (2013) and five from Cheng and Huizingh (2014). Corporate risk management was analysed through three items recommended by Covin and Slevin (1989). The three dimensions of organisational strategy, environmental dynamism, organisation structure and strategic posture were measured using the 21 items proposed by Morgan *et al.* (2000). Finally, the three dimensions of competitive advantage (cost, service and product) were analysed through the eleven items recommended by Kaleka (2002). All items were presented on seven-point Likert-type scales.

4. Results

4.1 Descriptive analysis

The reliability analysis was performed using Cronbach's alpha; the analysis guaranteed the consistency and stability of the answers while taking into account the heterogeneity of the respondents and their opinions (Pestana and Gageiro, 2014). The sample reliability was excellent for all variables (0.958).

Table 1 shows the descriptive statistics of the sample's demographics.

4.2 Partial least square structural equations modelling (PLS-SEM)

PLS-SEM was used to test the hypotheses with SmartPLS 3.0 software (Hair *et al.*, 2021). PLS-SEM was best suited to estimate the research model as: (1) this research focuses on prediction and explanation of the variance of the model's constructs (in this case, four); (2) the research model has a complex structure; (3) the relationship between open innovation and competitive advantage can be measured directly and indirectly; (4) the study uses first and second-order reflective constructs; and (5) the sample ($n = 251$) is relatively small. Reflective constructs

BJM 18,1	Item	%
110	<i>Gender</i>	
	Male	62.5
	Female	37.5
	<i>Age (years old)</i>	
	18–25	19.3
	26–35	26.9
	36–45	42.6
	46–55	8.4
	>55	2.8
	<i>Academic qualifications</i>	
	vocational qualification	55.6
	bachelor degree	28.9
	master degree	12.6
	PhD	2.9
<i>Professional experience (years)</i>		
1	7.3	
2–5	48.7	
6–10	30.8	
>10	13.2	

Table 1.
Descriptive analysis

were used to estimate PLS parameters to maximise the variance explained in observed measures (Anderson and Gerbing, 1988).

4.2.1 Evaluation of the measurement model. The results showed that the measurement model met all general requirements. First, all reflective items have a load higher than 0.707, which means that the reliability of individual indicators (loadings) was higher than 0.5. Second, all-composite reliability values and Cronbach's alpha values were above 0.7, suggesting acceptable model reliability. Third, the average variance extracted (AVE) values of all constructs were higher than 0.50, indicating adequate convergent validity and implying that the indicators represent the same underlying constructs (Hair *et al.*, 2021).

In addition, the composite reliability coefficient was used to test the constructs' validities (Chin, 1998). Gefen and Straub (2005) advocate a minimum of 0.6 when the variables exceed the reference value. Fornell and Larcker's (1981) criterion was used in this study, proposing that AVEs must have a minimum value of 0.5 to prove convergent validity. All the constructs reached this value (Table 2).

The discriminant validity of the model was demonstrated as the results showed that the constructs with no theoretical relation were, indeed, not significantly correlated; this can be gauged from the principle that all cross-loadings cannot be higher than the loading of each indicator (Hair *et al.*, 2021). Based on Chin's (1998) classification of explanatory power as being moderate/substantial, the data in Table 3 show that the discriminant validity results were satisfactory; that is, the measures of the constructs showed they were significantly different.

The Fornell-Larcker (1981) criterion (FLC) specifies that the AVE should be greater than the variance between constructs of the same model. Henseler *et al.* (2015) proposed a new and advanced criterion (Heterotrait-Monotrait ratio – HTMT) to assess discriminant validity. They accept that the FLC is still an acceptable method for evaluating discriminant validity. However, the FLC fails to assess the lack of discriminant validity in various research situations. Therefore, the present study used the HTMT to evaluate the constructs' discriminant validity; these values are presented in Table 3. All values were less than 0.9.

First-order constructs	Item	Loadings	CR	AVE	Mean	SD	Linking open innovation and competitive advantage
Open innovation ($\alpha = 0.957$)	OI_9	0.903	0.962	0.698	4.74	1.482	
	OI_10	0.897			4.71	1.523	
	OI_3	0.892			4.84	1.653	
	OI_2	0.888			4.67	1.666	
	OI_5	0.884			4.68	1.653	
	OI_8	0.862			4.84	1.497	
	OI_4	0.716			5.03	1.535	
	OI_7	0.698			4.53	1.622	
	OI_6	0.690			4.65	1.671	
	OI_11	0.686			4.53	1.621	
Corporate risk management ($\alpha = 0.891$)	OI_1	0.635	0.932	0.821	5.12	1.605	
	CR_3	0.891			5.03	1.114	
	CR_2	0.846			4.80	1.341	
Organisational strategy ($\alpha = 0.970$)	CR_1	0.835	0.974	0.650	5.03	1.114	
	OS_13	0.859			4.92	1.117	
	OS_18	0.858			4.97	1.073	
	OS_15	0.858			5.08	1.043	
	OS_5	0.840			4.91	1.147	
	OS_11	0.824			4.89	1.181	
	OS_7	0.823			4.93	1.146	
	OS_9	0.822			5.02	1.103	
	OS_16	0.818			4.94	1.127	
	OS_12	0.804			4.90	1.144	
	OS_10	0.805			4.87	1.179	
	OS_6	0.789			4.99	1.100	
	OS_20	0.788			5.17	0.990	
	OS_4	0.784			4.91	1.150	
	OS_2	0.726			4.88	1.145	
	OS_21	0.744			5.03	0.998	
	OS_8	0.723			4.85	1.142	
	OS_1	0.691			4.88	1.169	
	OS_3	0.690			5.03	1.110	
	OS_19	0.657			5.11	0.907	
OS_14	0.652	5.04	0.906				
OS_17	0.633	5.12	1.201				
Competitive advantage ($\alpha = 0.952$)	CA_3	0.967	0.959	0.678	4.92	1.171	
	CA_10	0.958			4.98	1.156	
	CA_4	0.954			4.94	1.158	
	CA_7	0.941			4.81	1.214	
	CA_2	0.928			4.93	1.165	
	CA_9	0.927			5.06	1.177	
	CA_8	0.924			4.87	1.172	
	CA_6	0.911			4.74	1.209	
	CA_1	0.904			4.93	1.170	
	CA_11	0.888			4.92	1.199	
	CA_5	0.872			4.88	1.216	

Table 2.
 Standardised factor
 analysis loadings, CR,
 AVE, mean and SD

4.2.2 Evaluation of the structural model. The significance of the model was assessed based on path coefficients, *t*-values and standard errors. The hypotheses were tested for main and indirect effects through the bootstrapping procedure (Ringle et al., 2015).

BJM 18,1		1	2	3	4
	<i>FLC</i>				
	1. Competitive advantage	0.823			
	2. Corporate risk management	0.340	0.906		
	3. Open innovation	0.327	0.535	0.836	
	4. Organisational strategy	0.383	0.616	0.532	0.806
112	<i>HTMT</i>				
	1. Competitive advantage				
	2. Corporate risk management	0.363			
	3. Open innovation	0.339	0.574		
	4. Organisational strategy	0.398	0.653	0.547	

Table 3.
Discriminant validity
and HTMT

Based on [Chin's \(1998\)](#) criterion that the minimum structural coefficient should be 0.2, the effects proposed in the hypotheses were shown to be significant. Open innovation had a significant and positive relationship with corporate risk management ($\beta = 0.535$, $t = 11.352$; LL = 0.437, UL = 0.621) and organisational strategy ($\beta = 0.284$, $t = 5.255$; LL = 0.182, UL = 0.391); thus, [H1](#) and [H2](#) were supported as the lower and upper limits included the value zero, indicating that the relationship was significant. The organisational strategy had a significant and positive effect on competitive advantage ($\beta = 0.291$, $t = 3.930$; LL = 0.149, UL = 0.437); thus, [H3](#) was supported. Open innovation had a significant and positive relationship with competitive advantage ($\beta = 0.172$, $t = 2.649$; LL = 0.041, UL = 0.289); thus, [H4](#) was supported. Moreover, corporate risk management had a significant and positive effect on organisational strategy ($\beta = 0.464$, $t = 7.341$; LL = 0.334, UL = 0.584); thus, [H5](#) also was supported.

We used the bootstrap approach to test corporate risk management's mediating effect on open innovation and organisational strategy relationship ([Preacher and Hayes, 2008](#)). Mediation exists when an indirect effect is significant ([Hair et al., 2017a](#)). Therefore, corporate risk management significantly mediated the relationship between open innovation and organisational strategy ($\beta = 0.172$, $t = 2.649$; LL = 0.041, UL = 0.298); consequently, [H6](#) was also supported. [Table 4](#) shows the mentioned results.

[Figure 2](#) shows the structural model assessment, considering both direct and indirect effects.

4.2.3 Competing models and the predictive power of the research model. [Paulraj et al. \(2008\)](#) advocate that the proposed model should be compared with others to assess which one presents the best fit whenever the structural equation model is used. In our case, the proposed model, expressed in the previous figures, corresponds to Model 1. Next, we established Model 2, corresponding to the direct relationships between open innovation, corporate risk management and organisational strategy with a competitive advantage. Finally, we established a rival model (Model 3), starting from the proposed one, which adds the direct relationship between corporate risk management and competitive advantage. The following criteria were adopted to determine the model that presents the best fit: SRMR with a value less than 0.10 or of 0.08 ([Hu and Bentler, 1999](#)) and NFI with a value between zero and one ([Hair et al., 2017b](#)). Model 1 is the one that presents the best fit. Although there are no significant changes between the SRMR and NFI values, this model is the one that shows the most significant relationships ($p \leq 0.001$) between the model constructs ([Table 4](#)).

Besides, we tested the predictive power of the proposed model (Model 1) via r-square (R^2) and Q-square (Q^2) ([Hair et al., 2021](#)). [Falk and Miller \(1992\)](#) suggest that R^2 values should be equal to or greater than 0.10 for the variance explained by a particular endogenous construct to be deemed adequate. R^2 values – corporate risk management (0.286), organisational strategy (0.437) and competitive advantage (0.168) – meet the minimum criteria (>0.10). On the other hand, [Chin \(1998\)](#) recommends that Q^2 for endogenous variables is greater than

Hypotheses	Direct and indirect effects				L.L.	U.L.	Result
	Original sample (O)	Sample mean (M)	Standard error (STERR)	T-statistics (O/STERR)			
<i>Direct effect</i>							
H1. OI → CRM	0.535	0.535	0.047	11.352*	0.437	0.621	Supported
H2. OI → OS	0.284	0.284	0.054	5.255*	0.182	0.391	Supported
H3. OS → CA	0.291	0.295	0.074	3.930*	0.149	0.437	Supported
H4. OI → CA	0.172	0.173	0.065	2.649*	0.041	0.298	Supported
H5. CRM → OS	0.464	0.465	0.063	7.341*	0.334	0.584	Supported
<i>Indirect effect</i>							
H6. OI → CRM → OS	0.248	0.249	0.043	5.767*	0.167	0.335	Supported
<i>Competing models</i>							
	Proposed model (model 1)	Direct model (model 2)		Rival model (model 3)			
CRM → OS	0.46**					0.46**	
OI → CA	0.18***		0.14***			0.14***	
OI → CRM	0.54**					0.53**	
OI → OS	0.28**					0.28**	
OS → CA	0.29**		0.25***			0.23***	
CRM → CA			0.12****			0.13****	
SRMR	0.069		0.069			0.069	
d_ULS	5.329		5.391			5.328	
d_ULS	8.273		8.305			8.273	
Chi-square	7579.646		7576.552			7580.827	
NFI	0.578		0.578			0.578	

Note(s):

* $p < 0.001$

** t -values significant at $p < 0.001$

*** t -values significant at $p < 0.05$

**** Non-significant

Table 4.
 Results of the structural equations modelling: Direct and indirect effects and competing models

zero. Q^2 values – corporate risk management (0.277), organisational strategy (0.273) and competitive advantage (0.134) – also meet the minimum criteria (>0.0). Hence, we conclude that our research model demonstrates predictive relevance.

5. Discussion and conclusions

The relationship between open innovation and corporate risk management has been supported (H1). Innovation is risky and, unless the process is carefully managed, there is a high failure rate between the initial idea and the launch into the market of a product/service (Tidd *et al.*, 2006). Top management’s responsibility is to identify how to deal with corporate risks to achieve the firm’s objectives with greater certainty (Lassen and Laugen, 2017).

Open innovation’s positive and significant effect on organisational strategy was confirmed (H2). The key element of a firm’s business model is the identification of how to profit from innovation; the development of new products must be aligned with strategies about “going to market” and “capturing value” (Denicolai *et al.*, 2014). The business model should transform ideas into profits and recognise that innovative firms should not rely only on internal knowledge; they should not depend exclusively on the knowledge held by their employees but should seek to acquire external knowledge (Chesbrough, 2003a, b).

It was shown that organisational strategy had a positive and significant impact on competitive advantage (H3). A firm’s performance can only be improved through

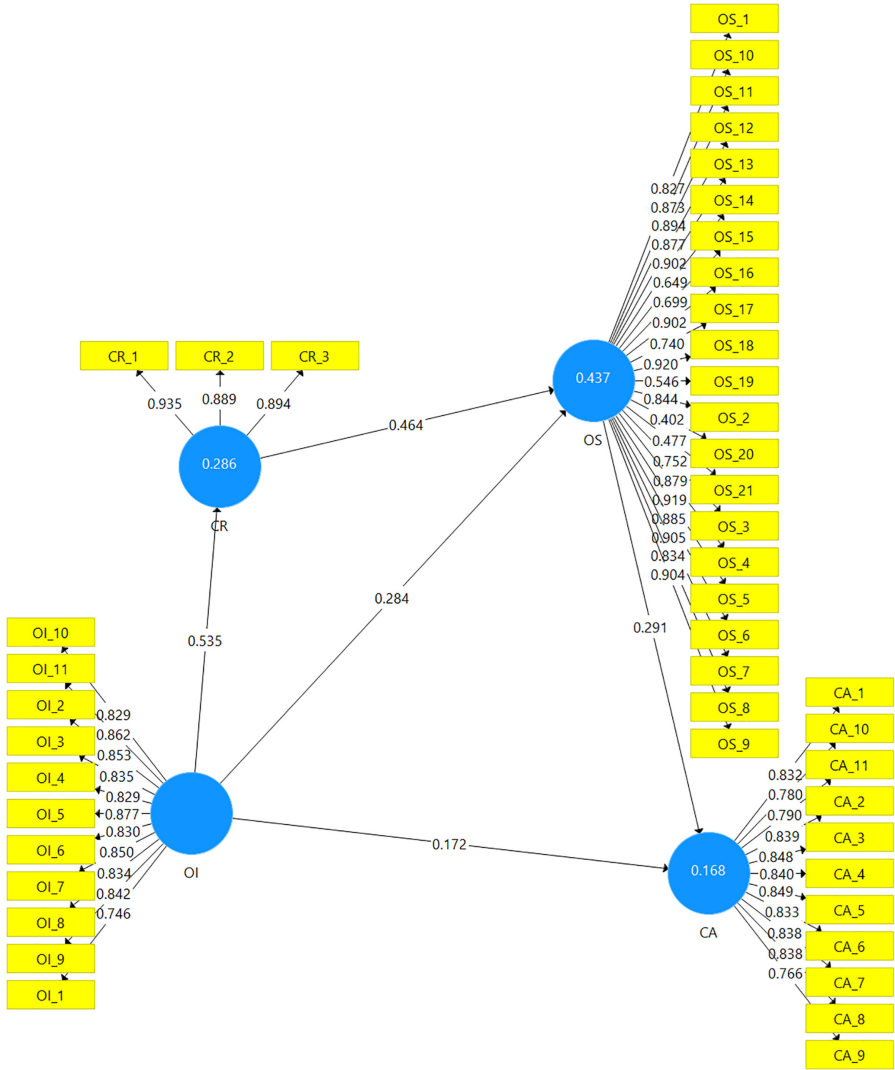


Figure 2. Structural model assessment

organisational strategies that intentionally create, extend or modify strategic resources, in which the ability to understand the market, seize opportunities and adjust product portfolios/ services/processes is essential to develop a sustained competitive advantage (Ojha *et al.*, 2020). To build sustainable competitive advantage, firms must implement strategies that promote improvements in effectiveness and efficiency; this is impossible if they do not have valuable, rare and inimitable resources (Barney, 1991). Planning is, thus, vital for the development of the firm’s strategy, particularly as it seeks to exploit openings in fluctuating markets and create a long-term competitive advantage (Doz and Kossonen, 2008). Finally, technological capacity, strategic flexibility, product innovation and resource-based

perspectives are vital elements in SMEs' organisational strategies and developing competitive advantage (Priem and Butler, 2001; Giannoni *et al.*, 2018).

The results showed a relationship between open innovation and competitive advantage (H4). Firms need to identify and understand trends in emerging technologies and expand their technical knowledge base into developing and maintaining cutting-edge technologies that create competitive advantage (Distanont *et al.*, 2018). A solid strategic approach allows organisations to build long-term competitive advantage, bringing together knowledge, technological skills, creativity, experience, and growth by introducing new ideas in innovative products, processes, and business models. These insights benefit the organisation and promote economic growth (Calabretta *et al.*, 2017).

It was demonstrated that a positive and significant relationship exists between corporate risk management and organisational strategy (H5). Corporate risk management is essential for decision-making, planning and control (Yilmaz and Flouris, 2017). Moreover, corporate risk management practices are critical for more than just financial performance; they are also vital for firms' non-financial performance (Rasid *et al.*, 2014). Consequently, top management needs to be aware of those corporate risk management practices that influence organisational strategy (Meidell and Kaarboe, 2017). The firm's decision-making process is, thus, fundamental in value creation, enhancing the image and increasing the strategic capacity and ability to respond effectively to new opportunities (Foroudi, 2019).

The results confirmed the mediating effect of corporate risk management on the relationship between open innovation and organisational strategy (H6). Chesbrough and Crowther (2006) argue that open innovation tools must follow the firm's strategy and enhance collaboration with external partners. Corporate risk management allows firms to safely integrate open innovation into their business models (Chesbrough and Brunswicker, 2014). However, open innovation creates different risks for different firms; they should seek to develop mechanisms to address the various risks to facilitate new product development and increase business volume (Chesbrough, 2003a, b). Innovation practices directly impact firms' strategies and create additional opportunities, for example, access to knowledge, resources, markets and external skills, reduced product development time/cost, risk-sharing and faster market launches (Chesbrough and Crowther, 2006).

Recent research on innovation in the tourism industry highlights the empirical investigation of innovative practices in tourism organisations (Rhodri and Wood, 2014). There is evidence that tourism firms are particularly dependent on external knowledge (absorptive capacity) to obtain competitive advantages when compared to firms in other sectors (King *et al.*, 2014).

The hospitality sector is an increasingly uncertain and competitive market, and tourism-focused SMEs are constantly under pressure to adopt various innovations (Martie-Louise *et al.*, 2019). To succeed, hotels must develop and follow strategies that align and integrate their activities with market conditions (Langfield-Smith, 2005). Porter (1985) argues that highly dynamic organisations might require more innovative strategies, while less dynamic ones might follow more traditional strategies.

The development of the hospitality sector is strongly intertwined with the market and organisational innovation (Lita and Meuthia, 2018). Despite the increasing empirical research in recent decades on innovation, it has not yet been possible to build an integrated model focused on the innovative behaviour of SMEs in the tourism industry, in particular in the hospitality sector (Ram *et al.*, 2016). This status is, perhaps, surprising, as it has been shown that innovation strategies substantially affect hospitality firms' competitiveness (Ioncica *et al.*, 2008). Evidencing the contributions of service innovation in the hospitality sector, and simultaneously broadening empirical research into open innovation, somewhat underdeveloped, remains a relatively unexplored area of research (Zopiatis and Theocharous, 2018), which the present study aims to address through the proposed and tested research model.

6. Implications and limitations

6.1 Theoretical implications

This study fills relevant gaps in the literature. It highlights the central role that open innovation carries out in the organisational strategies that lead to the pursuit of competitive advantage; this is considered a primary source of innovation and is referred to in several studies in hotel management. On the other hand, it integrates corporate risk management, as a structured process for top management decision-making, to encourage SMEs to pursue behaviours in the face of organisational strategies that will contribute to achieving goals and values. Finally, this research provides an in-depth analysis of the psychometric properties of the structural model's latent variables through partial least squares–structural equations modelling (PLS-SEM). The research model uses various scales to create a more robust analytical measurement instrument. It shows the differentiated paths of the endogenous and exogenous constructs.

6.2 Practical implications

This research can contribute to the development of strategies, plans and programmes to improve SMEs' performance in the hospitality sector. Understanding the interaction of corporate risk management and organisational strategy in the relationship between open innovation and competitive advantage will allow top managers to strengthen resources and dynamic capabilities to promote entrepreneurial policies for SMEs. Therefore, these firms must invest, for example, in improving the qualification of their human resources and developing technologies that enhance the quality of service. The open innovation model will support these firms to define a service standard considering corporate risk management for the formulation and implementation of strategies that enable them to achieve competitive advantage by improving consumer welfare, and consumer participation in the design of efficient mechanisms that reduce the risk of financial loss and also the promotion of consumer safety; all of this factor will stimulate an effective competition to increased hotels' competitiveness.

Moreover, universities and research institutes are increasingly proactive in making their intellectual property available by developing new products and services, which will enhance the competitive advantage of firms accessing them. Ultimately, the results of this study will allow governments (national, regional and local) to create policies, programmes and incentives to help firms adopt or extend the open innovation model to strengthen the dynamics of the business ecosystem.

6.3 Limitations and future research directions

This study has some limitations. First, the survey was aimed at firms with email addresses on the AHRESP database. Although the number of responses received was significant, a larger sample might provide a set of results that produce a more refined analysis. Moreover, it is a non-probabilistic, convenience-based sample. Second, the intended survey respondents were executive hotel directors, but whether they completed the questionnaires themselves is unknown. Assessing the different study constructs based on a single person's opinion can be reductive. It may not precisely reflect the genuine opinion of the firm since decisions are made by teams whose members may have different perspectives.

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Further reading

- De Andrés Sanchez, J., Arias-Oliva, M., Pelegrín-Borondo, J. and Rua, O.L. (2021), "Factores explicativos de la aceptación de la vacuna para el Sars-Cov-2 desde la perspectiva del comportamiento del consumidor", *Revista Española de Salud Pública*, Vol. 95, pp. 1-11.
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Capítulo 4 - Configurational analysis of inbound and outbound innovation impact on competitive advantage in SMEs of the Portuguese hospitality sector

Andrés-Sánchez, J., Musiello-Neto, F., Rúa, O.L., & Arias-Oliva, M. (2022). Configurational analysis of inbound and outbound innovation impact on competitive advantage in SMEs of the Portuguese Hospitality Sector. *Journal of Open Innovation: Technology, Market, and Complexity*, 8(4), 205. <https://doi.org/10.3390/joitmc8040205>



Article

Configurational Analysis of Inbound and Outbound Innovation Impact on Competitive Advantage in the SMEs of the Portuguese Hospitality Sector

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Abstract: This study analyzes the effects of inbound and outbound open innovation, along with organizational strategy and corporate risk management, on competitive advantage and disadvantage in the Portuguese hospitality sector's cost, service, and product. We use a quantitative approach based on fuzzy set qualitative comparative analysis (fsQCA) of survey data from 251 executive directors of hotels from Portuguese small and medium-sized enterprises (SMEs). The results allow visualization of the interactions of inbound and outbound open innovation with corporate risk management and organizational strategy in order to generate competitive advantage. The results demonstrate that corporate risk management is a keystone for a competitive cost advantage, whereas inbound open innovation plays a fundamental role in obtaining competitive advantages for products and services. Other factors, such as outbound open innovation or those linked with organizational strategy, have less impact, and/or the sign of their influence depends on the configuration of the remaining variables.

Keywords: inbound open innovation; outbound open innovation; corporate risk management; organizational strategy; competitive advantage; hotel industry; configurational analysis; fuzzy set qualitative comparative analysis



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1. Introduction

A competitive advantage is the core of strategic management [1,2]. Although difficult to quantify, it is at the heart of firms' strategic policies [2]. Since the second decade of the 21st century, the influence of open innovation (OI) on competitive advantage has become one of the main topics in management innovation [3,4]. Traditionally, innovation has been undertaken by investing in the internal development of technologies and subsequently commercializing them using new products and services [5]. Unfortunately, internalization incurs great costs that are inaccessible to small and medium-sized enterprises (SMEs). Consequently, for SMEs, OI is a reliable substitute [6] for traditional internal innovation policies. Currently, the entrepreneurship environment presents a notable complexity and mutability that has undermined the effectiveness of traditional innovation and generated the need to use external knowledge [5]. Moreover, presently, the availability and treatability of large amounts of data decisively impacts firms' decision-making policies and the chain of profit generation for stakeholders, such as customers [7] or users [3].

Innovation is one of the main factors explaining entrepreneurial success: it is a key variable for sustainable business development in search of competitive advantage [8–10] and the fundamental instrument for creating and maintaining competitive advantage, especially in periods with a great deal of turbulence [11]. Innovation embeds searching for alternative

value propositions, valuations, and value generation for the existing business, which is crucial for enterprises because it influences their situation in the competitive market and their chances of survival [12]. Moradi et al. [13] defined OI as a management procedure that is more malleable and compatible with innovation processes, including external skills and the acquisition of innovative ideas (inside and outside the firm). Following these authors, OI uses human knowledge to progress in the age of digital transformation; allowing organizations to adapt to the information era in such a way that social networks become the main instrument to build up that transformation, especially in SMEs [14]. Several factors stimulate the transition to the digital economy, the most prominent of which is overcoming administrative barriers and inconsistent legal frameworks [15]. Therefore, developing a strategy for the transition to a digital economy that embeds adaptation to an economy, with virtual services and content allowing access to new markets, provides economic growth and sustainable prosperity, and, consequently, competitive advantage [16].

This study analyzes the effects of OI, intrinsic organizational factors, and corporate risk management practices on competitive advantage in SMEs in the Portuguese hospitality sector. SMEs are the dominant firms in Portugal, representing 99.3% of all companies [17]. Portugal, conjointly with Italy, is the second-highest country in the European Union in terms of SME weight. Although the literature on OI is currently a hot topic, most empirical analyses have been conducted on large companies because they are more open to innovation processes than small firms [17,18]. Therefore, this study intends to expand the existing research to SMEs like [17–22]. Likewise, hospitality is one of the most important economic sectors in Portugal [23] because it plays a key role in the Portuguese payment balance, GDP, and employment creation [24]. Crucially, Portugal is one of the most important tourism destinations in Europe [25]. These considerations justify the relevance of an analysis of the impact of OI practices in the Portuguese hospitality sector.

Mainstream literature suggests that the actual influence of OI on firm performance depends on how the business model is developed [26]. Usually, there is a link between OI and the flexibility and dynamism of the strategy stated by managers, and the dynamism of the environment in which the firm operates [27]. In the SME setting, this framework was used by Musiello-Neto et al. [19] to assess enablers of competitive advantage in the Portuguese hospitality sector. The hospitality sector in Spain [21] and in China [22] has used that perspective to explain business model innovation, which is an antecedent of competitive advantage [28]. Similarly, [18] explains the sales of innovative products by implementing OI practices and considering organizational settings using a sample of SMEs in the European Union.

This paper also uses that theoretical basis but incorporates in the analysis the degree of corporate risk management, which has been found to be a driver of long-term competitive advantages in several studies [20,29,30].

Our results complement and/or extend those in [17–22]. Therefore, while [21] identifies the most common open practices in Portuguese SMEs and the motivations for their adoption, we assess the conjoint impact of OI practices with other relevant factors linked to organizational factors. In [18], the influence of concrete OI measures on sales was evaluated, taking into account that only factors linked to organizations were objectively measurable (for example, age). However, we allow a subjective evaluation of these factors using well-known measurement scales for OI [31,32] and internal and external organizational factors [33].

Despite using a conceptual framework analogous to [19,20], we expand their scope in two ways. First, in [19,20], the variables OI, organizational position, and competitive advantage were aggregated. In contrast, this study splits them into different sub-factors. For competitive advantage, we distinguish that it can be obtained in cost, service, and product [34]; and organizational position is split into the dynamism of the environment, internal flexibility, and innovativeness in strategic positions [33]. However, whereas [19,20] uses partial least squares-structural equation modelling (PLS-SEM) as an analytical tool, this study uses the fuzzy set qualitative comparative analysis (fsQCA) developed by Ragin [35].

In [21,22], the effects of organizational structure and OI practices on organizational performance were analyzed, but their focus differs from that in our study. Whereas those studies measured the impact of OI in business model innovation, we do so in the three dimensions of competitive advantage. Moreover, whereas those studies only assess the causal paths of the assessed output variable, our analysis also embeds the causes of the non-existence of competition capability. Similarly, we introduce a firm's degree of strategic risk management policy in the analysis.

The use of fsQCA, the extension of qualitative comparative analysis, in our study is justified because, in a strategic management setting, the causality in assessed problems is usually multiple—i.e., a response may have more than one cause—and variables produce the outcome in conjoint interactions [36]. Therefore, by focusing explicitly on localizing causal complexity, the fsQCA method contributes to business and management research [37].

Likewise, fsQCA does not assume symmetrical relationships between variables, despite being effective in this case [37]. The combinations of factors that produce the presence and absence of an outcome in complex phenomena are usually non-symmetrical. For example, Woodside [38] indicated that the causes of an organization's success are always non-symmetrical to those that induce failure.

A review [36] shows entrepreneurship and innovation as two of the most prolific issues in the empirical fsQCA literature [21,22,39–45]. However, many other management issues have been assessed using this analytical methodology [46].

2. Theoretical Framework

2.1. *The Influence of Open Innovation, Organizational Strategy, and Corporate Risk Management on Competitive Advantage*

The business innovation model seeks new methods to create value and find ways to generate income and transfer value to customers, suppliers, and partners [13]. OI involves the management of knowledge flows and describes the phenomenon whereby an organization uses external ideas and technologies and allows new technologies to be exploited by others [47]. Implementing OI facilitates decision making, making it more decentralized and productive [48]. Moreover, organizations are rational actors engaged in finding solutions to problems ranging from new product development to strategic planning [49]. The ability of firms to innovate involves the development of new types of knowledge, which can come from both the internal environment (e.g., human talent, processes, etc.) and the external environment (e.g., the market, customers, suppliers, consultants, etc.). In this context, top managers and OI have a close relationship that generates value for the organization [50]. Findings [19,51–53] support the positive influence of OI on competitiveness, and reporting [54] does so in firms' financial performance. In the Spanish hospitality industry, [55] shows that both breadth and depth inbound open innovation (IOI) push green innovation, which is a source of competitive advantage (CA) [56], while in the Portuguese hospitality sector, it has already been shown [19,20].

Likewise, not all OI types contribute to CA in the same way. IOI allows the firm to not be totally dependent on its own internal R&D to be innovative [57]. As a result, the company can use several sources of external knowledge, such as suppliers, customers, and competitors [58]. However, to be effective, IOI needs from companies must be capable of identifying externally relevant information and using it efficiently [59].

Outbound open innovation (OOI) requires internally disseminated business knowledge to be spread outside [17]. This type of OI can be implemented in several ways, such as licensing intellectual property rights, creating spinoffs, and outsourcing innovation. Inside-out innovation performs better in environments with strong intellectual protection than in those with weaker protection [18], and in the case of technologies with high innovation potential [60]. Therefore, inside-out OI can generate new business development options by applying new technologies [22]. Inside-out OI can provide value if the firm has the capacity to innovate but does not have a strong commercial area, such as public

research agencies [60]. Moreover, businesses that want to dominate R&D activities across the industry can obtain advantages by using this type of innovation [61].

The success of OI depends on a firm's ability to create and capture value using both pecuniary and non-pecuniary mechanisms [47]. Firm value creation implies the organization's perspective in generating new resources, which are considered valuable; thus, achieving the desired objectives for the implementation of this management model, i.e., the creation and use of the OI model, is based on knowledge widely distributed internally and externally to the organization [62]. However, if the top manager imposes a radical condition on the change in the management model, the goal of OI can negatively affect a firm's performance [5]. In light of this challenge (management model change), firms should apply formal processes (e.g., partnerships, patents) and informal processes (e.g., relational capabilities) to manage knowledge flows by defining a specific type of innovation, i.e., inbound, outbound, and coupled innovation [5]. Likewise, some externalities from OOI can drag competitive advantage [5,63,64]. Examples include undesired relational and performance consequences derived from strategic alliances, or conflicts of interest resulting from the variety of employees involved in knowledge sharing [65].

If we suppose that a firm is capable of implementing OI measures efficiently, and this implies applying those measures more accurately to its business model, the following hypotheses are formulated:

Hypothesis 1a (H1a). *Inbound open innovation has a positive link with attaining competitive advantages.*

Hypothesis 1b (H1b). *Outbound open innovation has a positive link with attaining competitive advantages.*

The factors embedded in the organizational structure are an important tool to leverage management, be it middle or top management [66]; allow the development of human capital, which is a relevant tier of competitive advantage [67]; and facilitate communication and awareness of potential innovations, implementing new management models such as OI [48]. This appreciation also applies not only at the firm level but also in project management [68]. Flexible and innovative administrative structures are often linked to better entrepreneurial performance [9,69,70]. In this regard, we differentiate three organizational variables [33]: environmental dynamism (EDYN), flexibility and decentralization of internal structures (FIS), and innovative strategic posture (ISP). With regard to EDYN, several authors have proven that environmental dynamism fosters innovativeness and a constant search for competitive advantages [56,71].

To be competitive, the organizational structure must allow so-called market agility and operational agility [22]. The first capability, which is linked to ISP, allows fast responses and the acquisition of external change through constant sensing and product improvement to satisfy customer needs [72]. The second ability, which is essentially the flexibility of the internal structure, is linked to the capacity of enterprise internal processes to respond rapidly to market evolution [73]. Primarily, it aims to help firms rapidly respond to reconfiguring operations and facilitate appropriate business partner relationships as needed. Such agility can easily integrate internally to adjust the modification of a product or service scheme [72], thus providing a strong capability to support change, trial-and-error, and improvisation. The development of internal networks is necessary for the decentralization of management and success; the external knowledge acquired is of paramount importance [74].

Musiello-Neto et al. [19,20] detected a significant positive link between OI and firms' flexibility and dynamism in the Portuguese hospitality sector. Inclusive firms seek answers in business environments characterized by uncertainty and vulnerability. In this sense, these authors state that top managers must have a flexible and diversified capacity to overcome market instability, and thus promote market adaptation. Anuntarumporn and Sorhsaruht [75] also found that innovative capability and flexible and innovative man-

agement styles positively impacted competitive advantage. Organizations have various business languages seeking to meet specific business variables (goals, decisions, rules, processes, and organizational structure) to return on their investment [76]. Winning strategies allow the firm to gain a competitive advantage in the market, as a firm has a competitive advantage when it has an edge over rivals [27]. Therefore, we propose the following hypotheses embedded in organizational issues:

Hypothesis 2a (H2a). *Environmental dynamism has a positive link with attaining competitive advantages.*

Hypothesis 2b (H2b). *Decentralization and flexibility of internal structure has a positive link with attaining competitive advantages.*

Hypothesis 2c (H2c). *Innovative strategic posture has a positive link with attaining competitive advantages.*

Managers have traditionally ignored corporate risk management (CRM) as a strategic factor and have considered enterprise risk management an extension of their audit or compliance processes [77]. However, several scholars warn that CRM can create a long-term competitive advantage [30], especially to manage disruptive innovations [78,79]. Even though risk management does not increase competitiveness if it only embeds constraining costs when adverse events such as natural disasters occur, managing uncertainty by taking rewarded risks and being aware of an evolving disruptive environment that may affect the business market are actions that provide a competitive advantage [77,78]. Thus, we propose the following hypothesis:

Hypothesis 3a (H3a). *Corporate risk management has a positive link with attaining competitive advantages.*

2.2. Variables, Measurement Scales, and Configurational Testing of Hypotheses

In contrast to [18–20,22,23,53,75], we split the output variable linked to competitiveness (competitive advantage) into three dimensions: cost, service, and product [34]. These outputs were identified as COST_CA, SERV_CA, and PROD_CA. The input variables are defined according to the exposition in Section 2.1. In the case of OI, we differentiated two commonly accepted dimensions: outside-in OI and inside-out OI. Moreover, we differentiated three dimensions of organizational strategy: EDYN, FIS, and ISP [33]. In addition, we consider the degree to which companies implement strategic risk management.

Correlational methods, such as regression, are variable-oriented. Therefore, their use allows the measurement of the net influence of each input factor on the assessed output. The aim of statistical methods is to determine how hypotheses to test in research must be formulated. Therefore, they are usually displayed simply as: ‘input variable X influences positively/negatively output variable Y’. The hypothesis is accepted if the sign fitted for the coefficient quantifies the relationship between X and Y and attains the conjectured sign and a predefined *p*-value (typically 5%). Therefore, the hypotheses developed in Section 2.1 in H1a, H1b, H2a, H2b, H2c, and H3, which refer to isolated impact factors on competitive advantage, can be directly tested using correlational methods.

By using fsQCA, we cannot quantify the influence of explanatory factors on the explained variable, but the method can show several ways in which input variables combine to produce an outcome. Likewise, fsQCA does not assume symmetrical relationships between variables, despite being effective in this case [37]. Therefore, fsQCA is suitable for studying phenomena where the impact of input variables is completely asymmetrical to the presence and absence of a given output. This is the case for variables that produce success and distress in firms. Often, the causes of firms’ prosperity and bankruptcy are not symmetrical in such a way that recipes indicating the negation of the outcome (e.g., distress, which can be considered the negation of success) are not the mirror opposites

of recipes of its affirmation (success) [38]. Thus, the aims of fsQCA lead to formulating hypotheses to test differently than in statistics, and thus, the hypotheses in Section 2.1 must be tested according to the philosophy of fsQCA. To do this, we take into account the sign of the relations between the input and output variables hypothesized in Section 2.1, and subsequently, in a manner similar to [80], we formulate a hypothesis to test with fsQCA. It must be noted that a positive relationship between an input factor and the response variable may be due to its presence in stimulating the response, but also because its absence inhibits that response. Likewise, the effect of one explanatory factor must not be considered in isolation, but jointly with that of the other factors. Therefore, for every type of competitive advantage (COST_CA, SERV_CA, and PROD_CA), we tested the following set of hypotheses:

Hypothesis CA1 (HCA1). *The conjoint presence of some of the following factors—inbound open innovation, outbound open innovation, environment dynamism, flexibility of internal structure, innovativeness in strategic position, and corporative risk management—induces competitive advantage of ith type.*

Hypothesis CA2 (HCA2). *The conjoint absence of some of the following factors—inbound open innovation, outbound open innovation, environment dynamism, flexibility of internal structure, innovativeness in strategic position, and corporative risk management—induces competitive disadvantage of ith type.*

Hypothesis CA3 (HCA3). *Causes of competitive advantage and competitive disadvantage in cost are not the opposite of symmetrical.*

Figure 1 summarizes our strategy for assessing the influence of open measures, organizational factors, and strategic risk management on competitive advantages.

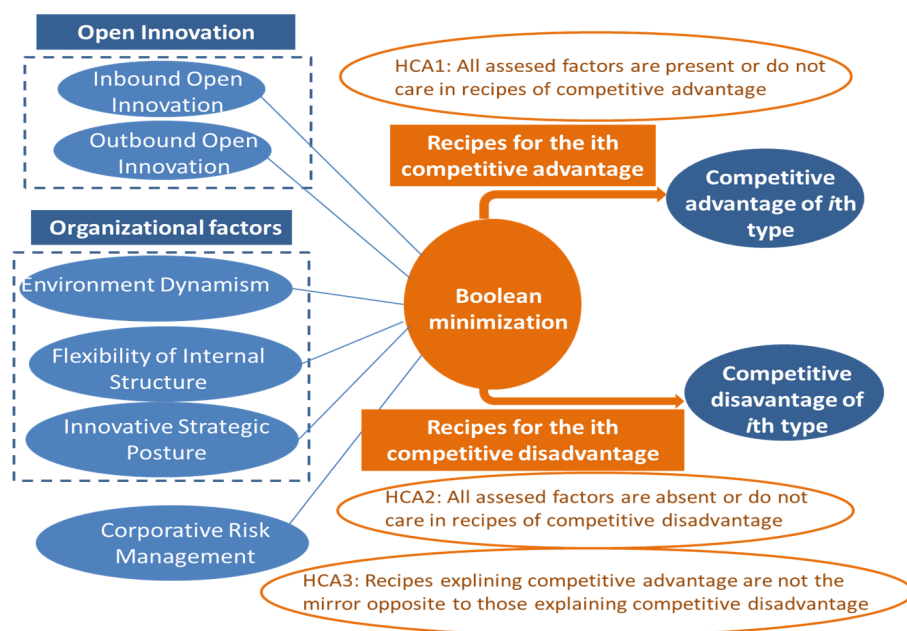


Figure 1. Configurational testing of hypotheses about drivers of competitive advantages and disadvantages.

3. Materials and Methods

3.1. Materials and Measurement Scales

This empirical study uses a sample from the Portuguese hotel industry. A structured questionnaire was used as the primary data source and was administered between 28 October

2018 and 27 April 2019. The firms were identified using the database of the Portuguese Hotel, Restaurant, and Related Trades Association (AHRESP).

A hyperlink containing the survey was sent to the professional email of the hotel executive directors who responded anonymously; that is, we could not know who responded and if so, what their answers were. Individuals were informed about the survey content and responded in a consenting manner. A total of 251 completed and validated questionnaires were returned (response rate: 24.85%). Table 1 presents the sociodemographic characteristics of the sample.

Table 1. Sociodemographic composition of the samples.

Item	%
Gender:	
Female	37.5
Male	62.5
Age (years old):	
18–25	19.3
26–35	26.9
36–45	42.6
>45	11.2
Academic qualifications:	
Primary/secondary qualification	55.6
Bachelor degree	28.9
Master/PhD degree	15.5
Professional experience (years):	
≤5	56
6–10	30.8
>10	13.2

The two dimensions of OI, inbound and outbound, were assessed based on the items in [31,32], respectively. CRM was measured using the items recommended by Covin and Slevin [81]. The three dimensions of organizational strategy—environmental dynamism, organizational structure, and strategic posture—were assessed using the items in [33]. The three dimensions of competitive advantage—cost, service, and product—were analyzed using the scale in [34]. All items are presented on a seven-point Likert-type scale. The questionnaire is displayed in the Appendix A.

3.2. Analytical Methodology

The implementation of fsQCA is conducted sequentially.

Step 1. We measured the reliability of scales [37]. To test convergent validity, we used Cronbach’s alpha (α), composite reliability (CR), average variance extracted (AVE), and exploratory factor analysis. We also assessed the discriminant validity of constructs using Fornell–Larcker’s rule [82].

Step 2. We built membership functions for all variables. Because constructs embed several items, these values must be aggregated to implement fsQCA [37]. As in [80], we do this using the standardized value of the first factor loading. Subsequently, to adjust membership punctuations, we used the methodology in [35] by stating thresholds at the 10%, 50%, and 90% percentiles of factor loadings.

Step 3. We performed a necessity analysis of the input factors for the presence and absence of competitive advantages [35]. In this regard, the presence or absence of a given input factor is considered as a ‘necessary condition’ to generate the presence or absence of the output variable if the consistency (cons) >0.9. Otherwise, the factor must be combined with other factors to obtain a sufficient condition.

Step 4. We adjust logical implicates that fit the outcomes by running the Boolean minimization algorithm by McCluskey [83]. If we symbolize the negation of a variable as

“~”, we independently evaluate for the output linked to the *i*th competitive advantage, CA(*i*), using two Boolean functions:

$$CA(i) = f(IOI, OOI, EDYN, FIS, ISP, CRM) \tag{1}$$

$$CA(i) = f(IOI, OOI, EDYN, FIS, ISP, \text{ and } CRM) \tag{2}$$

Whereas (1) explains the presence of a competitive advantage, (2) explains the competitive disadvantage. Likewise, fsQCA distinguishes three types of solutions, consisting of a set of essential prime implicates, also known as “recipes” [35]:

- Qualitative comparative analysis-complex solution (QCA-CS) that is fitted with no more assumptions than data.
- Qualitative comparative analysis: parsimonious solution (QCA-PS). This is adjusted by using any hypothesis on the unobserved configuration of variables that discovers the “easiest” solution, regardless of hypotheses that might suppose “difficult counterfactuals” [35].
- Qualitative comparative analysis: intermediate solution (QCA-IS). This solution was developed from the theoretically well-founded hypotheses of unobserved configurations. These hypotheses are grounded in the framework in Section 2 and state whether an explanatory factor influences output exclusively when it is present or non-present, or if that repercussion may arise in both circumstances. In our phenomena, all input variables must be allegedly present to generate a CA, and are absent in the case of a competitive disadvantage.

Step 5. We measure the explanatory power of a given recipe, which requires measuring its consistency (cons) and coverage (cov). There is broad consensus to consider an essential prime implicate as a sufficient condition if $cons > 0.75$ [36]. Coverage measures the proportion of the outcomes explained by a recipe (similar to R^2).

Step 6. We interpret the fsQCA solutions as accepting or rejecting the hypotheses presented in Section 2. The QCA-CS uses strictly empirical data; hence, theoretically, this solution must be uniquely used to obtain explanations from these data. However, the recipes contained in the solution are often challenging to interpret. In this study, following [37], we combined both QCA-IS and QCA-PS to state core conditions (those in both QCA-PS and QCA-IS) and peripheral conditions (those that are only present in QCA-IS).

4. Results

4.1. Descriptive Analysis and Scale Validation

Table 2 displays the mean and standard deviation of the items and measures of convergent validity attained by the scale. It can be verified that conditions of convergent validity are always met because, whereas α , $CR > 0.7$, and $AVE > 0.5$, factor analysis extracts a significant proportion of the variances in the first factor since loadings are > 0.7 . Table 3 shows the correlations between constructs and allows assessment of the discriminant validity of factors using Fornell–Larcker’s criterion. Generally, the squared root of AVEs is above the Pearson correlation (corr) between variables. However, it must be noted that the exception is the relation between FIS and ISP, whose $corr = 0.92$ is above the square root of their AVEs.

Table 2. Variables and measures of the internal consistency of scales.

Input Variables	Mean	Std. Dv.	Loading	α	CR	AVE
IOI1	5.12	1.60	0.79	0.94	0.95	0.76
IOI2	4.67	1.67	0.91			
IOI3	4.84	1.65	0.90			
IOI4	5.03	1.53	0.86			

Table 2. *Cont.*

Input Variables	Mean	Std. Dv.	Loading	α	CR	AVE
IOI5	4.68	1.65	0.92			
IOI6	4.65	1.67	0.85			
OOI1	2.53	1.62	0.83	0.94	0.95	0.81
OOI2	2.84	1.50	0.90			
OOI3	2.74	1.48	0.93			
OOI4	2.71	1.52	0.93			
OOI5	3.53	1.62	0.90			
EDYN1	4.86	1.19	0.92	0.95	0.96	0.82
EDYN2	4.86	1.17	0.91			
EDYN3	5.03	1.13	0.85			
EDYN4	4.89	1.17	0.93			
EDYN5	4.89	1.17	0.91			
FIS1	4.98	1.10	0.86	0.96	0.98	0.82
FIS2	4.92	1.15	0.92			
FIS3	4.85	1.14	0.90			
FIS4	5.00	1.12	0.90			
FIS5	4.84	1.20	0.92			
FIS6	4.87	1.20	0.92			
FIS7	4.89	1.15	0.91			
ISP1	4.90	1.12	0.90	0.90	0.95	0.64
ISP2	5.04	0.91	0.69			
ISP3	5.05	1.07	0.73			
ISP4	4.93	1.13	0.89			
ISP5	5.10	1.21	0.77			
ISP6	4.95	1.09	0.90			
1	4.98	1.11	0.94	0.89	0.93	0.82
CRM2	4.98	1.09	0.90			
CRM3	4.84	1.22	0.88			
Output variables	Mean	Std. Dv	Loading	α	CR	AVE
COST_CA1	4.94	1.17	0.96	0.97	0.98	0.94
COST_CA2	4.95	1.17	0.97			
COST_CA3	4.94	1.18	0.98			
SERV_CA1	4.95	1.16	0.73	0.91	0.94	0.79
SERV_CA2	4.90	1.22	0.93			
SERV_CA3	4.76	1.21	0.94			
SERV_CA4	4.82	1.21	0.95			
PROD_CA1	4.88	1.17	0.79	0.88	0.93	0.81
PROD_CA2	5.08	1.18	0.94			
PROD_CA3	4.99	1.16	0.95			

Table 3. Correlations between variables and the Fornell–Larker discriminant validity analysis matrix.

Variable	IOI	OOI	EDYN	FIS	ISP	CRM	COST_CA	SERV_CA	PROD_CA
IOI	0.87								
OOI	0.78 ***	0.90							
EDYN	0.46 ***	0.50 ***	0.91						
FIS	0.47 ***	0.47 ***	0.85 ***	0.90					
ISP	0.45 ***	0.47 ***	0.87 ***	0.92 ***	0.80				
CRM	0.48 ***	0.52 ***	0.58 ***	0.58 ***	0.56 ***	0.91			
COST_CA	0.27 ***	0.28 ***	0.30 ***	0.30 ***	0.35 ***	0.34 ***	0.97		
SERV_CA	0.29 ***	0.25 ***	0.31 ***	0.31 ***	0.32 ***	0.26 ***	0.73 ***	0.89	
PROD_CA	0.30 ***	0.24 ***	0.28 ***	0.28 ***	0.31 ***	0.29 ***	0.59 ***	0.77 ***	0.90

Note: with “***” we denote statistical significance with $p < 0.001$.

4.2. Results from Necessity Analysis

Tables 4–6 show the results of the necessity analysis. The presence of all income variables reaches greater consistency than their negation to explain competitive advantages, and the negation of these factors attains greater consistency than their presence to explain competitive disadvantage. Therefore, these results are in accordance with the correlation measures. Necessity analysis also reveals that there is no variable whose presence/absence can produce a competitive advantage in cost, service, or product. This finding reinforces the need for further configurational studies.

Table 4. Necessity analysis of competitive advantage in cost.

Variable	COST_CA		~COST_CA	
	Consistency	Coverage	Consistency	Coverage
IOI	0.655	0.657	0.491	0.535
~IOI	0.533	0.489	0.626	0.624
OOI	0.620	0.713	0.485	0.606
~OOI	0.529	0.408	0.628	0.525
EDYN	0.678	0.657	0.486	0.511
~EDYN	0.527	0.502	0.640	0.662
FIS	0.662	0.682	0.489	0.547
~FIS	0.531	0.473	0.643	0.622
ISP	0.677	0.678	0.496	0.539
~ISP	0.538	0.495	0.650	0.649
CRM	0.690	0.651	0.466	0.477
~CRM	0.507	0.496	0.643	0.683

Table 5. Necessity analysis of competitive advantage in service.

Variable	SERV_CA		~SERV_CA	
	Consistency	Coverage	Consistency	Coverage
IOI	0.628	0.678	0.542	0.548
~IOI	0.511	0.505	0.674	0.623
OOI	0.587	0.728	0.545	0.632
~OOI	0.526	0.436	0.672	0.522
EDYN	0.648	0.676	0.561	0.548
~EDYN	0.529	0.543	0.684	0.657
FIS	0.639	0.710	0.557	0.579
~FIS	0.531	0.509	0.697	0.626
ISP	0.648	0.699	0.566	0.571
~ISP	0.537	0.532	0.696	0.645
CRM	0.636	0.645	0.560	0.532
~CRM	0.525	0.553	0.663	0.654

Table 6. Necessity analysis of competitive advantage in product.

Variable	PROD_CA		~PROD_CA	
	Consistency	Coverage	Consistency	Coverage
IOI	0.701	0.682	0.505	0.569
~IOI	0.582	0.518	0.642	0.662
OOI	0.661	0.738	0.506	0.654
~OOI	0.600	0.448	0.649	0.562
EDYN	0.704	0.662	0.533	0.580
~EDYN	0.608	0.561	0.634	0.678
FIS	0.705	0.705	0.531	0.615

Table 6. Cont.

Variable	PROD_CA		~PROD_CA	
	Consistency	Coverage	Consistency	Coverage
~FIS	0.616	0.532	0.658	0.659
ISP	0.723	0.702	0.533	0.599
~ISP	0.612	0.546	0.665	0.688
CRM	0.724	0.662	0.500	0.529
~CRM	0.543	0.244	0.644	0.708

4.3. Intermediate Solutions of fsQCA

Tables 7–9 display the QCA-IS solutions for the presence and absence of competitive advantage in terms of cost, service, and product.

Table 7. Intermediate solutions of fsQCA for the presence and the absence of competitive advantage in cost.

Solution	COST_CA				~COST_CA	
	1	2	3	4	1	2
IOI	●			●		×
OOI	.	●			⊗	⊗
EDYN		●			⊗	⊗
FIS				.	⊗	⊗
ISP		●	.	.	×	
CRM	●	●	●	●	⊗	⊗
cons	0.75	0.75	0.73	0.77	0.72	0.73
cov	0.50	0.50	0.56	0.47	0.36	0.35
	cons	0.72			cons	0.72
	cov	0.60			cov	0.39

Note: Circle “●” stands for the presence of a variable in the recipe. “×” for the absence and blank for “does not care”. Large solid circle or circled “×” stand for a core condition and small solid circle or non-circled “×” for a peripheral condition.

Table 8. Intermediate solutions of fsQCA for the presence and the absence of competitive advantage in service.

Solution	SERV_CA		~SERV_CA			
	1	2	1	2	3	4
IOI	●	●	⊗	⊗	⊗	⊗
OOI	⊗	●	⊗	⊗		×
EDYN	●	●			×	×
FIS	.	⊗	⊗	⊗	×	
ISP		●	×		⊗	⊗
CRM	.	●			⊗	⊗
cons	0.77	0.75	0.76	0.76	0.76	0.75
cov	0.22	0.30	0.40	0.36	0.40	0.39
	cons	0.76	cons	0.75		
	cov	0.35	cov	0.47		

Note: Circle “●” stands for the presence of a variable in the recipe. “×” for the absence and blank for “does not care”. Large solid circle or circled “×” stand for a core condition and small solid circle or non-circled “×” for a peripheral condition.

Table 9. Intermediate solutions of fsQCA for the presence and the absence of competitive advantage in service.

Solution	PROD_CA			~PROD_CA		
	1	2	3	1	2	3
IOI	●	●	●	⊗	⊗	⊗
OOI	·			⊗	●	⊗
EDYN		·			×	×
FIS		·	·	⊗	×	●
ISP			·	●	×	⊗
CRM	●	●	●	×	⊗	⊗
cons	0.79	0.81	0.80	0.76	0.77	0.76
cov	0.52	0.48	0.49	0.24	0.28	0.22
	cons	0.79		cons	0.76	
	cov	0.53		cov	0.35	

Note: Circle “●” stands for the presence of a variable in the recipe. “×” for the absence and blank for “does not care”. Large solid circle or circled “×” stand for a core condition and small solid circle or non-circled “×” for a peripheral condition.

In regard to COST_CA Table 7:

- We obtained four prime implications for the presence of this competitive advantage. In all three cases, the consistency was adequate (≥ 0.75). The principal explanatory input factors are CRM (participates in all recipes as a core condition) and IOI (is a core condition in two prime implicates). However, FIS is not a core condition in any recipe.
- To produce COST_CA, as hypothesized, all the factors are never negated in the recipes. Thus, HCA1 is accepted.
- We fitted two recipes to explain the absence of competitive advantage in cost (~COST_CA). In these recipes, whereas IOI and ISP are peripheral conditions in one recipe and never core conditions, the remaining input variables are the core conditions of the prime implicates.
- As expected, all explanatory factors are negated to produce ~COST_CA. However, none of these recipes reached a cons of ≥ 0.75 . Therefore, HCA2 is weakly accepted.
- By examining the prime implications of the presence and absence of COST_CA, it is easy to check that there is no symmetry in how the variables interact to induce them. Although the presence of IOI (FIS) is one of the most (the least) important conditions to explain COST_CA, it becomes one of the least (most) relevant conditions to induce ~COST_CA. Therefore, HCA3 can be accepted.

Concerning SERV_CA, Table 8 displays the following patterns:

- We obtained two prime implications for the presence of this competitive advantage, whose cons ≥ 0.75 . The principal explanatory variables are IOI and EDYN because both factors participate in all recipes as a core condition. In contrast, OOI and FIS are affirmed in one recipe but negated in another. The last result contradicts HCA1; thus, this hypothesis is rejected for the last two variables.
- We fitted four recipes to explain competitive disadvantage in service (~SERV_CA). The key variable to explain ~SERV_CA is also IOI (negated), but in contrast, the absence of EDYN becomes a peripheral condition in two recipes and does not influence the others. The rest of the explanatory factors, as expected, take part in prime implicates as core conditions by being negated in the two recipes. Similarly, all recipes reached cons ≥ 0.75 . Therefore, HCA2 is strongly accepted.
- By examining the explanatory recipes of SERV_CA and ~SERV_CA, we can conclude that how variables interact to induce them is asymmetrical. Whereas OOI and the flexibility of internal structure have contradictory signs as core conditions to explain the presence of competitive advantage, these constructs are always negated in the recipes for ~SERV_CA in which they take part.

Table 9 displays the following patterns of how competitive advantage for a product is produced:

- (a) We obtained three prime implications for the presence and absence of this kind of competitive advantage with $\text{cons} \geq 0.75$. The principal explanatory input factor is IOI, as it is a core condition in all prime implicates of PROD_CA (affirmed) and \sim PROD_CA (negated). It is also a highly relevant RMS because its presence is a core condition in the three explanatory recipes of PROD_CA and is negated in two core (one peripheral) prime implicates inducing \sim PROD_CA.
- (b) To produce a competitive advantage in the product, input factors OOI, EDYN, FIS, and ISP must also be present in at least one recipe, but always as peripheral conditions. Therefore, Hypothesis HCA1 was accepted.
- (c) OOI, FIS, and innovativeness in strategic posture are core conditions in at least two configurations of \sim SERV_CA. However, their presence has contradictory signs throughout prime implicates; that is, there is no univocal sign between OOI, FIS, and ISP with the lack of competitive advantage in the product. Hence, H32 is rejected.
- (d) Note that the presence and lack of OOI, FIS, and ISP influence on the presence and absence of this type of competitive advantage is completely asymmetrical. Therefore, HCA3 was accepted.

5. Discussion

This study evaluates the explanatory capability of open innovation (OI), organizational structure flexibility and innovativeness, and strategic risk management on competitive advantage in a sample of SMEs from the Portuguese hospitality sector. We found that both inbound open innovation and outbound open innovation, those of organizational structure (environmental dynamism, flexibility of internal processes, and innovativeness of strategic posture), and corporate risk management have a significant positive correlation with the three sources of competitive advantage identified in [34]: cost, service, and product. Thus, our findings are in accordance with [19,20] and extend their results because we analyzed disaggregated variables.

Fuzzy set qualitative comparative analysis (fsQCA) allows the ranking of the impact of the examined input variables on the three dimensions of competitive advantage. As far as competitive advantage in services and products is concerned, inbound open innovation plays a key role. This variable is within all of the explanatory configurations for both types of competitive advantage. Inbound open innovation is always present in prime implicates that explain advantage and is absent in recipes of disadvantages. This finding is consistent with those reports that point to open innovation as a cornerstone of competitive advantage [5] and the empirical findings in [19,20,51–54]. This finding suggests that open innovation is relevant for SMEs as a complementary knowledge source to innovation capability [18]. Likewise, it is in accordance with findings in [18,21], which report that typical outside-in open innovation practices such as customer sensing, improve company performance, and also with [22], which found a univocal influence of inbound open innovation on business model innovation.

By contrast, outbound open innovation does not positively impact competitive advantage. Outbound open innovation is present in a configuration for non-advantage in products and absent in an explanatory recipe of competitive advantage in services. It must be noted that there is a significant but sparse amount of literature on the dark side of open innovation [5,64]. Organizations that commit themselves to open innovation face potential risks, such as loss of knowledge [84], inflated coordination costs [85], and possible loss of control over created knowledge [86]. This finding suggests that not all open innovation practices provide value to firms. Likewise, the sign of the impact of inside-out open innovation is moderate due to issues such as the degree of technological turbulence, the transaction rate in technology markets, and the degree of patent protection [87]. Therefore, outbound open innovation creates value in the ICT sector, but not in others that are not as technologically intensive [18] as the hospitality sector. In the SME setting, our findings

are in accordance with [21,22], which also found configurations for the drivers of business model innovation where inside-out open innovation must be absent. In project management, outside-in and inside-out open innovation do not necessarily have the same sign in project performance, either at the technical or the market level. Therefore, outbound open innovation may be negatively linked to market value [68]. Likewise, this finding is also consistent with the fact that some coupled open innovation practices, such as participating in innovation clusters and networks, are often not enablers of value creation [18].

By using fuzzy set qualitative comparative analysis, we also found that organizational structure factors are relevant to explaining competitive advantage and disadvantage in products and services, which is in accordance with [21,22]. However, the relevance of these constructs is lower than that of inbound open innovation and cooperative risk management. Moreover, flexibility in internal structure and innovative strategic posture show a slightly contradictory influence on competitive advantage in services and products. More (less) flexible, decentralized, and innovative management styles are often linked with the presence (absence) of competitive advantage in products and services, which is consistent with the general belief that more innovative management styles are usually a source of competitive advantage [69] and better firm performance [9,19,20,74]. Our results are in accordance with those of [21,22], which also found that strategic innovative postures are often (but not always) linked with greater degrees of business model innovation.

The absence of flexibility in internal structure is a condition to reach an advantage in service, along with outside-in open innovation and environmental dynamism as core conditions, and its presence (conjointly with the absence of all the other explanatory factors) may cause a competitive disadvantage in the product. This finding is in accordance with Brozovic [70], who suggests an optimal level of strategic flexibility. Too much flexibility (over-flexibility) can damage the firm as acutely as rigidity and incur high costs. This is also in accordance with [22], which reports that operational adjustment agility in some configurations must be absent to attain business model innovation. Likewise, [88] stated that decentralization strategies assume a trade-off between the short-term costs of decentralized exploration and the long-term benefits of achieving higher performance. Moreover, we have observed that the presence of dynamism in the environment is always a driver to attain competitive advantage, and its absence as an enabler to avoid disadvantage, which is in accordance with [56,71].

It has been verified that corporate risk management, after outside-in open innovation, is the most relevant explanatory factor of product competitive advantage. Although corporate risk management is also significant in explaining competitive advantage and disadvantage in services, it plays a less relevant role. Strategic risk management is also present (absent) in recipes, where it is a condition of competitive advantage (disadvantage). Therefore, our findings are in line with those of [19,20,31,77,78], which noted the relevance of corporate risk management in obtaining a sustainable competitive advantage.

The key variable to explain competitive advantage in terms of cost is strategic risk management. It is a condition with presence (absence) in all of the prime implicates for advantages and disadvantages in terms of cost. The second most important variable in explaining competitive advantage in cost is outside-in open innovation. In contrast, the relevance of outside-in open innovation to explain competitive disadvantage in cost is residual; inside-out open innovation, environmental dynamism, and flexibility of internal structure are as impactful as risk management to produce an absence of competitive advantage in cost.

6. Implications of This Research

6.1. Theoretical Implications

This study contributes to the literature on fsQCA applications to management and entrepreneurship. We have shown that fsQCA is a powerful tool for displaying complex interactions between relevant factors in explaining competitive advantage and showing the asymmetrical causes of high and low competitiveness. In addition, based on the hospitality

sector, the structure in the relationships between research and development, external openness, and top management within the OI model enables structuring of the OI paradigm that allows management because the reference model has three different approaches. This is a way to achieve sustainable competitiveness as an advantage over other competitors, helping to strengthen the confidence of companies in this business model and allowing the testing of specific strategic guidelines in companies in this industry. Therefore, by seeking new frontiers for organizations, sharing internal knowledge with external knowledge through OI allows for more competent management of corporate risk, and the formulation and implementation of strategies aimed at a competitive advantage. Finally, acquiring external knowledge requires companies to invest in absorptive capacity and demonstrate a willingness to use this knowledge; external partnerships are essential to strengthen and develop new proposals for OI models, particularly in highly changeable environments.

6.2. Practical Implications

The practical contributions of this research will allow top managers to develop the capabilities of SMEs as, through OI, organizational strategy, and corporate risk management, they will enhance the reach of competitive advantage in the sector. In this context, hospitality sector SMEs must develop a normative model that promotes open flows of knowledge between industry, government, and academia through OI. Moreover, universities and research institutes are becoming increasingly proactive in making their intellectual property available by developing new products and services, which will enhance the competitive advantage of firms accessing them. Most of the findings in this study can be extended to any type of Portuguese SME because inbound open practices do not differ significantly between SMEs in different sectors [17].

Note that results from fsQCA are very useful for managerial decision making because they allow not only stable profiles of firms with a consistent competitive advantage, but also reliable profiles that clearly lack that type of competitive ability. In other words, configurational analysis provides benchmarks for strategic decision making. Thus, to state OI measures and strategic decisions, managers must clearly establish what kind of competitive advantage must be attained and subsequently enact measures to achieve a consistent profile for established objectives. To be a successful business, low-cost hospitality services, which should achieve competitive advantage in cost, must not attain the same profiles as luxury hotels, which need greater competitiveness in services and products. Likewise, as important as reaching competitive advantage, it avoids weak positions in other types of competitive capabilities. For example, a firm that has a good position in a service or product but has high production costs (i.e., has a competitive disadvantage in costs) may have greater chances of distress. Therefore, benchmarks linked to competitive disadvantages are also very informative for decision makers because they can guide the promotion of actions tending to distance company profiles from such benchmarks.

Ultimately, the results of this study will allow national, regional, and local governments to create policies, programs, and incentives to help firms adopt or extend the OI model, thus promoting the exchange of internal and external knowledge and strengthening the dynamics of the business ecosystem.

7. Conclusions

This study reveals that decision making encouraged by the relationship between organizational strategy and corporate risk management with competitive advantage opens new perspectives for top managers in the OI model, be it inbound or outbound. Moreover, we have shown that top managers often forget corporate risk management as a relevant strategic tool, which is crucial for achieving competitive advantages in terms of products and/or costs. This may encourage SMEs to stimulate outside-ins and corporate risk management to achieve goals and values.

This study has some limitations. First, the survey was aimed at firms with e-mail addresses in the AHRESP database. Although the number of responses received was

significant, a larger sample may provide a set of results that produce a more refined analysis. Moreover, it is a non-probabilistic, convenience-based sample. Second, although the intended survey respondents were executive hotel directors, it is unknown whether they completed the questionnaires themselves. Assessing different study constructs based on a person's opinions can be reduced. This may not reflect the genuine opinion of the firm precisely because decisions are made by teams whose members may have different perspectives. Likewise, this study's sample was cross-sectional as it was conducted before the pre-COVID-19 period. A longitudinal survey is needed to obtain a more comprehensive view of the relationships between the variables.

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Institutional Review Board Statement: With regard to ethical approval: (1) all participants were given detailed written information about the study and procedure; (2) no data directly or indirectly related to the subjects' health were collected, and thus, the Declaration of Helsinki was not generally mentioned when the subjects were informed; (3) the anonymity of the collected data was ensured at all times; (4) all participants were of legal age; (5) no permission was obtained from a board or committee ethics approval because it was not required as per applicable institutional and national guidelines and regulations; and (6) voluntary completion of the questionnaire was taken as consent for the data to be used in research, and informed consent of the participants was implied through survey completion.

Informed Consent Statement: Informed consent was obtained from all the subjects.

Data Availability Statement: Data are available from all authors.

Conflicts of Interest: The authors declare no conflict of interest.

Appendix A. Questionnaire

Appendix A.1. Open Innovation

Appendix A.1.1. Inbound Open Innovation (IOI)

(seven-point scale: 1 = "strongly disagree" and 7 = "strongly agree").

IOI1. Constantly scan the external environment for inputs such as technology, information, ideas, and knowledge.

IOI2. Actively seek external sources (e.g., research groups, universities, suppliers, customers, competitors, etc.) of knowledge and technology when developing new products.

IOI3. Believe it is good to use external sources (e.g., research groups, universities, suppliers, customers, competitors) to complement our own R&D.

IOI4. Often brings in externally developed knowledge and technology for use in conjunction with our own R&D.

IOI5. Seek out technologies and patents from other firms, research groups, or universities.

IOI6. purchase external intellectual property for use in our own R&D.

Appendix A.1.2. Outbound Open Innovation (OOI)

(seven-point scale: 1 = "strongly disagree" and 7 = "strongly agree").

OOI1. Often, sell/give knowledge (patents, copyrights, and other outputs) to other firms to better benefit from innovation efforts.

OOI2. Often, they offer agreements to other firms to better benefit from our innovation efforts.

- OOI3. Our firm strengthens every possible use of rights to better benefit our firm.
 OOI4. Our firm finds spin-offs that benefit better from our innovation efforts.
 OOI5. Our innovation projects are less dependent on the contributions of external partners than on ours.

Appendix A.2. Organizational Strategy Scales

Table A1. The Environmental Dynamism Scale (EDYN).

Please circle the number in each scale that best approximates the actual conditions in your business unit's principal industry.

EDYN1. Our business unit must rarely change its marketing practices to keep up with the market and competitors	1-2-3-4-5-6-7	Our business unit must change its marketing practices extremely frequently (e.g., semiannually)
EDYN2. The rate at which products/services are getting obsolete in the industry is very slow (e.g., basic metal like semiconductors)	1-2-3-4-5-6-7	The rate of obsolescence is very high (as in some fashion goods and copper)
EDYN3. Actions of competitors are quite easy to predict (as in some basic industries)	1-2-3-4-5-6-7	The actions of competitors are unpredictable
EDYN4. Demand and consumer tastes are fairly easy to forecast (e.g., for milk companies)	1-2-3-4-5-6-7	Demand and tastes are almost unpredictable (e.g., high-fashion goods)
EDYN5. The production/service technology is not subject to very much change and is well established (e.g., in steel production)	1-2-3-4-5-6-7	The modes of production/service change often and in a major way (e.g., advanced electronic components)

Table A2. The Organization Structure Scale (FIS).

In general, the operating management philosophy in my firm favors . . .

FIS1. Highly structured channels of communication and highly restricted access to important financial and operating information	1-2-3-4-5-6-7	Open channels of communication with important financial and operating information flowing quite freely throughout the organization
FIS2. A strong insistence on a uniform managerial style throughout the firm	1-2-3-4-5-6-7	Managers' operating styles ranging freely, from the very formal to the very informal
FIS3. A strong emphasis on giving the most to say in decision making to formal line managers	1-2-3-4-5-6-7	A strong tendency to let the expert in a given situation have the most say in decision making even if this means temporary bypassing of formal lines of authority
FIS4. A strong emphasis on holding fast to tried and true management principles despite any changes in business conditions	1-2-3-4-5-6-7	A strong emphasis on adapting freely to changing circumstances without too much concern for past practice
FIS5. A strong emphasis on always getting personnel to follow the formally laid down procedures	1-2-3-4-5-6-7	A strong emphasis on getting things done even if this means disregarding formal procedures
FIS6. Tight formal control of most operations by means of sophisticated control and information systems	1-2-3-4-5-6-7	Loose, informal control; heavy dependence on informal relationships and norm of cooperation for getting work done
FIS7. A strong emphasis on getting line and staff personnel to adhere closely to formal job descriptions	1-2-3-4-5-6-7	A strong tendency to let the requirements of the situation and the individual's personality define proper on-job behavior

Table A3. The Strategic Posture Scale (IPS).

<i>In general, the top managers of my firm favor...</i>		
IPS1. A strong emphasis on the marketing of tried-and-true products or services	1-2-3-4-5-6-7	A strong emphasis on R&D, technological leadership and innovation
<i>How many new lines of products or services has your firm marketed in the past five years (or since its establishment)?</i>		
IPS2. No new lines of products or service	1-2-3-4-5-6-7	Many new lines of products or services
IPS3. Changes in product or service line have been mostly of a minor nature	1-2-3-4-5-6-7	Changes in product or service line have usually been quite dramatic
<i>In dealing with its competitors, my firm ...</i>		
IPS4. Typically responds to actions which competitors initiate	1-2-3-4-5-6-7	Typically initiates actions which competitors than respond to
IPS5. Is very seldom the first business to introduce new products/services, administrative techniques, or operating technologies, etc.	1-2-3-4-5-6-7	Is very often the first business to introduce new products/services, administrative techniques, or operating technologies, etc.
IPS6. Typically seeks to avoid competitive clashes, preferring a "live-and-let-live" posture	1-2-3-4-5-6-7	Typically adopts a very competitive, "undo-the-competitors" posture

Appendix A.3. Corporate Risk Management (CRM)

(seven-point scale: 1 = "strongly disagree" and 7 = "strongly agree").

Table A4. Items of Corporate Risk Management scale.

CRM1. A strong proclivity for low-risk projects (with normal and certain rates of return)	1-2-3-4-5-6-7	A strong proclivity for high-risk projects (with chances of very high returns)
<i>In general, the top managers of my firm believe that ...</i>		
CRM2. Owing to the nature of the environment, it is best to explore it gradually via timid incremental behavior	1-2-3-4-5-6-7	Owing to the nature of the environment, bold, wide-ranging acts are necessary to achieve the firm's objectives
<i>When confronted with decision-making situations involving uncertainty, my firm ...</i>		
CRM3. Typically adopts a cautious, "wait-and-see" posture in order to minimize the probability of making costly decisions	1-2-3-4-5-6-7	Typically adopts a bold, aggressive posture in order to maximize the probability of exploiting potential opportunities

Appendix A.4. Competitive Advantage (CA)

(seven-point scale: 1 = "much worse" and 7 = "much better").

Appendix A.4.1. Cost

- CA1: Production cost per unit.
- CA2: Cost of goods sold.
- CA3: Selling price to end-users overseas.

Appendix A.4.2. Service

- CA4: Product accessibility.
- CA5: Technical support/after-sales service.
- CA6: Delivery speed and reliability.
- CA7: Product line breadth.

Appendix A.4.3. Product

- CA8: Product quality.

CA9: Packaging.
CA10: Design and style.

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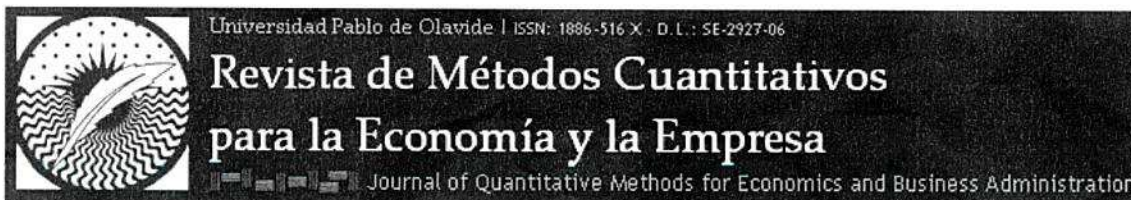
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Capítulo 5 - Influencia de la innovación abierta, la flexibilidad estratégica y la gestión de riesgos corporativos en la ventaja competitiva. Análisis en el sector hoteleiro portugués

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INFLUENCIA DE LA INNOVACIÓN ABIERTA, LA FLEXIBILIDAD ESTRATÉGICA Y LA GESTIÓN DE RIESGOS CORPORATIVOS EN LA VENTAJA COMPETITIVA. ANÁLISIS EN EL SECTOR HOTELERO PORTUGUÉS

Resumen

Este trabajo analiza los efectos de la innovación abierta (IA), la estrategia organizacional y la existencia de una estrategia de gestión de riesgos corporativos (GRC) sobre la ventaja competitiva (VC) en coste, servicio y producto en el sector hotelero portugués. Se utiliza una encuesta a 251 directores ejecutivos de hoteles de pequeñas y medianas empresas (PYME) portuguesas sobre la que se aplica dos métodos estadísticos complementarios: regresión con mínimos cuadrados parciales y regresión cuantílica. Puede afirmarse que tanto la IA como el grado de dinamismo y flexibilidad de la estructura organizativa y la GRC son relevantes para explicar los diferentes tipos de ventaja competitiva. No obstante, los resultados muestran que la importancia de la incidencia de los diferentes factores explicativos considerados es diferente en función del tipo de ventaja competitiva que estamos analizando y, asimismo, la relevancia de desagregar los asociados a la IA (entrante y saliente) y a estrategia organizacional (dinamismo del ambiente, flexibilidad organizativa interna y posición estratégica innovadora). Así, la variable GRC es la variable fundamental en la explicación de la ventaja competitiva en coste, mientras que la incidencia de la IA entrante es especialmente relevante en las VCs en servicio y producto. Dentro de la estrategia organizacional, el factor que incide más claramente en la ventaja competitiva es la posición estratégica respecto a la innovación.

Palabras clave: innovación abierta entrante, innovación abierta saliente, ventaja competitiva, industria hotelera, regresión cuantílica, mínimos cuadrados parciales

MSC2010: 62J05, 62J12

JEL: C21, M15, O32

Abstract

This paper analyses the effects of open innovation (OI), organizational strategy and the existence of a corporate risk management (CRM) strategy on competitive advantage (CA) in cost, service and product in the Portuguese hotel sector. This paper uses a survey over 251 CEOs of Portuguese small and medium-sized enterprises (SMEs) hotels and applies two complementary statistical methods: partial least squares regression and quantile regression. It can be stated that both OI and the degree of dynamism and flexibility of the organizational structure and CRM are relevant to explain the different types of competitive advantage. However, the results show that the importance of the incidence of the different explanatory factors considered is different depending on the type of competitive advantage that we are analysing and the relevance of disaggregating those associated with AI (inbound and outbound) and organizational strategy (dynamic of the environment, internal organizational flexibility and innovative strategic position). Thus, the CRM variable is the fundamental variable in the explanation of the competitive advantage in cost, while the incidence of inbound OI is

especially relevant in the CA in service and product. Within organizational strategy, the factor that most clearly affects competitive advantage is the strategic position with respect to innovation.

Keywords: inbound open innovation, outbound open innovation, competitive advantage, hotel industry, quantile regression.

MSC2010: 62J05, 62J12

JEL: C21, M15, O32

1. INTRODUCCIÓN

La ventaja competitiva (VC) es un concepto clave en la investigación de gestión estratégica (Nayak et al., 2022; Rua et al., 2018). Aunque es difícil de acotar, está en el corazón de las decisiones estratégicas de las empresas (Nayak et al., 2022). Desde la segunda década del siglo XXI, el impacto de la innovación abierta (IA) en la VC es uno de los principales temas de investigación en la innovación de gestión (Dahlander et al., 2021). Tradicionalmente, las empresas invertían en el desarrollo interno de tecnologías y luego las comercializaban ofreciendo nuevos productos y servicios (Chaudhary et al., 2022). Actualmente, la complejidad y mutabilidad del entorno han socavado la eficacia de la innovación tradicional y han generado la necesidad de aportar conocimiento externo (Chaudhary et al., 2022). Asimismo, para las pequeñas y medianas empresas (PYMEs), la internalización de la I+D supone un alto coste, seguramente inaccesible, convirtiéndose la IA en un sustituto fiable (Michelino et al., 2014).

La innovación es el principal factor para la supervivencia de las empresas en el mercado y la fuerza impulsora de una ventaja competitiva (Yang et al., 2021), especialmente en tiempos de turbulencia (Sutanto, 2017). La innovación incluye descubrir y adaptar diferentes propuestas de creación de valor para el negocio existente, lo cual es vital porque afecta su competitividad y posibilidad de supervivencia (Hamelink & Opdenakker, 2019). Moradi et al. (2021) codifican a la innovación abierta como un modelo de gestión más flexible y abierto a los procesos de innovación, incluyendo talento externo, transferencia de ideas innovadoras (internas y externas) y tecnologías en desarrollo e investigación. Según estos autores, la innovación abierta busca en el conocimiento humano evolucionar hacia la era de la transformación digital, para que las organizaciones que puedan adaptarse a los tiempos modernos, construyan un nuevo nicho de mercado, más democrático y competitivo, utilizando las redes sociales.

La revolución en la disponibilidad y tratabilidad de grandes cantidades de datos que caracteriza la economía digital ha impactado decisivamente en la toma de decisiones de las empresas y en la cadena de generación de valor de stakeholders (Skourtis et al., 2019) o usuarios (Dahlander et al., 2021). Varios factores favorecen la transición a la economía digital, siendo el principal de ellos la superación de barreras administrativas restrictivas y marcos legales inconsistentes (Barmuta et al., 2020). Por lo tanto, desarrollar una estrategia de transición a una economía digital con contenidos y servicios digitales de acuerdo con una innovación integral, creando nuevos mercados, proporciona crecimiento económico y prosperidad sostenible para una ventaja competitiva (Bril et al., 2021).

El impacto de la innovación abierta en el rendimiento de la empresa depende de la implementación de su modelo de negocio. Existen diversos trabajos que establecen una relación entre la innovación abierta, la gestión de riesgos corporativos (Lee et al., 2010), el dinamismo y la flexibilidad de la estrategia organizacional (Crema et al., 2014) y la ventaja competitiva sostenible (Skordoulis et al., 2020). En dichos estudios se basa el análisis de Musiello-Neto et

al. (2021) sobre los antecedentes de la VC en el entorno de las PYMEs de hostelería portuguesas y también el fundamento teórico del presente trabajo.

Este artículo analiza el impacto de la innovación abierta (IA), la estrategia organizacional y la existencia de una estrategia de gestión de riesgos corporativos (GRC) sobre la ventaja competitiva (VC) en coste, servicio y producto en el sector hotelero portugués. El análisis efectuado amplía los resultados de Musiello-Neto et al. (2021). Por un lado, mientras que en Musiello-Neto et al. (2021) las variables explicativas de la VC, la IA y la flexibilidad de la estrategia organizacional se consideran agregadas, este trabajo las desagrega en diferentes factores. Para la innovación abierta diferenciamos la IA entrante y la saliente. El grado de dinamismo y flexibilidad de la estrategia organizacional se divide en dinamismo ambiental, flexibilidad de la organización interna y posición estratégica innovadora (Morgan et al., 2000). Además, introducimos en el análisis la existencia de estrategias corporativas de gestión de riesgos, ya que crean ventajas competitivas a largo plazo (Nocco & Stulz, 2006). Respecto a la ventaja competitiva, distinguimos que puede ser en coste, servicio y producto (Kaleka, 2002).

Por otro lado, mientras que Musiello-Neto et al. (2021) utilizan como herramienta analítica el modelado de ecuaciones estructurales de mínimos cuadrados parciales (MCP-MEE), este trabajo utiliza como complemento a los resultados reportados por MCP-MEE, que por otra parte, es muy común en ciencias de la Administración (Soriano & Mejía-Trejo, 2022), la regresión cuantílica (RC) propuesta por Koencker y Basset (1978). La RC ofrece estimaciones estadísticas robustas que no proporciona la regresión mínimo cuadrática cuando se violan las hipótesis de normalidad y homocedasticidad de los errores. Además, la RC es menos sensible a los valores atípicos (Koencker & Basset, 1978).

Asimismo, la RC proporciona información complementaria a MCP-MEE ya que permite describir no solo cómo los factores explicativos impactan en la variable de respuesta alrededor de los valores de distribución central, sino también en las respuestas alejadas (por encima o por debajo) de dicho valor central. Este aspecto es de gran utilidad en análisis económicos (Koencker & Hallock, 2001; Vicéns & Sánchez, 2012) ya que nos permitirá obtener una visión más completa sobre la influencia de los factores explicativos en los diferentes tipos de ventaja competitiva.

2. MARCO TEÓRICO

2.1. Influencia de la innovación abierta, la estrategia organizativa y la gestión de riesgos corporativos en ventaja competitiva

La innovación empresarial consiste en buscar nuevos métodos para crear valor y encontrar formas de generar ingresos y transferir valor a clientes, proveedores y socios (Moradi et al., 2021). La innovación abierta (IA) implica la gestión de los flujos de conocimiento y supone para una organización utilizar ideas y tecnologías externas y, a la vez, permitir que otros exploten sus innovaciones (Chesbrough & Bogers, 2014). Implementar la IA facilita la toma de decisiones, haciéndola más descentralizada y productiva (Lee et al., 2016). La IA convierte a las organizaciones en actores comprometidos en encontrar soluciones a problemas que van desde el desarrollo de nuevos productos hasta la planificación estratégica (Giannoccaro, 2018).

La capacidad de innovación de las empresas implica el desarrollo de nuevos tipos de conocimiento, que pueden provenir tanto del entorno interno (por ejemplo, talento humano, procesos, etc.) como del entorno externo (por ejemplo, mercado, clientes, proveedores, etc.). En este contexto, el alto directivo y la IA tienen una estrecha relación que genera valor para la organización (Terán-Bustamante et al., 2021). El análisis empírico de Musiello-Neto et al. (2021) respalda la influencia positiva de IA en la competitividad, mientras que el de Lu y Chesbrough (2021) lo hace en el desempeño financiero de las empresas.

Sin embargo, algunas externalidades del IA saliente pueden lastrar una ventaja competitiva (Abhari & McGuckin 2022; Chaudhary et al., 2022). Algunos ejemplos son las consecuencias relacionales y de desempeño no deseadas derivadas de alianzas estratégicas o conflictos de interés resultantes de la variedad de empleados en el intercambio de conocimientos (Lichtenthaler, 2011). El éxito de la IA depende de la capacidad de la empresa para crear y capturar valor utilizando mecanismos tanto pecuniarios como no pecuniarios (Chesbrough & Bogers, 2014). Por otro lado, Chaudhary et al. (2022) afirman que si el alto directivo impone un cambio radical en el modelo de gestión dirigido a implementar la IA, puede afectar negativamente el desempeño de la empresa.

La flexibilidad y descentralización de la estructura organizativa y estratégica es una herramienta importante para apalancar la gestión (Chiaroni et al., 2011) que facilita la comunicación y el conocimiento de posibles innovaciones y la implantación de la innovación abierta (Lee et al., 2016). El desarrollo de redes internas es necesario para la descentralización de la gestión y para tener éxito siendo, asimismo, el conocimiento externo adquirido de suma importancia (Hansen & Nohria, 2004). Las estructuras de gestión flexibles e innovadoras a menudo se vinculan con mejores resultados (Brozovic, 2018; Wong et al., 2011). Musiello-Neto et al. (2021) detectan un vínculo positivo significativo de la innovación abierta con la flexibilidad y el dinamismo de las empresas del sector hotelero portugués. En dicho trabajo se muestra que los altos directivos deben tener la capacidad flexible y diversificada para superar la inestabilidad del mercado y así promover la adaptación al mismo.

Los gerentes tradicionalmente han ignorado la gestión de riesgos corporativos (GRC) como un factor estratégico y han tratado la gestión de riesgos empresariales como una extensión de sus procesos de auditoría o cumplimiento normativo (Elahi, 2013). Sin embargo, los académicos advierten que la GRC puede crear una ventaja competitiva a largo plazo (Nocco & Stulz, 2006). La gestión de riesgos no aumenta la competitividad si se restringe a limitar los costos en caso de eventos adversos, como los desastres naturales. En cambio, gestionar la incertidumbre tomando riesgos remunerados o ser consciente antes que los competidores sobre un riesgo disruptivo en evolución que puede afectar el entorno de las empresas, son acciones que proporcionan ventaja competitiva (Elahi, 2013).

2.2. Variables e hipótesis de investigación

La variable dependiente evaluada en este documento, la ventaja competitiva, se divide en tres dimensiones identificadas por Kaleka (2002): coste, servicio (por ejemplo, soporte postventa) y producto (por ejemplo, diseño). Estas variables se identifican como VC_COST, VC_SERV y VC_PROD, respectivamente.

En cuanto a las variables explicativas, para la primera, la innovación abierta, diferenciamos dos dimensiones comúnmente aceptadas (Lichtenthaler, 2009): la IA entrante (IAE) y la IA saliente (IAS). Siguiendo a Morgan et al. (2000), identificamos tres dimensiones básicas en la estructura de la organización: dinamismo ambiental (DAMB), flexibilidad de la organización interna (FOI) y posición estratégica innovadora (PEI). La última variable explicativa contemplada es la existencia de políticas estratégicas en la gestión de riesgos corporativos (GRC) que medimos a través de tres ítems recomendados por Covin y Slevin (1989).

En la Tabla 1 y la Figura 1, y a la luz de la exposición realizada en el epígrafe 2.1, indicamos las hipótesis que realizamos respecto a la influencia de las variables explicativas analizadas en las dimensiones de la ventaja competitiva señaladas en Kaleka (2002).

[Figura 1 y Tabla 1]

3. MATERIALES Y MÉTODOS

3.1. Materiales

Este estudio utiliza una muestra de la industria hotelera portuguesa que se basa en un cuestionario estructurado que fue cumplimentado entre el 28 de octubre de 2018 y el 27 de abril de 2019 y que se ofrece en el anexo I. Las empresas fueron identificadas utilizando la base de datos de la Asociación de Hoteles, Restaurantes y Oficios Relacionados de Portugal (Associação da Hotelaria, Restauração e Similares de Portugal – AHRESP). El cuestionario fue enviado al correo electrónico profesional de los directores ejecutivos, que fueron informados sobre el contenido de la encuesta y de los que obtuvimos su consentimiento informado.

Se obtuvo un total de 251 encuestas absolutamente completadas y validadas, lo que supuso una tasa de respuesta del 24,85%. La Tabla 2 muestra las características sociodemográficas de la muestra. El 37,5% de los encuestados eran mujeres y el 62,5% hombres; El 46,1% de las respuestas proceden de menores de 36 años y el 11,5% de mayores de 45 años. El 44,4% de las respuestas provienen de personas con título universitario. Asimismo, el 56% de los directores tenían 5 años de experiencia o menos y el 13,2%, más de diez.

Las dos dimensiones de la innovación abierta, entrante y saliente fueron medidas utilizando seis ítems de Sisodiya et al. (2013), y cinco ítems de Cheng y Huizingh (2014), respectivamente. Las tres dimensiones de la estrategia organizacional: DAMB, FOI, PEI se midieron utilizando los ítems de Morgan et al. (2000). La variable GRC se fue medida a través de tres ítems recomendados por Covin y Slevin (1989). Por último, las tres dimensiones de ventaja competitiva que evaluamos en este trabajo, en coste, servicio y producto, se analizaron a través de la escala recomendada por Kaleka (2002). Todos los ítems se presentaron en escalas tipo Likert de siete puntos. El cuestionario completo se muestra en el anexo.

[Tabla 2]

3.2. Metodología analítica

El análisis estadístico se lleva a cabo siguiendo los siguientes pasos:

Paso 1. Análisis de la fiabilidad de las escalas. Para probar la fiabilidad convergente de las escalas utilizamos alfa de Cronbach (α), fiabilidad compuesta (FC) y varianza media extraída (VME) y también el análisis factorial exploratorio. El análisis de la validez discriminante se realiza mediante la regla de Fornell-Larcker (1981).

Paso 2. Estimamos mediante mínimos cuadrados parciales (MCP) el modelo planteado en la Figura 1 para los tres tipos de VC evaluados. Al tratarse de una metodología mínimo-cuadrática, en este paso podremos sopesar la influencia de las variables explicativas sobre la esperanza de las variables de respuesta.

Paso 3. Testamos la homocedasticidad de los residuos mediante el test de Breusch-Pagan y su normalidad con la prueba Chi-cuadrado.

Paso 4. Estimamos el mismo modelo que en el segundo paso con regresión cuantílica y para los niveles de probabilidad: $\tau=0,25, 0,5, 0,75$. Este toma la siguiente forma:

$$VC_del\ tipo\ i = \beta_0(\tau) + \beta_1(\tau) \cdot IAE + \beta_2(\tau) \cdot IAS + \beta_3(\tau) \cdot DAMB + \beta_4(\tau) \cdot FOI + \beta_5(\tau) \cdot PEI + \beta_6(\tau) \cdot GRC$$

donde $\beta_k(\tau)$ es el coeficiente de la k-ésima variable en la regresión asociada al cuantil τ . Así, mientras que en $\tau=0,5$ podemos sopesar la influencia de los factores evaluados alrededor de la mediana de la variable de respuesta, con $\tau=0,25$ ($\tau=0,75$) podemos evaluar la influencia de los

factores evaluados en empresas en las que su competitividad se sitúan sustancialmente bajo (sobre) la tendencia central. Como observaciones de las variables consideramos la extracción factorial estandarizada de su primer factor obtenido en el análisis factorial realizado en el paso 1.

4. RESULTADOS

4.1. Análisis descriptivo y validación de las escalas

La Tabla 3 muestra la media y la desviación estándar de los ítems y las medidas de validez convergente alcanzadas por las escalas. Siempre se cumplen las condiciones de validez convergente ya que mientras que α y $FC > 0,7$ y $VME > 0,5$, el análisis factorial extrae una proporción significativa de las varianzas en el primer factor, ya que las cargas son $> 0,7$. La Tabla 4 muestra las correlaciones entre los constructos y permite evaluar la validez discriminante de los factores mediante el uso del criterio de Fornell-Larcker (1981). Generalmente, la raíz cuadrada de los VME está por encima de las correlaciones de Pearson entre variables. La excepción es la relación de FOI y PEI, cuya correlación, de 0,92, está por encima de la raíz cuadrada de sus varianzas medias extraídas.

[Tabla 3 y Tabla 4]

4.2. Resultados de la regresión de mínimos cuadrados parciales

Los coeficientes de determinación de las regresiones para los tres tipos de VC se sitúan claramente por debajo del 20%, lo que supone un ajuste de calidad baja (Hair et al., 2019). La VC en coste viene influida significativamente de forma positiva por la política estratégica en la gestión de riesgos con un coeficiente (coef) = 0,207 con $p = 0,008$ y por PEI (coef = 0,473, $p = 0,0055$). La VC en servicio solo manifiesta una influencia positiva significativa por la IA entrante (coef = 0,183, $p = 0,0483$). En lo que hace referencia a la VC en producto, tanto la IA entrante (coef = 0,238, $p = 0,0132$) como la posición estratégica innovadora (coef = 0,338, $p = 0,0487$) manifiestan una relación significativa de signo positivo. Así, la IA saliente, DAMB y FOI no tienen un impacto significativo en ningún tipo de ventaja estratégica. La Tabla 6 muestra la aceptación/rechazo de las hipótesis formuladas en 2.2 a la luz de los resultados de la Tabla 5.

En lo que hace referencia a los residuos podemos, observar que se rechaza para todas las ventajas competitivas su normalidad con niveles de significación $p < 0,05$. La homocedasticidad de los residuos también es rechazada con claridad en el caso de las regresiones para VC en coste y producto ($p < 0,01$). En cambio, para los residuos de la regresión que ajusta VC_SERV los resultados no son concluyentes ($p = 0,061$). En cualquier caso, el incumplimiento de las hipótesis sobre los residuos refuerza el interés del uso de la regresión cuantílica.

[Tabla 5 y Tabla 6]

4.3. Resultados de las regresiones cuantílicas

La Tabla 7 ofrece el resultado de las regresiones cuantílicas para la ventaja competitiva en coste. Podemos observar que en todos los cuantiles estimados, la relación positiva de GRC y VC_COST es siempre significativa (en $\tau = 0,25$, coef = 0,313, $p = 0,0009$; en $\tau = 0,5$, coef = 0,336, $p < 0,0001$ y en $\tau = 0,75$, coef = 0,313, $p = 0,009$). También observamos una incidencia positiva y significativa de PEI en $\tau = 0,25$ (coef = 0,397, $p = 0,0428$) y en $\tau = 0,5$, (coef = 0,569, $p < 0,0001$); y del dinamismo ambiental en $\tau = 0,75$ (coef = 0,105, $p = 0,0351$). En contra de la hipótesis H14, la flexibilidad de la estructura interna tiene una incidencia significativamente negativa en la mediana de VC_COST (coef = -0,426, $p < 0,0001$). Tanto la innovación abierta entrante como la saliente no tienen influencia significativa en la ventaja competitiva en coste.

[Tabla 7]

La Tabla 8 muestra los resultados del ajuste de las regresiones cuantílicas de la ventaja competitiva en servicio. Podemos observar que en la regresión asociada a $\tau=0,25$, son significativas la innovación abierta entrante (coef=0,188, $p=0,0108$) y la política estratégica de gestión de riesgo (coef=0,171, $p=0,0048$). En el cuantil $\tau=0,75$, es significativa la influencia de la posición estratégica innovadora (coef=0,268, $p=0,0414$). IAS, DAMB y FOI no tienen impacto significativo en este tipo de VC.

[Tabla 8]

La Tabla 9 ofrece el ajuste obtenido en las regresiones relativas a la VC en producto. En el cuantil inferior ($\tau=0,25$), solo es significativo el impacto positivo de IAE (coef=0,324, $p=0,0367$). En la mediana se muestra significativa la influencia positiva postulada de PEI (coef=0,516, $p<0,0001$) y GRC (coef=0,255, $p<0,0001$). Asimismo, y en contra de la relación supuesta en la Tabla 1, FOI presenta una influencia significativamente negativa ($p=-0,383$, $p<0,0001$).

[Tabla 9]

La Tabla 10 resume los resultados de este subepígrafe. Aceptamos las hipótesis expuestas en la Tabla 1 cuando al menos en algún nivel τ el factor explicativo tenga una incidencia significativamente positiva en la VC y el resto de cuantiles, los ajustes no contradigan dicho resultado.

[Tabla 10]

5. DISCUSIÓN

En este trabajo hemos evaluado la capacidad explicativa de la innovación abierta (IA), la flexibilidad y dinamismo de la estructura organizativa, y la política estratégica de gestión de riesgos corporativos (GRC) sobre la ventaja competitiva en una muestra de PYMEs del sector hotelero portugués. Dentro de la IA hemos diferenciado la IA entrante (IAE) y la saliente (IAS). Dentro de la estructura organizativa diferenciamos tres dimensiones: el dinamismo ambiental (DAMB), la flexibilidad organizacional interna (FOI) y la posición estratégica innovadora (PEI). Asimismo, hemos diferenciado que la ventaja competitiva (VC) que puede ser en coste (VC_COST), servicio (VC_SERV) y producto (VC_PROD).

La IA, la estructura organizativa y la GRC inciden en la ventaja competitiva, lo que va en la línea de Musiello-Neto et al. (2021). No obstante, los resultados muestran que la importancia de la incidencia de los diferentes factores explicativos considerados es diferente en función del tipo de ventaja competitiva que estemos analizando y la relevancia de desagregar la IA y la flexibilidad de la estructura organizativa, cuestiones que no son abordadas en el trabajo de Musiello-Neto et al. (2021).

IAE es un factor clave en la explicación de la VC en servicio y en producto, especialmente en aquellas PYMES cuya VC se sitúa por debajo de lo esperado. Este aspecto queda captado tanto por la regresión mínimo-cuadrática como por la cuantílica, y concuerda con los reportes que señalan a la IA como una piedra angular de la VC (Sisidiya et al., 2014; Chaudhary et al., 2022). En cambio, IAS no tiene un impacto significativo en ninguna VC. Así, aunque rechazamos la hipótesis de su impacto positivo, también su influencia negativa. Este último extremo contradice la literatura que señala los peligros de IAS (Abhari & McGuckin, 2022) como la posible pérdida de control sobre el conocimiento creado (Greco et al., 2015). Así, mientras que Musiello-Neto et al. (2021), solo reportan una relación positiva entre IA y VC, nuestro análisis matiza que el impacto positivo únicamente proviene de la IAE y en VCs que no sean en coste.

Si bien, tal como señalan Musiello-Neto et al. (2021), la flexibilidad de la estructura organizacional impacta de forma significativamente positiva en la VC, no todas las dimensiones de dicha flexibilidad son relevantes ni inciden con el mismo signo en los diferentes tipos de VC. Es necesario diferenciar el impacto de DAMB, FOI y PEI. Así, la influencia de PEI es muy relevante en la VC por coste y producto, lo que es captado por todos los modelos de regresión ensayados. También lo es, en menor grado, para explicar VC_SERV, ya que este aspecto solo queda reflejado en el ajuste cuantílico para $\tau=0,75$. DAMB manifiesta cierta influencia positiva sobre la VC_COST en la RC ajustada para $\tau=0,75$. Estos resultados concuerdan con la percepción de que los estilos de gestión más flexibles, descentralizados e innovadores son fuente de VC (Brozovic, 2018).

Llama la atención la influencia significativamente negativa de FOI en algunas de las regresiones cuantílicas relativas a la VC en coste y en producto que, por otra parte, no observamos en las mínimo-cuadráticas. Este resultado puede deberse a la existencia un nivel óptimo de flexibilidad organizacional a partir del cual la VC decrece, de tal forma que un FOI excesivo puede dañar a la empresa tanto como la rigidez y suponer altos costos (Brozovic, 2018). Este fenómeno también podría imputarse a que las estrategias de descentralización a menudo incrementan los costos a corto plazo aunque faciliten un mayor rendimiento en plazos más largos (Siggelkow & Lewinthal, 2003).

Hemos comprobado un impacto significativamente positivo de las estrategias de gestión de riesgos corporativos en los tres tipos de ventaja competitiva evaluados, aspecto no contemplado en Musiello-Neto et al. (2021). De hecho, GRC se muestra como el factor esencial en la explicación de la VC en coste, ya que es estadísticamente significativo en todas las regresiones ensayadas. Aunque menos relevante, es también una variable con significación estadística en algunos de los ajustes cuantílicos para la VC_SERV y VC_PROD. Por lo tanto, nuestros hallazgos están en la línea de Elahi (2013) y Nocco y Stulz (2006), que remarcan la relevancia del GRC para alcanzar una ventaja competitiva sostenible.

6. CONCLUSIONES

El empleo de la regresión cuantílica, (RC) combinado con la metodología mínimo-cuadrática es muy útil para mostrar como los factores explicativos evaluados inciden en la ventaja competitiva. Mientras que con la regresión mínimo cuadrática analizamos el impacto de las variables explicativas en la respuesta esperada de cada tipo de VC, la RC permite sopesar dicha influencia en realizaciones alejadas de la tendencia central. La regresión mínimo cuadrática no capturó la influencia positiva del DAMB en VC_COST, de PEI en VC_SERV y de GRC tanto en VC_SERV como en VC_PROD, que sí detectó la regresión cuantílica. Asimismo, la RC también captura un posible impacto negativo de la FOI con VC en coste y producto, que tampoco fue advertido en el ajuste con mínimos cuadrados parciales.

Los hallazgos del presente trabajo tienen claras implicaciones prácticas. Una vez establecido el grado de competitividad alcanzada por una empresa y su situación respecto al que podría esperarse, la dirección debería fijar que tipo de VC debe mejorarse. La elección de los factores en los que incidir dependería de ambas evaluaciones. Por ejemplo, si la dirección desea aumentar la VC en servicio y su situación en esta VC está por debajo de lo que cabría esperar, las políticas corporativas deberían incidir en las políticas de IA entrante y en la estrategia de gestión de riesgos corporativos.

Somos conscientes de las limitaciones de este estudio. En primer lugar, la encuesta estaba dirigida a empresas con direcciones de correo electrónico en la base de datos de AHRESP. Aunque el número de respuestas recibidas fue significativo, una muestra más grande podría permitir un análisis más refinado. En segundo lugar, los encuestados previstos eran directores ejecutivos de hoteles, pero se desconoce si completaron los cuestionarios ellos mismos. Además, la observación correspondiente a una empresa se basa en la opinión de una persona,

por lo que puede reflejar con imprecisión la opinión genuina de la empresa, ya que las decisiones son tomadas realmente por equipos cuyos miembros tienen diferentes perspectivas. Asimismo, la muestra de este estudio es transversal y fue realizada antes de la crisis del COVID-19.

Como primera línea de investigación futura sugerimos la elaboración de un estudio longitudinal en el sector hotelero portugués, con una encuesta análoga a la presentada en el trabajo, pero implementada en un periodo posterior a la crisis sanitaria provocada por el COVID-19. Este análisis permitiría tener una visión más completa de la relación entre la IA, la flexibilidad organizacional y la GRC con la VC. Por supuesto, la combinación de métodos estadísticos ensayada puede aplicarse al contraste de otros marcos teóricos o en sectores económicos diferentes al analizado este trabajo. Asimismo, entendemos que la aplicación de instrumentos analíticos no estadísticos como el análisis cualitativo comparativo borroso puede enriquecer el presente estudio, ya que permitiría captar en nuestra muestra cómo los factores explicativos ensayados interactúan para producir las variables de respuesta (Fedriani & Romano, 2017).

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Tabla 1.

Hipótesis que contrastaremos relativas a los factores que estimulan diversos tipos de ventaja competitiva

VC en coste	VC en servicio	VC en producto
H11. La IA entrante (IAE) influye positivamente en la VC en coste	H21. La IA entrante (IAE) influye positivamente en la VC en servicio	H31. La IA entrante (IAE) influye positivamente en la VC en producto
H12. La IA saliente (IAS) influye positivamente en la VC en coste	H22. La IA saliente (IAS) influye positivamente en la VC en servicio	H32. La IA saliente (IAS) influye positivamente en la VC en producto
H13. El dinamismo ambiental (DAMB) influye positivamente en la VC en coste	H23. El dinamismo ambiental (DAMB) influye positivamente en la VC en servicio	H33. El dinamismo ambiental (DAMB) influye positivamente en la VC en producto
H14. La flexibilidad de la organización interna (FOI) influye positivamente en la VC en coste	H24. La flexibilidad de la organización interna (FOI) influye positivamente en la VC en servicio	H34. La flexibilidad de la organización interna (FOI) influye positivamente en la VC en producto
H15. Una posición estratégica innovadora (PEI) influye positivamente en la VC en coste	H25. Una posición estratégica innovadora (PEI) influye positivamente en la VC en servicio	H35. Una posición estratégica innovadora (PEI) influye positivamente en la VC en producto
H16. La existencia de una política estratégica en la gestión de riesgos corporativos (GRC) influye positivamente en la VC en coste	H26. La existencia de una política estratégica en la gestión de riesgos corporativos (GRC) influye positivamente en la VC en servicio	H36. La existencia de una política estratégica en la gestión de riesgos corporativos (GRC) influye positivamente en la VC en producto

Tabla 2.
Composición sociodemográfica de la muestra (porcentaje)

Variable	%	Variable	%
Género:		Titulaciones académicas:	
Hembra	37,5	Cualificación	55,6
Masculino	62,5	primaria/secundaria	28,9
		Licenciatura	15,5
		Maestría / Doctorado	
Edad (años):		Experiencia profesional (años):	
18-25	19,3	<=5	56
26-35	26,9	6-10	30,8
36-45	42,6	>10	13,2
>45	11,2		

Tabla 3.

Descriptivos y medidas de consistencia interna de escalas

VARIABLES EXPLICATIVAS	Media	Desv. Std.	Carga factorial extraída	α	FC	VME
IAE1	5,12	1,60	0,79	0,94	0,95	0,76
IAE2	4,67	1,67	0,91			
IAE3	4,84	1,65	0,90			
IAE4	5,03	1,53	0,86			
IAE5	4,68	1,65	0,92			
IAE6	4,65	1,67	0,85			
IAS1	4,53	1,62	0,83	0,94	0,95	0,81
IAS2	4,84	1,50	0,90			
IAS3	4,74	1,48	0,93			
IAS4	4,71	1,52	0,93			
IAS5	4,53	1,62	0,90			
DAMB1	4,86	1,19	0,92	0,95	0,96	0,82
DAMB2	4,86	1,17	0,91			
DAMB3	5,03	1,13	0,85			
DAMB4	4,89	1,17	0,93			
DAMB5	4,89	1,17	0,91			
FOI1	4,98	1,10	0,86	0,96	0,98	0,82
FOI2	4,92	1,15	0,92			
FOI3	4,85	1,14	0,90			
FOI4	5,00	1,12	0,90			
FOI5	4,84	1,20	0,92			
FOI6	4,87	1,20	0,92			
FOI7	4,89	1,15	0,91			
PEI1	4,90	1,12	0,90	0,90	0,95	0,64
PEI2	5,04	0,91	0,69			
PEI3	5,05	1,07	0,73			
PEI4	4,93	1,13	0,89			
PEI5	5,10	1,21	0,77			
PEI6	4,95	1,09	0,90			
GRC1	4,98	1,11	0,94	0,89	0,93	0,82
GRC2	4,98	1,09	0,90			
GRC3	4,84	1,22	0,88			

Variables explicadas	Media	Desv. Std.	Carga factorial extraída	α	FC	VME
VC_COST1	4,94	1,17	0,96	0,97	0,98	0,94
VC_COST2	4,95	1,17	0,97			
VC_COST3	4,94	1,18	0,98			
VC_SERV1	4,95	1,16	0,73	0,91	0,94	0,79
VC_SERV2	4,90	1,22	0,93			
VC_SERV3	4,76	1,21	0,94			
VC_SERV4	4,82	1,21	0,95			
VC_PROD1	4,88	1,17	0,79	0,88	0,93	0,81
VC_PROD2	5,08	1,18	0,94			
VC_PROD3	4,99	1,16	0,95			

Tabla 4.

Correlaciones entre variables y la matriz de análisis de validez discriminante de Fornell-Larker

Variable	IAE	IAS	DAMB	FOI	PEI	GRC	VC_COST	VC_SERV	VC_PROD
IAE	0,87								
IAS	0,78***	0,90							
DAMB	0,46***	0,50***	0,91						
FOI	0,47***	0,47***	0,85***	0,90					
PEI	0,45***	0,47***	0,87***	0,92***	0,80				
GRC	0,48***	0,52***	0,58***	0,58***	0,56***	0,91			
VC_COST	0,27***	0,28***	0,30***	0,30***	0,35***	0,34***	0,97		
VC_SERV	0,29***	0,25***	0,31***	0,31***	0,32***	0,26***	0,73***	0,89	
VC_PROD	0,30***	0,24***	0,28***	0,28***	0,31***	0,29***	0,59***	0,77***	0,90

Notas: (1) con " *** ", "**", "*" denotamos significación estadística con $p < 0,001$. Niveles de significación de $p < 0,01$ y $p < 0,05$ respectivamente (2) En la diagonal principal se muestra la raíz cuadrada de la VME de los constructos

Tabla 5.

Resultados de la regresión por mínimos cuadrados parciales

Variable explicada	VC_COST		VC_SERV		VC_PROD		
	Factor Explicativo	coeficiente	p-valor	coeficiente	p-valor	coeficiente	p-valor
IAE		0,054	0,5676	0,183	0,0483	0,238	0,0132
IAS		0,072	0,4606	-0,032	0,7472	-0,087	0,378
DAMB		-0,090	0,4765	0,092	0,4736	0,0005	0,9969
FOI		-0,241	0,1289	0,024	0,8814	-0,186	0,2445
PEI		0,473	0,0055	0,112	0,5166	0,338	0,0487
GRC		0,207	0,008	0,059	0,4569	0,137	0,0815
		R ² =17,01%		R ² =13,24%		R ² =14,57%	
		BP=17.236 (0,008)		BP=12.084 (0,061)		BP=27.37 (<0,001)	
		$\chi^2=8.369$ (0,015)		$\chi^2=11,199$ (0,004)		$\chi^2=19.791$ (<0,001)	

Nota: Por BP denotamos el estadístico de Breusch-Pagan para contraste de la homocedasticidad de los errores y χ^2 el de adherencia de los errores a la distribución de probabilidad normal. Entre paréntesis se indican el p-valor con el que se rechaza la hipótesis nula de homocedasticidad y normalidad, respectivamente.

Tabla 6.

Evaluación de las hipótesis de la Tabla 1 tras el ajuste de mínimos cuadrados parciales para un p-valor <0,05

Variable explicada	VC_COST		VC_SERV		VC_PROD	
Variable explicativa	Hipótesis	Decisión	Hipótesis	Decisión	Hipótesis	Decisión
IAE	H11	Rechazo	H21	Aceptada	H31	Aceptada
IAS	H12	Rechazo	H22	Rechazo	H32	Rechazo
DAMB	H13	Rechazo	H23	Rechazo	H33	Rechazo
FOI	H14	Rechazo	H24	Rechazo	H34	Rechazo
PEI	H15	Aceptada	H25	Rechazo	H35	Aceptada
GRC	H16	Aceptada	H26	Rechazo	H36	Rechazo

Tabla 7.

Ajuste de las regresiones cuantílicas de VC_COST

Factor Explicativo	$\tau=0,25$		$\tau=0,5$		$\tau=0,75$	
	coeficiente	p-valor	coeficiente	p-valor	coeficiente	p-valor
Constante	-0,674	<0,0001	0,042	0,2533	0,854	<0,0001
IAE	0,014	0,9057	0,097	0,1084	0,020	0,5963
IAS	0,116	0,3233	0,029	0,6411	0,003	0,9275
DAMB	-0,063	0,6795	0,034	0,675	0,105	0,0351
FOI	-0,231	0,2264	-0,426	<0,0001	-0,043	0,491
PEI	0,397	0,0428	0,569	<0,0001	0,075	0,2586
GRC	0,313	0,0009	0,336	<0,0001	0,068	0,0256
	Pseudo R ² =10,28%		Pseudo R ² = 7.77%		Pseudo R ² = 5,96%	

Tabla 8.

Ajuste de las regresiones cuantílicas de VC_SERV

Factor Explicativo	$\tau=0,25$		$\tau=0,5$		$\tau=0,75$	
	coeficiente	p-valor	coeficiente	p-valor	coeficiente	p-valor
Constante	-0,598	<0,0001	0,071	0,3037	0,823	<0,0001
IAE	0,188	0,0108	0,115	0,3009	0,133	0,0956
IAS	0,018	0,8148	-0,015	0,893	-0,067	0,4183
DAMB	0,187	0,0566	0,044	0,7667	-0,018	0,865
FOI	-0,167	0,1748	0,123	0,5091	-0,071	0,5962
PEI	0,161	0,2217	0,057	0,7755	0,268	0,0414
GRC	0,171	0,0048	0,026	0,7748	0,017	0,7981
	Pseudo R ² =6.85%		Pseudo R ² = 5,19%		Pseudo R ² = 12.54%	

Tabla 9.

Ajuste de las regresiones cuantílicas de VC_PROD

Factor Explicativo	$\tau=0,25$		$\tau=0,5$		$\tau=0,75$	
	coeficiente	p-valor	coeficiente	p-valor	coeficiente	p-valor
Constante	-0,520	<0,0001	0,052	0,1062	0,711	<0,0001
IAE	0,324	0,0367	0,076	0,1495	0,082	0,3641
IAS	-0,102	0,5213	-0,007	0,8897	-0,131	0,1579
DAMB	0,106	0,6086	-0,019	0,7847	0,019	0,8715
FOI	-0,318	0,2186	-0,383	<0,0001	-0,118	0,4344
PEI	0,486	0,0793	0,516	<0,0001	0,278	0,0848
GRC	0,226	0,0747	0,255	<0,0001	0,058	0,431
	Pseudo R ² =0,99%		Pseudo R ² = 6.65%		Pseudo R ² = 15,22%	

Tabla 10.

Evaluación de las hipótesis de la Tabla 1 con regresión cuantílica

Variable explicada	VC_COST		VC_SERV		VC_PROD	
Variable explicativa	Hipótesis	Decisión	Hipótesis	Decisión	Hipótesis	Decisión
IAE	H11	Rechazo	H21	Aceptada	H31	Aceptada
IAS	H12	Rechazo	H22	Rechazo	H32	Rechazo
DAMB	H13	Aceptada	H23	Rechazo	H33	Rechazo
FOI	H14	Rechazo	H24	Rechazo	H34	Rechazo
PEI	H15	Aceptada	H25	Aceptada	H35	Aceptada
GRC	H16	Aceptada	H26	Aceptada	H36	Aceptada

Figura 1.

Modelo a contrastar y signo de las relaciones esperadas entre los factores explicativos y los diferentes tipos de ventajas estratégicas



Fuente: Elaboración propia a partir de Musiello-Neto et al. (2021)

ANEXO I: CUESTIONARIO

1. Innovación abierta

1.1. Innovación Abierta Entrante (IAE)

(escala de siete puntos: 1 = "muy en desacuerdo" y 7 = "totalmente de acuerdo").

IAE1. Escaneamos constantemente el entorno externo en busca de insumos como tecnología, información, ideas, conocimiento, etc.

IAE2. Buscamos activamente fuentes externas (por ejemplo, grupos de investigación, universidades, proveedores, clientes y competidores, etc.) de conocimiento y tecnología al desarrollar nuevos productos.

IAE3. Creemos que es bueno utilizar fuentes externas (por ejemplo, grupos de investigación, universidades, proveedores, clientes y competidores, etc.) para complementar nuestra propia I + D.

IAE4. A menudo traemos conocimientos y tecnología desarrollados externamente para usar junto con nuestra propia I + D.

IAE5. Buscamos tecnologías y patentes de otras empresas, grupos de investigación o universidades.

IAE6. Compramos propiedad intelectual externa para usarla en nuestra propia I + D.

1.2. Innovación abierta saliente (IAS)

(escala de siete puntos: 1 = "muy en desacuerdo" y 7 = "totalmente de acuerdo").

IAS1. Los socios externos, como clientes, competidores, institutos de investigación, consultores, proveedores, gobierno o universidades están directamente involucrados en todos nuestros proyectos de innovación.

IAS2. Todos nuestros proyectos de innovación dependen en gran medida de la contribución de socios externos, como clientes, competidores, institutos de investigación, consultores, proveedores, gobierno o universidades.

IAS3. Nuestra firma a menudo compra servicios relacionados con I + D de socios externos, como clientes, competidores, institutos de investigación, consultores, proveedores, gobierno o universidades.

IAS4. Nuestra firma a menudo compra propiedad intelectual, como patentes, derechos de autor o marcas comerciales, de socios externos para ser utilizados en nuestros proyectos de innovación.

IAS5. Nuestra firma invierte en otras firmas porque nos gustaría obtener sinergias que sean beneficiosas para nuestros proyectos de innovación.

2. Estrategia organizacional

2.1. La Escala de Dinamismo Ambiental (DAMB)

Por favor, marque el número en cada escala que mejor se aproxime a las condiciones reales en la industria principal de su unidad de negocio.

DAMB1. Nuestra unidad de negocio rara vez debe cambiar sus prácticas de marketing para mantenerse al día con el mercado y los competidores.	1-2-3-4-5-6-7	Nuestra unidad de negocio debe cambiar sus prácticas de marketing con extrema frecuencia (por ejemplo, semestralmente)
DAMB2. La velocidad a la que los productos / servicios se están volviendo obsoletos en la industria es muy lenta (por ejemplo, metales básicos como semiconductores)	1-2-3-4-5-6-7	La tasa de obsolescencia es muy alta (como en algunos productos de moda y cobre)
DAMB3. Las acciones de los competidores son bastante fáciles de predecir (como en algunas industrias básicas)	1-2-3-4-5-6-7	Las acciones de los competidores son impredecibles
DAMB4. La demanda y los gustos de los consumidores son bastante fáciles de pronosticar (por ejemplo, para las compañías lácteas)	1-2-3-4-5-6-7	La demanda y los gustos son casi impredecibles (por ejemplo, productos de alta costura)
DAMB5. La tecnología de producción / servicio no está sujeta a muchos cambios y está bien establecida (por ejemplo, en la producción de acero)	1-2-3-4-5-6-7	Los modos de producción / servicio cambian a menudo y de manera importante (por ejemplo, componentes electrónicos avanzados)

2.2. La Escala de Flexibilidad de la Organización Interna (FOI)

En general, la filosofía de gestión operativa en mi firma favorece...

FOI1. Canales de comunicación	1-2-3-4-5-6-7	Canales abiertos de comunicación con
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altamente estructurados y acceso altamente restringido a información financiera y operativa importante		información financiera y operativa importante que fluye con bastante libertad en toda la organización.
FOI2. Una fuerte insistencia en un estilo gerencial uniforme en toda la empresa	1-2-3-4-5-6-7	Los estilos de operación de los gerentes varían libremente, desde lo muy formal hasta lo muy informal.
FOI3. Un fuerte énfasis en dar más que decir en la toma de decisiones a los gerentes de línea formales	1-2-3-4-5-6-7	Una fuerte tendencia a dejar que el experto en una situación dada tenga la mayor voz en la toma de decisiones, incluso si esto significa la elusión temporal de las líneas formales de autoridad.
FOI4. Un fuerte énfasis en aferrarse a principios de gestión probados y verdaderos a pesar de cualquier cambio en las condiciones comerciales	1-2-3-4-5-6-7	Un fuerte énfasis en adaptarse libremente a las circunstancias cambiantes sin demasiada preocupación por la práctica pasada
FOI5. Un fuerte énfasis en lograr que el personal siga siempre los procedimientos formalmente establecidos	1-2-3-4-5-6-7	Un fuerte énfasis en hacer las cosas, incluso si esto significa ignorar los procedimientos formales
FOI6. Estricto control formal de la mayoría de las operaciones por medio de sofisticados sistemas de control e información	1-2-3-4-5-6-7	Control suelto e informal; gran dependencia de las relaciones informales y norma de cooperación para realizar el trabajo
FOI7. Un fuerte énfasis en lograr que el personal de línea y personal se adhiera estrechamente a las descripciones formales de trabajo	1-2-3-4-5-6-7	Una fuerte tendencia a dejar que los requisitos de la situación y la personalidad del individuo definan el comportamiento adecuado en el trabajo.

2.3. La Escala de Posición Estratégica Innovadora (PEI)

<i>En general, los altos directivos de mi firma favorecen...</i>		
PEI1. Un fuerte énfasis en la comercialización de productos o servicios probados y verdaderos	1-2-3-4-5-6-7	Un fuerte énfasis en I + D, liderazgo tecnológico e innovación
<i>¿Cuántas líneas nuevas de productos o servicios ha comercializado su empresa en los últimos cinco años (o desde su creación)?</i>		
PEI2. No hay nuevas líneas de productos o servicios	1-2-3-4-5-6-7	Muchas nuevas líneas de productos o servicios
PEI3. Los cambios en la línea de productos o servicios han sido en su mayoría de naturaleza menor.	1-2-3-4-5-6-7	Los cambios en la línea de productos o servicios generalmente han sido bastante dramáticos.
<i>Al tratar con sus competidores, mi empresa...</i>		
PEI4. Por lo general, responde a las acciones que inician los competidores	1-2-3-4-5-6-7	Por lo general, inicia acciones a las que los competidores responden
PEI5. Rara vez es la primera empresa en introducir nuevos productos / servicios, técnicas administrativas o tecnologías operativas, etc.	1-2-3-4-5-6-7	Es muy a menudo el primer negocio en introducir nuevos productos / servicios, técnicas administrativas o tecnologías operativas, etc.
PEI6. Por lo general, busca evitar enfrentamientos competitivos, prefiriendo una posición de "vivir y dejar vivir".	1-2-3-4-5-6-7	Por lo general, adopta una posición muy competitiva de "deshacer a los competidores"

3. Gestión de Riesgos Corporativos (GRC)

(escala de siete puntos: 1 = "muy en desacuerdo" y 7 = "totalmente de acuerdo").

GRC1. Una fuerte proclividad para proyectos de bajo riesgo (con tasas de rendimiento normales y ciertas)	1-2-3-4-5-6-7	Una fuerte proclividad a proyectos de alto riesgo (con posibilidades de rendimientos muy altos)
<i>En general, los altos directivos de mi firma creen que...</i>		
GRC2. Debido a la naturaleza del	1-2-3-4-5-6-7	Debido a la naturaleza del medio

entorno, es mejor explorarlo gradualmente a través de un tímido comportamiento incremental.		ambiente, se necesitan actos audaces y de amplio alcance para lograr los objetivos de la empresa.
Cuando me enfrento a situaciones de toma de decisiones que involucran incertidumbre, mi firma...		
GRC3. Por lo general, adopta una posición cautelosa de "esperar y ver" para minimizar la probabilidad de tomar decisiones costosas.	1-2-3-4-5-6-7	Por lo general, adopta una posición audaz y agresiva para maximizar la probabilidad de explotar oportunidades potenciales.

4. Ventaja competitiva (AC)

(escala de siete puntos: 1 = "mucho peor" y 7 = "mucho mejor").

4.1. Costo

- CA1: Coste de producción por unidad.
- CA2: Costo de los bienes vendidos.
- CA3: Precio de venta a usuarios finales en el extranjero.

4.2. Servicio

- CA4: Accesibilidad del producto.
- CA5: Soporte técnico/servicio postventa.
- CA6: Velocidad de entrega y fiabilidad.
- CA7: Amplitud de la línea de productos.

4.3. Producto

- CA8: Calidad del producto.
- CA9: Embalaje.
- CA10: Diseño y estilo.

Conclusões

Considerações finais

O objetivo fundamental deste estudo foi analisar a relação da inovação aberta com a vantagem competitiva e, adicionalmente, a relação da inovação aberta com a gestão do risco corporativo e a estratégia organizacional em empresas portuguesas do setor da hospitalidade em Portugal.

A inovação aberta, neste início de século, tornou-se um modelo estabelecido na literatura que aborda a inovação nas empresas com alta relevância para inovação na gestão. Este estudo teve como indagação inicial o trabalho de Alexy et al. (2016) que argumenta como uma das principais discussões académicas acerca da inovação na gestão a explicação das diferenças de desempenho nas organizações com características semelhantes e que operam sob condições de mercado equivalentes. Com base nessa inquietação, procurou-se agregar na investigação as PME, por meio de um setor pouco discutido academicamente em Portugal (o setor da hospitalidade), para assim explicar qual a melhor relação para responder ao problema da investigação. Dessa forma, definiu-se o modelo da inovação aberta como fenómeno que permite o desafio de encontrar fundamentos teóricos relevantes para estudar com profundidade tão emergente e complexo tema de estudo.

Após a revisão sistemática da literatura, a investigação permitiu classificar os objetivos de investigação por meio dos constructos de forma a ponderar as áreas que estão envolvidas com a inovação aberta: (1) compreender se existe uma relação positiva entre a inovação aberta, gestão do risco corporativo; estratégia organizacional e vantagem competitiva; (2) compreender até que ponto a gestão do risco corporativo impactua a vantagem competitiva, (3) compreender se a gestão do risco corporativo tem um efeito positivo na estrutura organizacional e na vantagem competitiva, (4) compreender até que ponto a gestão do risco corporativo medeia a relação entre inovação aberta e a estratégia organizacional.

Quanto ao primeiro objetivo, destacaram-se alguns pontos norteadores como contributo para o avanço da teoria sobre a relação entre inovação aberta, gestão de risco corporativo, estratégia organizacional e vantagem competitiva.

A gestão de risco do conhecimento é uma abordagem inovadora que diz respeito à gestão de vários riscos relacionados ao conhecimento que podem ser enfrentados pelas organizações. Esta pode ser definida como uma atividade sistemática dedicada à aplicação de uma variedade de ferramentas e técnicas necessárias para detetar, examinar e reagir aos riscos relacionados à produção, uso e detenção de conhecimento (Durst et al., 2016).

Observou-se que a relação dos constructos de gestão de risco corporativo, da estratégia organizacional e da vantagem competitiva com o da inovação aberta atua predominantemente no estágio da geração da inovação da empresa, da mesma forma as constantes e sistemáticas atualizações da literatura imprimiram uma maior robustez ao modelo de investigação concetual do estudo e encontraram-se indícios relevantes do ambiente externo para entradas de tecnologia (e.g., informação, ideias, conhecimento, com a inovação aberta de saída), em que a empresa, frequentemente, forma parcerias externas com clientes, concorrentes, unidades de investigação, consultores, comunidades, *open source*, fornecedores, governos ou universidades dos serviços para atividades de investigação e desenvolvimento (*open user innovation*).

Para Hippel (2013), a geração da inovação acontece nas estruturas empresariais, nomeadamente no I&D para a geração da inovação. Na perspetiva do usuário, o processo da geração da inovação pode acontecer tanto em relação à pessoa física (gestores/colaboradores) como a empresas, que, em alguns momentos, exercem o papel de usuárias. Nessa lógica, o processo de geração da inovação utiliza o termo *open user innovation* para designar a inovação gerada pelos usuários.

Em relação ao segundo objetivo, observou-se que a estratégia organizacional interfere na vantagem competitiva tornando essas relações suportadas pelo modelo da inovação aberta. Tais relações equivalem à perspetiva da inovação da gestão para fomentar inovação (Gassmann et al., 2010). Portanto, esses atores externos às indústrias (tomadores de decisão) formam parcerias que são fontes e geradoras de inovação, e exercem o papel de usuários.

Para alcançarem parcerias, as empresas necessitam desenvolver capacidades absorptivas (Hossain & Kauranen, 2015), que significa a habilidade da empresa perceber, avaliar, assimilar e aplicar novos conhecimentos. Os autores afirmam, ainda, que as

empresas precisam desenvolver capacidades disruptivas, que significam a habilidade de explorar o conhecimento externo.

Quanto ao terceiro objetivo específico, a gestão de risco corporativo mostrou-se relevante, nomeadamente, em relação a estratégia organizacional e a vantagem competitiva, e exerceu influência sobre a inovação aberta. Cheng e Huizingh (2014) propõem a utilização de quatro indicadores para medir o desempenho da inovação na organização: (1) novidade de um produto ou serviço, referente ao grau de inovação de um produto, (2) o sucesso de um produto ou serviço, que reflete a capacidade de competição do novo produto ou serviço no mercado, (3) o desempenho com o consumidor, que se refere à lealdade e satisfação do consumidor e (4) o desempenho financeiro, referente ao sucesso financeiro da inovação.

O modelo mostrou-se robusto, tanto em relação à variável relacionada à etapa de comercialização quanto à variável da etapa de geração da inovação. Para West e Bogers (2014), os modelos de inovação aberta estão mais integradores e possuem movimento giratório (obtenção, integração e comercialização) de inovação externa em quase todas as atividades características do processo *coupled*. Já para Parida et al. (2012) a inovação aberta de entrada tornou-se uma estratégia de inovação predominante usada para fortalecer a competitividade tecnológica das empresas no ambiente industrial e tecnológico em rápida mudança.

Por último, no que tange ao quarto objetivo específico, há uma interação entre gestão do risco corporativo, vantagem competitiva e estratégia organizacional no modelo da inovação aberta nas PME. Hinteregger et al. (2018) elencam as dificuldades com as quais esse tipo de empresas se defronta ao implementarem o modelo da inovação aberta, pois estudos mostram que as PME possuem receio de revelarem suas inovações e, conseqüentemente, introduzirem as suas melhores práticas de inovação aberta (parcerias). Hossain e Kauranen (2015) adiciona nesse diálogo que, ao conectarem-se num mercado globalizado, as PME são muito dependentes, ainda, de sua estrutura de I&D. Além disso, as habilidades dos gestores, as práticas de inovação e a capacidade da empresa em atrair investimentos do governo para I&D e desenvolvimento tecnológico são entraves da implementação da inovação aberta nas PME.

Contribuições teóricas

Desenvolveu-se essa investigação fundamentada no modelo concetual proposto por Chesbrough (2003b) para uma melhor maturidade na relação entre a inovação aberta e o desempenho organizacional, e dessa forma, apontar um conjunto de contribuições para a teoria.

Primeiramente, utilizou-se o modelo por meio do uso de escalas de medida diferentes a fim de validar o modelo com instrumentos de medida mais robustos para análise. Este estudo analisa, com profundidade, as propriedades psicométricas de todas as variáveis latentes do modelo estrutural (PLS-SEM), fazendo com que os “caminhos” entre constructos latentes, constructos exógenos e endógenos sejam diferenciados.

Posteriormente, enfatizou-se o papel do constructo da inovação aberta, na proporção em que pode potenciar ou influenciar a atração de recursos necessários ao desenvolvimento da atividade do setor da hospitalidade, nomeadamente recursos organizacionais e tecnológicos. Os resultados observados mostram claramente a inovação aberta como um importante constructo que permite atrair recursos, mas, por si só, não é relevante para o desempenho superior. A inovação aberta como inovação na gestão de topo das organizações estudadas somente se mostra relevante quando há uma relação com efeito direto e positivo, ou seja, quando a inovação aberta é um antecedente dos recursos e tecnologia que constitui uma importante contribuição desta investigação.

Por fim, investigou-se o impacto subsequente do desempenho das organizações no modelo da inovação aberta, conforme sugerido por Chesbrough (2003b), tendo-se verificado que este é positivo e significativo, o que nos permite concluir que o desempenho das empresas permite à gestão de topo das organizações reforçar as suas capacidades empreendedoras em contextos das PME no setor da hospitalidade. Desse modo, esse resultado constitui um sólido contributo para a literatura, na medida em que não observamos estudos que compreende empiricamente o desempenho dos negócios. Dessa forma, os resultados desta investigação permitem suprir a lacuna existente na literatura, uma vez que não existem estudos empíricos que verifiquem essa relação no contexto dos negócios em países em desenvolvimento.

Contribuições práticas

Os resultados deste estudo contribuem para o desenvolvimento de novos instrumentos e programas de apoio as PME. Ao identificar os recursos, tecnologias e capacidades dinâmicas que influenciam o desempenho das empresas, direta ou indiretamente, por meio dos recursos disponíveis e necessários, este estudo reveste-se de elevada utilidade para os gestores de topo por estimular comportamentos empreendedores, consubstanciando um fator de captação e de capacidades necessários à empresa e o envolvimento de outros setores da economia, pois o setor da hospitalidade revelou-se importante para a melhora do desempenho das empresas em Portugal.

A presente investigação absorveu outras importantes contribuições para a teoria e para a prática, sendo os resultados relevantes para investigadores, gestores de topo e intermédios e demais interessados. Este estudo alarga, substancialmente, as contribuições dando robustez ao modelo de investigação concetual proposto por (Chesbrough, 2003b), de forma a contribuir para uma melhor compreensão da relação entre o modelo da inovação aberta e o desempenho superior nas empresas, mormente:

(1) o papel da inovação aberta pode potenciar ou influenciar a entrada de recursos necessários ao desempenho superior nas empresas, nomeadamente, recursos organizacionais, tecnológicos e capacidade dinâmica. Os resultados evidenciam que a inovação aberta é uma importante metodologia que permite atrair novos recursos e demais interessados para o envolvimento das empresas em outros escopos.

(2) pensou-se, também, que os resultados poderão estar relacionados à natureza da amostra (caraterísticas da hospitalidade) e que os estes poderiam ser outros, caso se tratasse de uma amostra caraterizada por empresas de base tecnológica (*startup*), o que constitui uma valiosa contribuição desta investigação.

(3) analisou-se a relação entre os constructos da inovação aberta e desempenho organizacional no modelo da inovação aberta, e verificou-se que essa relação é positiva e significativa, o que nos permite concluir que o desempenho organizacional consente ao gestor de topo reforçar as suas capacidades empreendedoras (de gestão) em outros contextos.

Esses resultados constituiu um sólido contributo para a literatura (teórica), na medida em que não identificou estudos que avaliassem, empiricamente, o desempenho

superior como um antecedente da inovação aberta. Dessa forma, os resultados desta pesquisa permitem preencher uma lacuna existente na literatura.

Por outro lado, as contribuições prática desta investigação revelaram-se importante para os gestores de topo das PME. Os gestores podem melhorar o desempenho organizacional e aumentar o valor das empresas o que é uma questão-chave por parte de quem investiga o desempenho empresarial.

Portanto, os gestores de topo devem desenvolver as capacidades da empresa à medida que estas permitem transformar os recursos organizacionais (estratégia organizacional, risco corporativo, vantagem competitiva e mecanismos de gestão) em desempenho superior nas organizações. Adicionalmente, as empresas devem ver o seu comprometimento (gestor de topo) no descortinar de novos mercados como investimento em longo prazo que contribuirá para a melhoria do desempenho organizacional (superior). Este estudo mostrou que a inovação aberta constitui um fator imprescindível para obtenção de recursos organizacionais, tecnológicos e da capacidade dinâmica dos gestores de topo, e como estes, por sua vez, apresentam-se como vínculos causais com um efeito indutivo nos gestores de topo para o desenvolvimento da sua capacidade de gestão.

Limitações da investigação

Tal como qualquer trabalho de investigação, a presente tese de doutoramento apresenta algumas limitações:

(1) O número restrito de estudos que discute a realidade das PME em países que não se encontram na fronteira tecnológica (países emergentes) é, ainda, escasso em inovação;

(2) Devido ao elevado número de empresas a estudar optamos por aplicar o inquérito por questionário às empresas cujo endereço eletrónico estivesse cadastrado na base de dados da Associação de Hotelaria, Restauração e Similares de Portugal (AHRESP), consubstanciando, assim, uma amostra não-probabilística por conveniência. Apesar da amostra ser significativa, somos de opinião que uma mais abrangente permitiria uma análise mais depurada dos resultados e a generalização dos mesmos;

(3) Foi solicitado que respondessem ao inquérito apenas os gestores de topo. No entanto, por ser uma investigação por questionário eletrónico, isso não caracteriza de facto se foi efetivamente esse gestor de topo que respondeu mesmo; e

(4) Por último, avaliar as relações entre os diferentes constructos com base na opinião de uma única pessoa (gestor de topo) pode não refletir exatamente a realidade das empresas, uma vez que as decisões são tomadas por uma equipa podem ter diferentes opiniões sobre a atividade estudada.

Linhas futuras de investigação

Esta investigação sugere algumas linhas de investigações futuras, a saber:

(1) replicar o modelo proposto com a inclusão de outras variáveis moderadoras (e.g., cultura organizacional), para analisar os seus efeitos na relação entre a inovação aberta e o desempenho organizacional (das empresas);

(2) analisar o efeito mediador/moderador dos fatores ambientais na relação entre a inovação aberta e desempenho nas grandes empresas e em setores da economia insuficientemente estruturados, para identificar se os gestores de topo possuem capacidades empreendedoras desenvolvidas, quando perceberem que num ambiente externo com elevado nível de hostilidade são capazes de conduzir as empresas para desempenho superior;

(3) replicar a pesquisa em outros setores da economia, sendo ou não de alta intensidade tecnológica, ou de setores bastante estruturados (automóvel, farmacêutico, agronegócio etc.), com a finalidade de identificar-se a existência de ecossistemas de inovação que suportam os setores onde as inovações se caracterizam por tecnologias tardias;

(4) conduzir estudos em múltiplos países (*cross-cultural studies*), preferencialmente em países em vias de desenvolvimento, para a verificação de comunalidades e diferenças, bem como o do efeito país/bloco económico nos ecossistemas de inovação;

(5) de ordem metodológica, utilizar a abordagem metodológica qualitativa como ferramenta para mapear as relações entre diferentes tipos e tamanhos de organizações, tal como as conexões entre todas as organizações de um mesmo ecossistema de inovação; e

(6) os gestores de topo e de intermédio poderão auxiliar as PME e as grandes empresas a melhor entenderem os seus papéis numa colaboração e em quais das etapas e processos a inovação aberta poderá ser efetivada (implementada).

Por fim, a construção da Estratégia para o Turismo 2027 teve por base um processo participativo, alargado e criativo, no qual o Estado assume a sua responsabilidade e mobiliza os agentes e a sociedade. Consubstancia, assim, uma visão de longo prazo, combinada com uma ação no curto prazo, permitindo atuar com maior sentido estratégico no presente e enquadrar o futuro quadro comunitário de apoio 2021-2027 (PCM, 2017). A Resolução de Conselho de Ministros n.º 134/2017, de 27 de setembro de 2017, aprova a estratégia para o Turismo 2027, a qual compreende 10 desafios para estratégias a 10 anos, com objetivos estratégicos relacionados com pessoas, coesão, crescimento em valor, turismo todo o ano, acessibilidades, procura, inovação, sustentabilidade, simplificação e investimento.

Essa emergente temática necessita, pois, de estudos adicionais que a aprofundem. Espera-se, assim, o estudo académico que ora se finda possa, modestamente, contribuir para a teoria e para a prática com avanços científicos respeitantes à inovação e suas ramificações, como estratégia, tecnologia e metáfora dos ecossistemas de inovação, no contexto da Academia.

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