http://dx.doi.org/10.18623/rvd.v23.5771

INNOVATION AT THE CORE OF COMPETITIVE ADVANTAGE: A THEMATIC EXPLORATION OF EMERGING ORGANIZATIONAL PATHWAYS

A INOVAÇÃO NO CERNE DA VANTAGEM COMPETITIVA: UMA EXPLORAÇÃO TEMÁTICA DE NOVOS CAMINHOS ORGANIZACIONAIS

Article received on: 12/10/2025
Article accepted on: 2/9/2026

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The authors declare that there is no conflict of interest

Abstract
Now more than ever, organizations need to innovate in order to face uncertainty, become sustainable, and exploit digital opportunities. Despite significant research into the phenomenon, the literature is fragmented across a range of disciplines and perspectives. This article conducts a thematic analysis of 234 references to map the field of study and synthesize key findings. The findings reveal that innovation has become a core strategic imperative for organizations. Innovation is crucial for organizations to exploit opportunities and integrate sustainability into their operations. The findings also reveal that organizations need to transform their business models to adapt to changes in their environments and the technologies they use. The study contributes to the growing body of research into innovation. The article links the bibliometric findings to themes that emerge on organizational resilience and competitive advantage. Implications for theory, practice, and future research are discussed.

Keywords: Innovation. Business Models. Sustainability. Dynamic Capabilities. Organizational Ambidexterity.

Resumo
Agora. mais do que nunca. as organizações precisam inovar para enfrentar a incerteza. tornar-se sustentáveis e aproveitar as oportunidades digitais. Apesar das pesquisas significativas sobre o fenômeno. a literatura está fragmentada entre diversas disciplinas e perspectivas. Este artigo realiza uma análise temática de 234 referências para mapear o campo de estudo e sintetizar as principais conclusões. Os resultados revelam que a inovação se tornou um imperativo estratégico fundamental para as organizações. A inovação é crucial para que as organizações explorem oportunidades e integrem a sustentabilidade em suas operações. As conclusões também revelam que as organizações precisam transformar seus modelos de negócios para se adaptarem às mudanças em seus ambientes e nas tecnologias que utilizam. O estudo contribui para o crescente corpo de pesquisas sobre inovação. O artigo relaciona os resultados bibliométricos a temas que emergem sobre resiliência organizacional e vantagem competitiva. São discutidas as implicações para a teoria. a prática e pesquisas futuras.

Palavras-chave: *Inovação. Modelos de Negócios. Sustentabilidade. Capacidades Dinâmicas. Ambidextridade Organizacional.*

1 INTRODUCTION

Innovation is a prerequisite for organizational change and development in the 21st century. Many studies underscore the importance of innovation in addressing sustainability, digitalization, and socio-political challenges. In this special issue, attention is especially given to sustainable business model innovation that organizations apply to achieve their objectives (Pan, Xu, & Skare, 2023). Moreover, innovation can be triggered by the disruptive character of artificial intelligence for which companies develop corresponding strategies (Jorzik et al., 2024; Kanbach et al., 2023). In "ESG and innovation: the linkage of long-term stakeholder value", Xu & Zhu (2024) investigate the relationship between ESG performance and innovation, and explain why innovation is vital to shareholders' returns and social welfare. With changing circumstances, innovation is no longer an optional extra but a necessity for companies to survive in an increasingly competitive business environment.

In addition to these articles on innovation (also known as R&D or new venture creation), the period saw the appearance of some fundamental works, e.g., on disruptive innovation (Christensen, 1997), on architectural innovation (Henderson & Clark, 1990), or on dynamic capabilities (Teece, Pisano & Shuen, 1997). Simultaneously, works appeared on ambidextrous organizations (Tushman & O'Reilly, 1996, 2004) or on critical success factors for continuous renewal (Rothwell, 1992), as well as on the so-called "innovation journey" (Van de Ven, 1999).

The issue of innovation has long been studied, yet recent discussions are predominantly focused on innovation development. Scholars explore how companies and countries develop their innovative capacity based on the perspective of dynamic capabilities (Teece, 2007, 2010, 2012, 2018), combine multiple strategies to create innovative business models by achieving organizational ambidexterity (Gibson & Birkinshaw, 2004; Raisch & Birkinshaw, 2008; Zimmermann et al., 2018), or pursue sustainability-oriented innovation (Rennings, 2000; Klewitz & Hansen, 2014; Geissdoerfer et al., 2018). There is also a lively discussion about the effects of digital transformation (Khin & Ho, 2018; Soluk et al., 2021; Vaska et al., 2021). However, these approaches still lack integration into a general theory of innovative development, which remains stuck in separate "conceptual silos". The tasks assigned to managers following

an innovation strategy are often contradictory. Therefore, research results on the subject should be used to build on existing findings in order to provide a complete, cumulative view. Others address the trade-offs between innovation exploration and exploitation (Simsek et al. 2009; Junni et al. 2013). Still, there is a growing body of research on sustainability-oriented innovation (Reyes-Santiago et al. 2017; Shahzad et al. 2021), as well as on digital transformation, particularly from a technological perspective (Guo et al. 2022). A comprehensive synthesis of approaches to fully exploit innovation in organizations, however, is missing. The article has both theoretical and practical justification. From a theoretical perspective, the article contributes to consolidating ongoing research on innovation. From a practical point of view, the article provides managers and policymakers in innovative organizations and networks with useful insights into how to survive and succeed in a challenging business environment characterized by rapid change and strong innovation pressures. Organizations face an overwhelming array of challenges today, including climate change, rapid digitalization, and socio-political instability, which force them to become more innovative to survive. But what do we actually mean by innovation? This study investigates the complexities of what can be seen as a strategic priority and explains why organizations' innovative efforts so often fail to deliver on their promises.

2 BACKGROUND

For more than three decades, there has been an incredible momentum in innovation research. New empirical studies and theoretical approaches are continually emerging. Different disciplines contribute to understanding competitive advantages. The field of innovation itself is meanwhile in need of new applications on sustainability, digitalization, and entrepreneurial resilience. This issue of WSI focuses on sustainable business model innovation, on the effects of Artificial Intelligence, and on innovations in market-like environments. While much research focuses on the entrepreneurial and individual aspects of business model innovation, an increasing number of studies address its organizational and managerial aspects. In addition to studies like Furtwänglinger et al. (2022) analyzing entrepreneurial teams, more recent studies have appeared in this field, e.g., Wang, Yi & Wei (2023), who investigate the role of top management team social

capital in business model design. Further studies examine the relation between family firms and socioemotional wealth (Weimann et al. 2020) or the family influence in digital innovation (Soluk et al. 2021). Works such as Christensen (1997) on disruptive innovation, Henderson & Clark (1990) on architectural innovation, and Rothwell (1992) on the critical success factors for industrial innovation have a very strong legacy. In contrast, the legacy of Tushman & O'Reilly (1996, 2004) on ambidextrous organizations and Teece et al. (1997) on the dynamic capabilities framework has been very much elaborated by Teece (2007, 2010, 2012, 2018) on managerial processes and organizational routines. While the number of studies on knowledge transfer and innovation is increasing, a growing body of research is emerging on sustainability topics. Rennings (2000) started the research stream on sustainability with the first work on eco-innovation. Later, sustainability-oriented innovation was addressed. For instance, Carrillo-Hermosilla et al. (2010) provided a first classification of eco-innovations, while Klewitz & Hansen (2014) delivered a first review on sustainability-oriented innovation in SMEs. Geissdoerfer, Vladimirova & Evans (2018) provided a comprehensive review of sustainable business model innovation.

Khin & Ho (2018): Positive relationship between digital capability and firm performance. Matarazzo, M., Mistretta, M., & Salvia, G. (2021): Digital transformation practices among SMEs: perspectives and challenges (the Italian context case study). Guo et al. (2022): Research on digital innovation-driven capability of enterprise in the AI era. Vaska et al. (2021): Digital transformation of business models–review of current trends. Stryja & Satzger (2019): Digital nudging to enable digital transformation – A research agenda. In addition to scientific papers and articles, among the basic references we have to mention Utterback (1994), Von Stamm (2003), and Jones, Womack & Rawson (1991) - to understand the dynamics of innovation and of production based on lean principles. Van de Ven (1999) presents the stages of the so-called innovation journey, while the OECD/Eurostat Oslo Manuals provide methodological guidelines for measuring innovation (2005, 2018).

3 METHODOLOGY

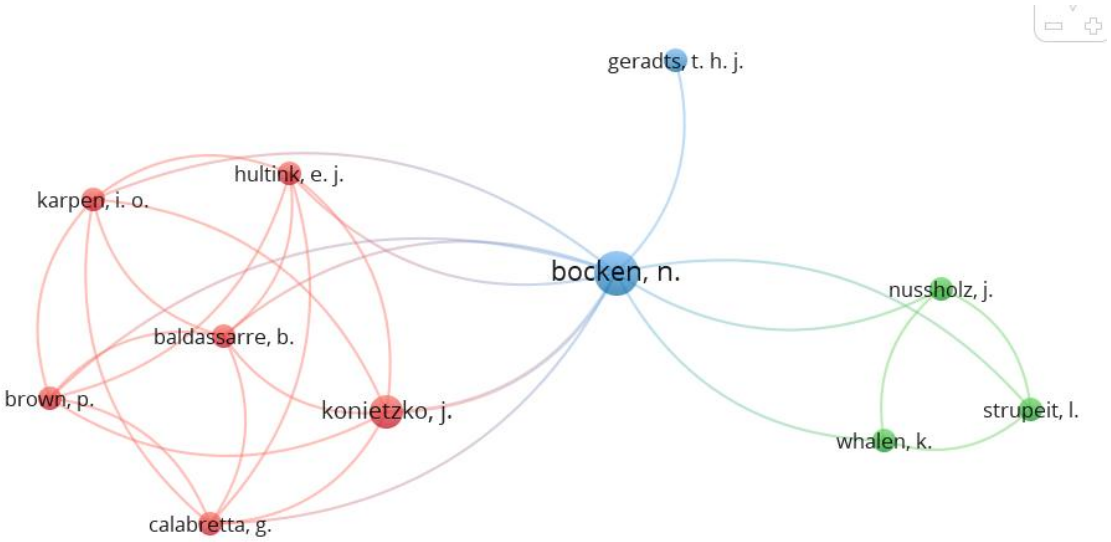
This study adopted a qualitative approach and used bibliometric methods to examine research publications on innovation and management practices. The study was structured according to the 'research onion' proposed by Saunders et al. (2009). An interpretivist paradigm was utilized in the study, as innovation is a socially constructed phenomenon influenced by factors such as management practices and organizational (including institutional) factors. A systematic search of online databases Web of Science, Scopus, and SpringerLink was conducted to select relevant research papers. The search included all accessible peer-reviewed articles over a 30-year period, from 1990 to 2024. A bibliometric analysis was subsequently conducted using VOSviewer, version 1.6.20 (Eck and Waltman, 2010), to analyze co-authorship and co-citation networks and identify clusters of influential authors and thematic concentrations. Software that maps the metadata of articles and publications was used. The study used metadata, including authors, publication year, keyword co-occurrences, and citations, to map clusters of relevant publications and identify trends within the themes. This study applies thematic analysis in conjunction with bibliometric mapping in order to provide both a macro-level view of the distribution of documents within the field of work organization and a micro-level view of the concepts addressed within it. Thematic analysis offers a framework for generating a detailed, theoretical account of concepts evident within a corpus of texts, revealing their constituent parts or themes. The grounded theory methodology developed by Strauss and Corbin (1998) served as the basis for the coding process, which was undertaken in three stages: open, axial, and selective. In addition, the thematic analysis was guided by several broader principles developed by Braun and Clarke (2006). Recognition of the limitations that the practice of citation and the qualitative tradition of thematic analysis places on analysis has also been addressed. The systematic use of multiple databases and an extremely systematic analysis process were two key safeguards used in this study. The study was conducted in an ethically sound manner, using publicly available academic sources and properly citing the authors and works accessed during the analysis.

3.1 Findings and analysis

The obtained results have been analyzed using VosViewer (Eck and Waltman, 2010). Information about the analysis can be found in the previous entry. In the following, the network map on co-authorship is presented in Figure 1.

Figure 1

Network map



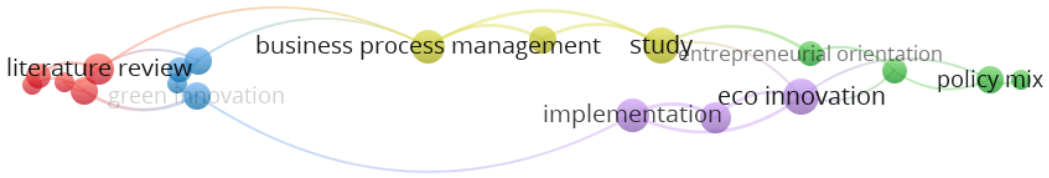
Source: VOSviewer (version 1.6.20). Adapted from van Eck and Waltman (2010)

Figure 1 shows all co-authorship relations between the identified authors. “Bocken, N.” is clearly in a hub-like position, connecting several clusters of co-authors. The red bounded cluster consists of Karpen, Baldassarre, Calabretta, Brown, and Hultink. These authors co-author extensively in the area of sustainable innovation and business models. The green bounded cluster consists of Nussholz, Strupeit, and Whalen. These three authors co-author each other in the areas of sustainability, (circular) economy, industry & innovation, but have very little co-authoring activity with others. The small blue cluster consists of Geradts, who co-authored with Bocken in the area of sustainable innovation. The visualization shows Bocken's connections to other research areas and strengthens her connections to sustainability-oriented innovation research.

Figure 2 gives an overview of the authors who are most frequently cited together. Again, we find several dense clusters of nodes representing different theoretical traditions. Besides the dynamic capabilities school (Teece, Pisano, Shuen), we also find organizational ambidexterity (Tushman, O'Reilly). The third cluster comprises authors dealing with sustainability and eco-innovation (Bocken, Geissdoerfer). The size of the nodes reflects the citation frequency of the individual authors. They serve as "anchoring points" for reading the map.

Figure 2

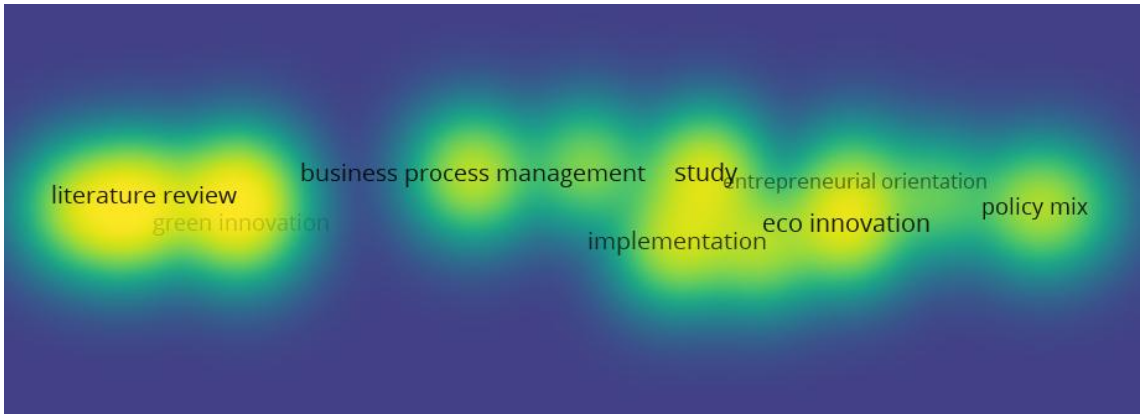
Co-citation network



Source: VOSviewer (version 1.6.20). Adapted from van Eck and Waltman (2010)

Figure 3

Density visualization map on Keyword Co-occurrence



Source: VOSviewer (version 1.6.20). Adapted from van Eck and Waltman (2010)

Figure 3 presents the keyword co-occurrence network generated by VOSviewer (van Eck and Waltman, 2010). This conceptual map presents the relationships among the topics addressed in existing innovation research. The network of keywords from the literature consists of nodes representing keywords and connections representing co-occurrence frequencies. The most prominent terms in the results are eco-innovation,

green innovation, entrepreneurial orientation, and business process management. The three central anchors are all of considerable size and very bright. They represent prevailing concepts in innovation research and relate to themes of sustainability, organizational processes, and entrepreneurship.

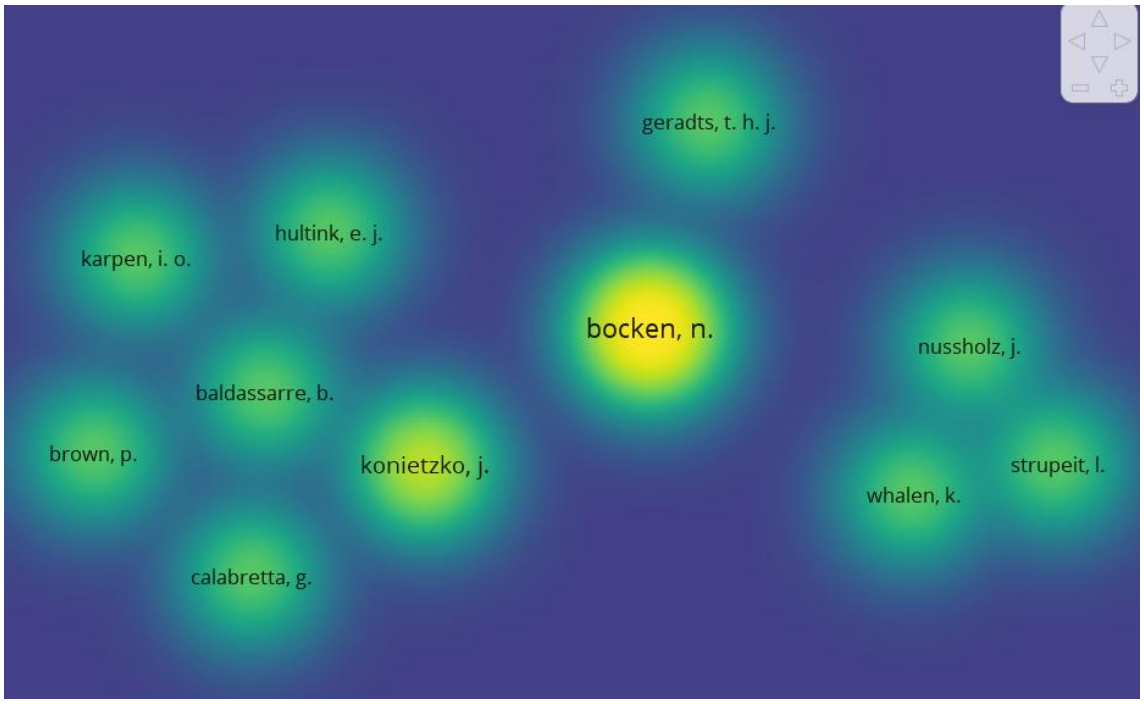
The high degree of connectivity between papers also gives a glimpse into the multi-disciplinary nature of the field of innovation studies. For example, the eco-innovation label not only references environmental themes but also the policy mix and implementation of environmental innovation. The highly connected label of entrepreneurial orientation bridges the strategic entrepreneurial perspective with the management of business processes, dealing with innovation at the firm level. Thirdly, terms such as 'literature review/study' serve as structural reference points for the methodological aspects in the corpus. This shows that research into innovation has reached a level where it is summarized in systematic reviews and studied empirically. Zooming in on the figure, we also observe clustering. Three groups of themes can be identified: one related to sustainability (eco-innovation, green innovation); the other two, to organizational/managerial processes and governance/policy, respectively (business process management, entrepreneurial orientation, policy mix, implementation). This reflects an important aspect of current literature on innovation: it is a multidimensional phenomenon influenced by ecological, managerial, and institutional factors. The conversation about innovation has become multi-dimensional. Figure 3 also shows that conversations about innovation have reached a critical mass, connecting with those around sustainability, organizational design, and policy. The pattern of conversation has become more complex and multi-dimensional.

Figure 4 shows the most visible scholar in the network, Bocken, N. Other scholars can be distinguished into several clusters. The first cluster consists of Karpen, J. O.; Baldassarre, G.; Calabretta, G.; Brown, S.; Hultink, E. J.; and Konietzko, S. This group is highly connected with each other, reflecting a long tradition of co-authoring on topics related to sustainable business models, sustainable design, and sustainable innovation. The second cluster consists of Nussholz, C., Strupeit, A., and Whalen, R. This group is closely connected to Bocken and has published articles on the circular economy, eco-innovation, and sustainability, with a specific focus on organizational practices. There are also a few more connections between Geradts and Bocken.

Studies of collaboration networks can reveal the diffusion of ideas within a field, as well as clusters of related papers and bridges between disciplines. The figure illustrates how Bocken bridges sustainability, design, and organizational innovation. The figure also shows the intellectual structure of the field of innovation research, comprising ‘tribes’ of theoretical contributions and ‘communities’ of collaborating researchers. It also points to a few ‘hubs’ that help to connect parts and pieces of the emerging knowledge base on innovation. This indicates a highly collaborative, networked knowledge-generation process among a small group of scholars.

Figure 4

Density visualization map - Co-authorship Network Analysis



Source: VOSviewer (version 1.6.20). Adapted from van Eck and Waltman (2010)

3.2 Thematic analysis

3.2.1 Theme one: organizational ambidexterity

Exploring new opportunities and exploiting existing ones is what organizations do every day. Most seem to manage to do both simultaneously. Exploration and exploitation are often treated as separate processes in the business innovation literature, but many studies assume that organizations are also ambidextrous, simultaneously maintaining a successful operating model whilst seeking new innovation opportunities. Starting from the seminal work of Tushman & O'Reilly (1996) on generating and managing major change, through Gibson & Birkinshaw (2004) on the role of center in managing and generating innovation, to the more recent study by Raisch & Birkinshaw (2008) on transitions, recent research has shown organizational ambidexterity to be crucial for adaptability. New managerial practices are needed to achieve organizational ambidexterity and succeed in this challenge.

3.2.2 Theme two: product innovation

Product innovation is the most traditional and well-researched dimension of innovation. It deals with the creation of new products and technologies and is perceived as one of the ways for firms to gain competitive advantages. Schumpeter's work (1934) is the starting point for research on product innovation. Since then, much research has examined the patterns of technological trajectories that follow the product innovation process (Utterback & Abernathy, 1975; Henderson & Clark, 1990). Much of this research has dealt with what Christensen (1997) refers to as 'disruptive innovation'. Research on innovation has increasingly shown that product innovation is important for competitiveness. Product innovation is the most visible form of innovation and has been linked to market performance. Moreover, there is growing evidence that new product and process developments are important drivers of economic growth. To be successful in existing or even new markets, companies have to be responsive to consumers' and users' needs and at the same time able to face technological innovations by other firms.

3.2.3 Theme three: service innovation

Innovating services is discussed in the context of the shift towards intangible goods and experience-based services. Gallouj & Weinstein (1997), den Hertog (2000), Miles (2008), and Djellal & Gallouj (2010) address service innovation and/or new forms of service delivery, including co-creation. The New Theme 4 focuses on innovation beyond the product's boundaries, addressing design, delivery, and the experience of services. Service innovation creates new value by appropriate customer interaction or by leveraging intangible assets.

3.2.4 Theme four: process innovation

Process innovation aims to improve current processes within a company and/or increase efficiency, both internally and across organizational boundaries, by refining existing routines and production processes. Process innovation has been extensively discussed by Davenport (1993) and Hammer & Champy (1993) in the context of business process reengineering. The topic is also related to organizational learning (Reichstein & Salter, 2006) and long-term performance (Bessant & Tidd, 2007). Innovating business processes can increase efficiency and eco-efficiency. Process innovation can be the same as digital transformation or go hand in hand with green innovation. Process innovation is crucial for companies seeking to boost competitiveness, maximize the use of available resources, and address environmental challenges.

3.2.5 Theme five: business model innovation

The innovation of business models and the reconfiguration of existing value chains is a topic as old as the business models that currently exist, because business model innovation is a strategic area of research as old as businesses themselves. Business model innovation has been around for decades, and it is therefore nothing new. Yet, Bocken et al. (2014) and Foss & Saebi (2017) found that the topic of sustainable business models is a growing field of research.

This theme of innovation looks at it from a broader perspective, including product/service and process innovation. Attention is also paid to the underlying logic for value creation. The theme also considers how business models need to evolve to create sustainable, long-term value.

3.2.6 Theme six: eco-innovation / green innovation

Innovation extends beyond environmental strategies. Integrating environmental responsibility into innovation can be highly valuable. Eco-innovation refers to innovations that reduce environmental impact (Rennings, 2000; Kemp & Pearson, 2007) and has links to the circular economy (Carrillo-Hermosilla et al., 2010; Bocken et al., 2016; Geissdoerfer et al., 2017).

A competition award issue that links aspects of competitiveness and sustainability. The issue will focus on eco-innovation, which is both a technological and strategic challenge. However, eco-innovation must also be integrated into a company's broader innovation process and its understanding of its social responsibility.

3.2.7 Theme seven: policy and institutional dimensions

Innovation is not an isolated process and is influenced by governance and institutions. Edquist (2005), Flanagan et al. (2011), Lundvall (1992), and Nelson (1993), amongst others, have examined the characteristics of innovation systems and the composition or mix of related policies that can either facilitate or obstruct innovation. Theme C addresses the question: how do institutions and the institutional environment of innovation trajectories look? It analyses the extent to which certain policies hinder or foster innovation, and studies mechanisms of innovation at the system level that need to be aligned by firms, governments, and other institutions.

3.2.8 Entrepreneurial orientation

Entrepreneurial orientation is perceived as a multi-dimensional concept that regards innovation as a fundamental component of entrepreneurship. The innovation dimension of entrepreneurial orientation is seen as encompassing risk-taking, proactiveness, and/or competitive aggressiveness. Three significant studies relating entrepreneurial orientation to innovation performance include those by Covin & Slevin (1991), Lumpkin & Dess (1996), and Wiklund & Shepherd (2005). Entrepreneurial behavior can foster innovation. In this book, we address how entrepreneurship can generate innovative ventures that go on to build successful firms. We investigate the role of entrepreneurial behavior within organizations and its contribution to their innovation capacity.

3.2.9 Digital transformation

Digital transformation refers to the impact of digital technologies on innovation. Yoo et al. (2012), Nambisan et al. (2017), and Bharadwaj et al. (2013) discuss this theme, which links with product, service, and process innovation, as well as business model innovation. It also explores how digital transformation fosters organizational ambidexterity and supports sustainability outcomes. Evidence shows the themes that emerge from the vast innovation literature. The thematic analysis employed in this study identified nine key themes that organize the innovation discourse.

These themes – ambidexterity, product innovation, service innovation, process innovation, business model innovation, eco-innovation, policy and institutional dimensions, entrepreneurial orientation, and digital transformation – collectively reveal the multi-dimensionality of innovation and highlight the relevance of organizational capabilities, sustainability, technology, and public policy, summarized in the following Table 1:

Table 1

Themes in Innovation Research: Focus, Representative References, and Key Insights

Theme	Focus	Representative References	Key Insights
Organizational Ambidexterity	Balancing exploration and exploitation; managing paradoxes of novelty vs. efficiency	Tushman & O'Reilly (1996); Gibson & Birkinshaw (2004); Raisch & Birkinshaw (2008); Saleh, Durugbo & Almahamid (2023); Sartori & Garrido (2023)	Ambidexterity enables firms to pursue new opportunities while refining existing capabilities; it is a mechanism for adaptability and resilience in turbulent environments.
Product Innovation	Development of new goods and technologies; market differentiation	Schumpeter (1934); Utterback & Abernathy (1975); Henderson & Clark (1990); Christensen (1997)	Product innovation remains central to competitiveness, allowing firms to differentiate and respond to technological disruption and consumer demand.
Service Innovation	New delivery models, customer experience, intangible value creation	Gallouj & Weinstein (1997); den Hertog (2000); Miles (2008); Djellal & Gallouj (2010)	Service innovation extends innovation beyond tangible products, reshaping industries through customer interaction, co-creation, and new service delivery mechanisms.
Process Innovation	Improvements in routines, production methods, eco-efficiency, digital transformation	Davenport (1993); Hammer & Champy (1993); Reichstein & Salter (2006); Bessant & Tidd (2007)	Process innovation enhances efficiency and sustainability, often linked to eco-innovation and digital technologies, driving operational excellence.
Business Model Innovation	Reconfiguring value creation and capture; sustainable models	Chesbrough (2007); Amit & Zott (2001); Bocken et al. (2014); Foss & Saebi (2017)	Business model innovation integrates product, service, and process changes, emphasizing sustainability and long-term viability.
Eco-innovation / Green Innovation	Environmental responsibility, circular economy, sustainability strategies	Rennings (2000); Kemp & Pearson (2007); Bocken et al. (2016); Carrillo-Hermosilla et al. (2010); Geissdoerfer et al. (2017)	Innovation increasingly tied to ecological imperatives, aligning competitiveness with responsibility, resource efficiency, and circular economy principles.
Policy and Institutional Dimensions	Governance, regulation, policy mixes shaping innovation	Edquist (2005); Flanagan, Uyarra & Laranja (2011); Lundvall (1992); Nelson (1993)	Innovation trajectories are influenced by institutional frameworks and policy instruments that support or constrain change, highlighting systemic perspectives.
Entrepreneurial Orientation	Linking innovation to entrepreneurship, risk-taking, proactiveness	Covin & Slevin (1991); Lumpkin & Dess (1996); Wiklund & Shepherd (2005)	Entrepreneurial orientation drives innovation by fostering risk-taking, proactivity, and competitive aggressiveness, linking entrepreneurship with innovation outcomes.
Digital Transformation	Impact of AI, data, and digital technologies on innovation pathways	Yoo, Henfridsson & Lyytinen (2012); Nambisan, Lyytinen, Majchrzak & Song (2017); Bharadwaj et al. (2013); Sebastian et al. (2017)	Digital technologies reshape business models and processes, accelerating innovation and disruption across industries, often intersecting with ambidexterity and sustainability.

Source: elaborated by the authors

3.3 Evolution by decades

From 1930s to 1970s centered on basic issues of innovation; the 1970s and 1980s increasingly dealt with technological trajectories and product innovation over time. A classic paper from the latter period is that of Utterback & Abernathy (1975) on technological discontinuities and their displacement by new product life cycles and innovation modes. The majority of the papers in this Special Issue are concerned with

industrial innovation and attempts to explain and interpret experiences of ‘poor performance and deteriorating competitiveness’.

In the 1980s and 1990s, works on organizational innovation emerged. Henderson & Clark (1990) drew on Carl Sauer's work on the development of agriculture to study architectural innovation, while Tushman & O’Reilly (1996) developed the concept of ambidexterity to address the challenge of simultaneously exploring and exploiting. Of particular note was the emergence of the theme of service innovation, as contributions from Gallouj & Weinstein (1997) and den Hertog (2000) tackled the creation of intangible value. In contrast, process innovation was increasingly identified with business process reengineering, a theme articulated by managers such as Davenport (1993) and Hammer & Champy (1993), focused on enhancing efficiency and organizational design.

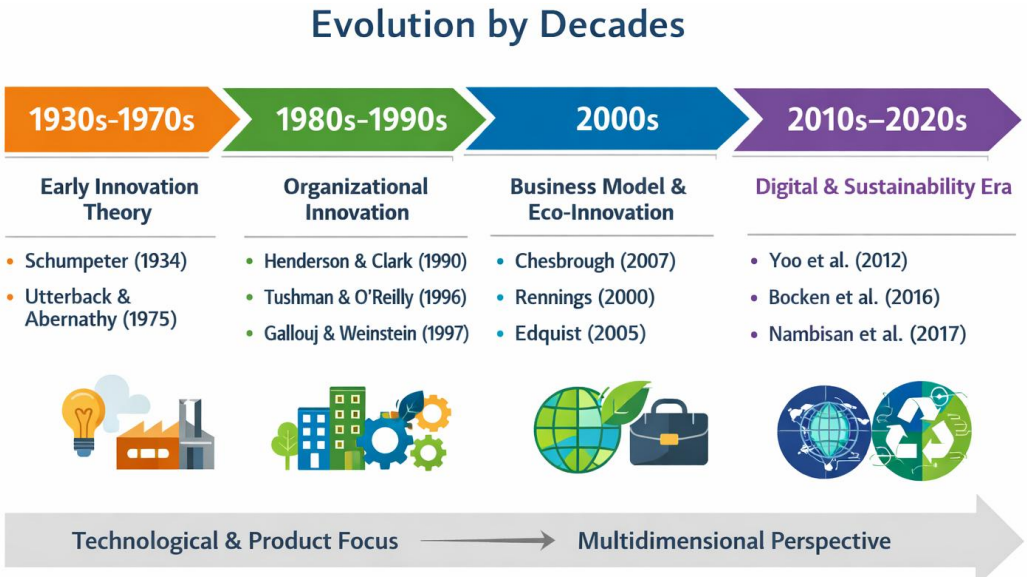
In the 2000s, business model innovation became more relevant. By then, the new logics of value creation had been discussed for a decade, by people like Chesbrough (2007) and Amit & Zott (2001). In the same decade, eco-innovation received more attention due to sustainability challenges, as noted by Rennings (2000) and Carrillo-Hermosilla et al. (2010). Perspectives on policy and institutions to foster innovation were also pushed forward by Edquist (2005) and Flanagan et al. (2011).

The business environment is changing dramatically. Many studies have investigated the influence of digital transformation on various industries and how they can be innovative in this context (Yoo et al. 2012; Nambisan et al. 2017; Bharadwaj et al. 2013). In entrepreneurship, the orientation of entrepreneurs (entrepreneurial orientation) and its relationship to innovation performance have been studied for a long time (Covin & Slevin, 1991; Wiklund & Shepherd, 2005). More recently, sustainability (Bocken et al. 2016) and the circular economy (Geissdoerfer et al. 2017) became integral to innovation strategies.

In sum, over the decades, there has been a continuous shift from a technological/production orientation, via a combination of product- and company-oriented views of innovation, to a diverse set of themes, including sustainability, entrepreneurship, and digital transformation. Figure 5 illustrates the Evolution over the decades.

Figure 5

Evolution of Innovation Research by Decade



Source: elaborated by the authors

4 DISCUSSION AND IMPLICATIONS

This report provides a thematic overview of the extensive literature on innovation, identifying themes at different levels (organizational, technological, and ecological) and over time. These themes span ambidexterity, product, service, and process innovation; business model innovation; eco-innovation; policy innovation; innovation from an entrepreneurial perspective; and digital transformation. For each theme, implications for theory and practice are outlined.

Organizational ambidexterity (pursued by Tushman & O'Reilly (1996), Gibson & Birkinshaw (2004), or Raisch & Birkinshaw (2008)) is an important strategic objective for many companies seeking to balance exploration and exploitation to enhance resilience and adaptability in a changing competitive environment. As evidenced by recent studies in diverse industries (Saleh et al. 2023; Sartori & Garrido 2023), more companies are pursuing an ambidextrous stance. As such, this is an important and timely area of inquiry for managers seeking best practices, as well as for business school researchers seeking to expand our understanding of firm dynamics and competitiveness. While the imperative to develop product innovation has long been a competitive driver of firm competitiveness (Schumpeter 1934), it has evolved dramatically since its inception.

To benefit from product innovation, different types and approaches have emerged and can be found in businesses at various stages, depending on market and organizational circumstances (Utterback & Abernathy, 1975; Christensen, 1997). Against this backdrop, managers face the challenge of formulating the right mix of in-house and outsourced solutions to achieve sustained competitive advantage. Many organizations, therefore, rely not only on the expertise of their employees, but increasingly on collaboration with technology and start-ups in order to complement the competencies available within their own firm (Mehmanpazir 2017), generate cross-value Propositions, and respond to ever more rapid changes in the business environment, fuelled by an exponentially increasing array of new entrants seeking to disrupt established incumbent positions

Innovation in services. Service innovation, according to Gallouj & Weinstein (1997) and den Hertog (2000), involves creating intangible value and adopting customer-oriented approaches. It includes co-production and new ways of delivering service, see Miles (2008) and Djellal & Gallouj (2010). Process innovation (Davenport, 1993; Hammer & Champy, 1993). Process innovation can make a company more efficient and sustainable in the long run and is linked to digital transformation and eco-innovation. Business model innovation (BMI), how firms create and capture value, can be rethought. Recent contributions to the business model concept have especially focused on model dimensions such as product, service, or process innovation. However, from a sustainable innovation perspective, such model changes are also seen as crucial for transitioning to a more sustainable society, driving sustainable innovation by adopting sustainable business models. Integrating environmental knowledge into the innovation process is a critical element. This special issue aims to advance the understanding of linkages between business model innovation and sustainable innovation. How do policy and institutional factors affect innovation? Edquist (2005), Flanagan et al. (2011), Lundvall (1992), etc., are all key authors in this field. These factors can influence governance and the rule of law, as well as the diffusion of certain technologies. This paper also explores the link between Entrepreneurial orientation, as studied by Covin & Slevin (1991), Lumpkin & Dess (1996), and Wiklund & Shepherd (2005), and innovative start-ups, and examines why some entrepreneurs are more successful than others at exploiting opportunities for innovative start-ups. Lastly, digital transformation, highlighted by Yoo et al. (2012), Nambisan et al. (2017), and Bharadwaj et al. (2013), affects how organizations develop

models and processes that incorporate the use of AI, data, and digital platforms to drive innovation and disruption, and how these elements are connected to ambidexterity and sustainability goals.

5 SIGNIFICANCE OF THE STUDY

Innovation as a business phenomenon attracts many stakeholders: entrepreneurs, managers, politicians, and the public. The various approaches to studying innovation need to be systematized to improve understanding. This article reviews current research on the dimensions of innovation. The works of many scientists and experts are grouped into nine major themes: ambidexterity, product innovation, service innovation, process innovation, business model innovation, eco-innovation, policy and institutional dimensions, entrepreneurial orientation, and digital transformation. In conclusion, the article shows innovation is multidimensional, not linear. It has evolved from Schumpeter's (1934) product innovation to also cover sustainability (Bocken et al., 2016; Geissdoerfer et al., 2017) and digital transformation (Yoo et al., 2012; Nambisan et al., 2017).

6 CONTRIBUTIONS

The study makes contributions along three dimensions. Theoretically, the paper provides a structured mapping of key contributions to innovation research over time, and it thereby illustrates how innovation research has moved from an emphasis on the development of new products, via shifting perspectives to include ambidexterity, business models, and the fostering of eco-innovation, to the importance of digital innovation for firms' survival. Managerially, the paper develops insights into how to manage sustained innovation and competitiveness in today's changing global business context through ambidexterity, eco-innovation, and digital transformation. Finally, the paper explores the significance of institutions in facilitating innovation, change, and systemic transformation from a policy perspective. Incorporating these additional viewpoints offers new insights and perspectives to academic theory as well as practical application for managers, entrepreneurs, and decision-makers. Innovation is, by nature, a more complex and

integrated process than has traditionally been viewed in management practice and scholarly research.

7 CONCLUSION

Innovation is a multi-dimensional phenomenon, influenced by organization, technology, ecology, and institutions. This paper synthesizes nine key themes representing major perspectives on innovation: ambidexterity, product innovation, service innovation, process innovation, business model innovation, eco- innovation, policy and institutional dimensions, entrepreneurial orientation, and digital transformation, and explores their multiple dynamics that shape innovation and competitiveness. Abstract: A path of progress of innovation research is sketched out. Starting from the early focus on product innovation (Schumpeter 1934; Utterback & Abernathy 1975), it shifts over time to an increasingly systemic view of innovation, incorporating the role of organizational capabilities (Tushman & O'Reilly 1996; Raisch & Birkinshaw 2008), sustainability (Rennings 2000; Bocken et al. 2016), and digital innovation (Yoo et al. 2012; Nambisan et al. 2017). Anticipating the articles in this special issue, this short reflection also highlights the need to balance exploration and exploitation, to embed eco-responsibility into the business model, and to address digital challenges. The study has practical relevance for managers. It underlines the importance of ambidexterity, business model innovation, and eco-innovation. Also, policymakers and institutions are important in the development of innovation systems. Entrepreneurial activity and digital technology are drivers of change. The results of this study contribute both theoretically and practically to the understanding of innovation and provide valuable insights for managers, entrepreneurs, and policymakers. Innovation is shown to be an ongoing, integrated process vital to addressing today's problems and sustaining long-term competitiveness in a rapidly changing world.

7.1 Future research

Further research is needed to investigate additional dimensions of innovation and their relationships with firm capabilities, sustainability, and digital transformation.

Although ambidexterity is a well-studied phenomenon (Tushman & O'Reilly, 1996; Raisch & Birkinshaw, 2008), there remains a need for more concrete "how-tos" on implementing ambidexterity in digital settings, including practical examples of balancing efficiency through data analytics with exploratory innovation. Longitudinal and cross-sectional industry studies, with respective benchmark companies, may complement such research. There is also potential in combining eco-innovation and business model innovation. While scholars such as Rennings (2000, 2009, 2013) and Bocken et al. (2016) have addressed sustainability, there is little research on combining circular economy principles with new digital platforms and start-ups. Comparative studies (Edquist, 2005; Flanagan et al., 2011) on the impact of different policy mixes across regions and institutional contexts are likewise needed.

Future studies on entrepreneurship, small business, and startup growth from an innovative entrepreneurship perspective might examine how SMEs use digital technologies to rapidly scale eco-innovation. Another promising area of research is the intersection of entrepreneurial orientation and digital transformation. While there is substantial research on the impact of entrepreneurial orientation and innovation (Covin & Slevin, 1991; Wiklund & Shepherd, 2005), the growing presence of AI, big data, and digital innovation ecosystems (Yoo et al., 2012; Nambisan et al., 2017) requires the development of new theories and models that combine an entrepreneurial posture with digital transformation. Future research could benefit from a more integrated perspective, drawing on organizational theory, sustainability, entrepreneurship, and digital transformation in order to better understand innovation. Taking such a perspective is likely to enhance our understanding of innovation. Importantly, it will also equip managers and policymakers with a more holistic and nuanced perspective to address the more complex forms of innovation currently emerging.

COMPETING INTERESTS

We declare that we have no competing interests.

FUNDING

This research has received no funding.

DECLARATION OF GENERATIVE AI AND AI-ASSISTED TECHNOLOGIES IN THE MANUSCRIPT PREPARATION PROCESS

During the preparation of this work the authors used Grammarly, in order to in order to improve grammar accuracy, ensure clarity of expression, and refine sentence flow and enhance readability. Microsoft Copilot was used to support idea organization, provide suggestions for strengthening academic style, and to compose the cover letter. After using these tools, the authors reviewed and edited the content as needed and take full responsibility for the content of the published article.

REFERENCES

Abadi, Y. B., Moeljadi, & Rhayu, M. (2024). Determinants of Market Performance: The Role of Proactive and Reactive Innovation on Product and Organizational Innovation. *Journal of Economics, Finance and Management Studies*, *07*(01), 498–511. https://doi.org/10.47191/jefms/v7-i1-52

Achtenhagen, L., Melin, L., & Naldi, L. (2013). Dynamics of business models: Strategizing, critical capabilities and activities for sustained value creation. Long Range Planning, 46(6), 427–442. https://doi.org/10.1016/j.lrp.2013.04.002

Adams, R., Jeanrenaud, S., Bessant, J., Denyer, D., & Overy, P. (2016). Sustainability-oriented innovation: A systematic review. *International Journal of Management Reviews*, *18*(2), 180–205. https://doi.org/10.1111/ijmr.12068

Adner, R., & Helfat, C. E. (2003). Corporate effects and dynamic managerial capabilities. Strategic Management Journal, 24(10), 1011–1025. https://doi.org/10.1002/smj.331

Albertini, E. (2014). A descriptive analysis of environmental disclosure: A longitudinal study of French companies. *Journal of Business Ethics*, *121*(2), 233–254. https://doi.org/10.1007/s10551-013-1698-y

Albertini, E. (2019). The contribution of management control systems to environmental capabilities. *Journal of Business Ethics*, *159*(4), 1163–1180. https://doi.org/10.1007/s10551-018-3790-4

Alegre, J., Lapiedra, R., & Chiva, R. (2006). A measurement scale for product innovation performance. *European Journal of Innovation Management*, *9*(4), 333–346. https://doi.org/10.1108/14601060610707812

Anand, A., Fosso Wamba, S., & Gnanzou, D. (2013). A Literature Review on Business Process Management, Business Process Reengineering, and Business Process Innovation. Em J. Barjis, A. Gupta, & A. Meshkat (Orgs.), *Enterprise and Organizational Modeling and Simulation* (p. 1–23). Springer. https://doi.org/10.1007/978-3-642-41638-5_1

Ancillai, C., Sabatini, A., Gatti, M., & Perna, A. (2023). Digital technology and business model innovation: A systematic literature review and future research agenda. Technological Forecasting and Social Change, 188, 122307. https://doi.org/10.1016/j.techfore.2022.122307

Anderson, N., Potočnik, K., & Zhou, J. (2014). Innovation and creativity in organizations: A state-of-the-science review, prospective commentary, and guiding framework. *Journal of Management*, *40*(5), 1297–1333. https://doi.org/10.1177/0149206314527128

Andreini, D., Bettinelli, C., Foss, N. J., & Mismetti, M. (2022). Business model innovation: A review of the process-based literature. Journal of Management and Governance, 26(4), 1089–1121. https://doi.org/10.1007/s10997-021-09590-w

Andriopoulos, C., & Lewis, M. W. (2009). Exploitation-Exploration Tensions and Organizational Ambidexterity: Managing Paradoxes of Innovation. *Organization Science*, *20*(4), 696–717. https://doi.org/10.1287/orsc.1080.0406

Arbussa, A., Bikfalvi, A., & Marquès, P. (2017). Strategic agility-driven business model renewal: The case of an SME. Management Decision, 55(2), 271–293. https://doi.org/10.1108/MD-05-2016-0355

Argyris, C., & Schön, D. A. (1997). Organizational learning: A theory of action perspective. Revista Española de Investigaciones Sociológicas, 77(78), 345–348. http://www.jstor.org/stable/40183951

Arici, H. E., & Uysal, M. (2022). Leadership, green innovation, and green creativity: A systematic review. *The Service Industries Journal*, *42*(3–4), 280–320. https://doi.org/10.1080/02642069.2021.1931270

Babu, M. M., Dey, B. L., Rahman, M., Roy, S. K., Alwi, S. F. S., & Kamal, M. M. (2020). Value co-creation through social innovation: A study of sustainable strategic alliance in telecommunication and financial services sectors in Bangladesh. *Industrial Marketing Management*, *89*, 13–27. https://doi.org/10.1016/j.indmarman.2020.01.002

Baldassarre, B., Konietzko, J., Brown, P., Calabretta, G., Bocken, N., Karpen, I. O., & Hultink, E. J. (2020). Addressing the design-implementation gap of sustainable

business models by prototyping: A tool for planning and executing small-scale pilots. *Journal of Cleaner Production, 255*, 120295. https://doi.org/10.1016/j.jclepro.2020.120295

Banerjee, S. B., & Arjaliès, D. L. (2021). Celebrating the end of enlightenment: Organization theory in the age of the Anthropocene and Gaia (and why neither is the solution to our ecological crisis). *Organization Theory, 2*(3), 1–24. https://doi.org/10.1177/26317877211036718

Bansal, P., & Song, H. C. (2017). Similar but not the same: Differentiating corporate sustainability from corporate responsibility. *Academy of Management Annals, 11*(1), 105–149. https://doi.org/10.5465/annals.2015.0095

Bansal, P., Durand, R., Kreutzer, M., Kunisch, S., & McGahan, A. M. (2024). Strategy can no longer ignore planetary boundaries: A call for tackling strategy's ecological fallacy. *Journal of Management Studies*. Advance online publication. https://doi.org/10.1111/joms.13088

Barney, J. (1991). Firm resources and sustained competitive advantage. *Journal of Management, 17*(1), 99–120. https://doi.org/10.1177/014920639101700108

Barney, J. (1991). Firm resources and sustained competitive advantage. Journal of Management, 17(1), 99–120. https://doi.org/10.1177/014920639101700108

Barney, J. B., & Felin, T. (2013). The microfoundations movement in strategy and organization theory. Academy of Management Perspectives, 27(2), 138–155. https://doi.org/10.5465/amp.2012.0107

Barrett, R. (2014). *The values-driven organization: Unleashing human potential for performance and profit*. Routledge. https://doi.org/10.4324/9781315819196

Bashir, M., Naqshbandi, M. M., & Farooq, R. (2020). Business model innovation: A systematic review and future research directions. International Journal of Innovation Science, 12(4), 457–476. https://doi.org/10.1108/IJIS-06-2020-0081

Batle, J., Orfila-Sintes, F., & Moon, C. J. (2018). Environmental management best practices: Towards social innovation. *International Journal of Hospitality Management, 69*, 14–20. https://doi.org/10.1016/j.ijhm.2017.09.016

Bellamy, M. A., Dhanorkar, S., & Subramanian, R. (2020). Administrative environmental innovations, supply network structure, and environmental disclosure. *Journal of Operations Management, 66*(7–8), 895–932. https://doi.org/10.1002/joom.1099

Benner, M. J., & Tushman, M. L. (2003). Exploitation, exploration, and process management: The productivity dilemma revisited. *Academy of Management Review, 28*(2), 238–256.

Imai, K. (1987). *Kaizen*. Random House.

Bhatia, M. S. (2021). Green process innovation and operational performance: The role of proactive environment strategy, technological capabilities, and organizational learning. *Business Strategy and the Environment, 30*(6), 2845–2857. https://doi.org/10.1002/bse.2771

Bhatia, M. S., & Jakhar, S. K. (2021). The effect of environmental regulations, top management commitment, and organizational learning on green product innovation: Evidence from automobile industry. *Business Strategy and the Environment, 30*(8), 3907–3918. https://doi.org/10.1002/bse.2836

Bigliardi, B., & Filippelli, S. (2021). Investigating circular business model innovation through keywords analysis. Sustainability, 13(9), 5036. https://doi.org/10.3390/su13095036

Bitetti, L., & Gibbert, M. (2022). The ROAD to continuous business model innovation: A longitudinal study unveiling patterns of cognitive sensing dynamic capabilities. Creativity and Innovation Management, 31(1), 123–140. https://doi.org/10.1111/caim.12477

Blagoev, B., Hernes, T., Kunisch, S., & Schultz, M. (2024). Time as a research lens: A conceptual review and research agenda. *Journal of Management, 50*(6), 2152–2196. https://doi.org/10.1177/01492063231170862

Bleda, M., & Valente, M. (2009). Graded eco-labels: A demand-oriented approach to reduce pollution. *Technological Forecasting and Social Change, 76*(4), 512–524. https://doi.org/10.1016/j.techfore.2008.04.009

Bocken, N., & Geradts, T. H. J. (2020). Barriers and drivers to sustainable business model innovation: Organization design and dynamic capabilities. Long Range Planning, 53(4), 101950. https://doi.org/10.1016/j.lrp.2019.101950

Bocken, N., Konietzko, J. (2022). Circular business model innovation in consumer-facing corporations. Technological Forecasting and Social Change, 185, 122076. https://doi.org/10.1016/j.techfore.2022.122076

Bocken, N., Strupeit, L., Whalen, K., & Nussholz, J. (2019). A review and evaluation of circular business model innovation tools. Sustainability, 11(8), 2210. https://doi.org/10.3390/su11082210

Borland, H., Ambrosini, V., Lindgreen, A., & Vanhamme, J. (2016). Building theory at the intersection of ecological sustainability and strategic management. *Journal of Business Ethics, 135*(2), 293–307. https://doi.org/10.1007/s10551-014-2484-2

Böttcher, T. P., Weking, J., Hein, A., Böhm, M., & Krcmar, H. (2022). Pathways to digital business models: The connection of sensing and seizing in business model innovation. Journal of Strategic Information Systems, 31(4), 101742. https://doi.org/10.1016/j.jsis.2022.101742

Boukamel, O., & Emery, Y. (2017). Evolution of organizational ambidexterity in the public sector and current challenges of innovation capabilities. *The Innovation Journal: The Public Sector Innovation Journal*, *22*(2), 2–27.

Bouncken, R. B., & Fredrich, V. (2016). Business model innovation in alliances: Successful configurations. Journal of Business Research, 69(9), 3584–3590. https://doi.org/10.1016/j.jbusres.2016.01.004

Bouncken, R. B., Lehmann, C., & Fellnhofer, K. (2016). The role of entrepreneurial orientation and modularity for business model innovation in service companies. International Journal of Entrepreneurial Venturing, 8(3), 237–260. https://doi.org/10.1504/IJEV.2016.078832

Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. Qualitative Research in Psychology, 3(2), 77–101. https://doi.org/10.1191/1478088706qp063oa

Braun, V., & Clarke, V. (2022). *Thematic analysis: A practical guide*. Sage.

Brenner, B., & Drdla, D. (2023). Business model innovation toward sustainability and circularity: A systematic review of innovation types. Sustainability, 15(15), 11625. https://doi.org/10.3390/su151511625

Brexendorf, T. O., & Keller, K. L. (2017). Leveraging the corporate brand: The importance of corporate brand innovativeness and brand architecture. *European Journal of Marketing, 51*(9/10), 1530–1551. https://doi.org/10.1108/EJM-07-2017-0445

Brix, J. (2020). Building capacity for sustainable innovation: A field study of the transition from exploitation to exploration and back again. *Journal of Cleaner Production, 268*, 122381. https://doi.org/10.1016/j.jclepro.2020.122381

Broadstock, D. C., Matousek, R., Meyer, M., & Tzeremes, N. G. (2020). Does corporate social responsibility impact firms' innovation capacity? The indirect link between environmental and social governance implementation and innovation performance. *Journal of Business Research, 119*, 99–110. https://doi.org/10.1016/j.jbusres.2020.07.013

Brouillat, E., & Saint Jean, M. (2020). Mind the gap: Investigating the impact of implementation gaps on cleaner technology transition. *Technological Forecasting and Social Change, 158*, 120145. https://doi.org/10.1016/j.techfore.2020.120145

Brunnermeier, S. B., & Cohen, M. A. (2003). Determinants of environmental innovation in US manufacturing industries. *Journal of Environmental Economics and Management, 45*(2), 278–293. https://doi.org/10.1016/S0095-0696(02)00058-X

Bu, M., & Wagner, M. (2016). Racing to the bottom and racing to the top: The crucial role of firm characteristics in foreign direct investment choices. *Journal of International Business Studies, 47*(9), 1032–1057. https://doi.org/10.1057/s41267-016-0002-8

Burns, T., & Stalker, M. (1994). The management of innovation. Oxford University Press.

Calik, E., Calisir, F., & Cetinguc, B. (2017). A Scale Development for Innovation Capability Measurement. *Journal of Advanced Management Science*, *5*(2), 69–76. https://doi.org/10.18178/joams.5.2.69-76

Callaghan, C. W., & Mitchell, A. (2024). Environmental sustainability and management theory development: Postparadigm insights from the Anthropocene. *European Management Review*, *21*(4), 520–532. https://doi.org/10.1111/emre.12584

Cantarello, S., Martini, A., & Nosella, A. (2012). A Multi-Level Model for Organizational Ambidexterity in the Search Phase of the Innovation Process. *Creativity and Innovation Management*, *21*(1), 28–48. https://doi.org/10.1111/j.1467-8691.2012.00624.x

Carrillo-Hermosilla, J., Del Río, P., & Könnölä, T. (2010). Diversity of eco-innovations: Reflections from selected case studies. *Journal of Cleaner Production*, *18*(10–11), 1073–1083. https://doi.org/10.1016/j.jclepro.2010.02.014

Casadesus-Masanell, R., & Ricart, J. E. (2010). From strategy to business models and onto tactics. Long Range Planning, 43(2–3), 195–215. https://doi.org/10.1016/j.lrp.2010.01.004

Cecere, G., & Martinelli, A. (2017). Drivers of knowledge accumulation in electronic waste management: An analysis of publication data. *Research Policy*, *46*(5), 925–938. https://doi.org/10.1016/j.respol.2017.03.005

Chang, T. W. (2023). An indispensable role in promoting the electric vehicle industry: An empirical test to explore the integration framework of electric vehicle charger and electric vehicle purchase behavior. *Transportation Research Part A: Policy and Practice*, *176*, 103824. https://doi.org/10.1016/j.tra.2023.103824

Cheng, C. C. J. (2020). Sustainability orientation, green supplier involvement, and green innovation performance: Evidence from diversifying green entrants. *Journal of Business Ethics*, *161*(2), 393–414. https://doi.org/10.1007/s10551-018-3967-x

Cheng, C. C., & Shiu, E. C. (2012). Validation of a proposed instrument for measuring eco-innovation: An implementation perspective. *Technovation*, *32*(5), 329–344. https://doi.org/10.1016/j.technovation.2012.02.001

Chesbrough, H. (2010). Business model innovation: Opportunities and barriers. *Long Range Planning*, *43*(2–3), 354–363. https://doi.org/10.1016/j.lrp.2009.07.010

Chiffoleau, Y. (2005). Learning about innovation through networks: The development of environment-friendly viticulture. *Technovation*, *25*(10), 1193–1204. https://doi.org/10.1016/j.technovation.2004.04.003

Chiou, T. Y., Chan, H. K., Lettice, F., & Chung, S. H. (2011). The influence of greening the suppliers and green innovation on environmental performance and competitive

advantage in Taiwan. *Transportation Research Part E: Logistics and Transportation Review, 47*(6), 822–836. https://doi.org/10.1016/j.tre.2011.05.016

Chistov, V., Aramburu, N., & Carrillo-Hermosilla, J. (2021). Open eco-innovation: A bibliometric review of emerging research. *Journal of Cleaner Production, 311*, 127627. https://doi.org/10.1016/j.jclepro.2021.127627

Chou, C. J. (2014). Hotels' environmental policies and employee personal environmental beliefs: Interactions and outcomes. *Tourism Management, 40*, 436–446. https://doi.org/10.1016/j.tourman.2013.07.002

Christensen, C. (1997). *The innovator's dilemma*. Harvard Business School Press. Dell, M. (1999). *Direct from Dell*. HarperCollins. Dyson, J. (1997). *Against the odds*. Orion.

Christmann, P. (2000). Effects of "best practices" of environmental management on cost advantage: The role of complementary assets. *Academy of Management Journal, 43*(4), 663–680. https://doi.org/10.2307/1556343

Chung, G. H., Choi, J. N., & Du, J. (2017). Tired of innovations? Learned helplessness and fatigue in the context of continuous streams of innovation implementation. *Journal of Organizational Behavior, 38*(8), 1130–1148. https://doi.org/10.1002/job.2180

Ciampi, F., Demi, S., Magrini, A., Marzi, G., & Papa, A. (2021). Exploring the impact of big data analytics capabilities on business model innovation: The mediating role of entrepreneurial orientation. *Journal of Business Research, 123*, 1–13. https://doi.org/10.1016/j.jbusres.2020.09.023

Cohen, J. (1960). A coefficient of agreement for nominal scales. *Educational and Psychological Measurement, 20*(1), 37–46. https://doi.org/10.1177/001316446002000104

Corazza, L., Cisi, M., & Falavigna, G. (2022). The enabling role of formalized corporate networks to drive small and medium-sized enterprises toward sustainability. *Business Strategy and the Environment, 31*(2), 545–558. https://doi.org/10.1002/bse.2910

Corbin, J. M., & Strauss, A. (1990). Grounded theory research: Procedures, canons, and evaluative criteria. *Qualitative sociology, 13*(1), 3-21.

Costantini, V., Crespi, F., & Palma, A. (2017). Characterizing the policy mix and its impact on eco-innovation: A patent analysis of energy-efficient technologies. *Research Policy, 46*(4), 799–819. https://doi.org/10.1016/j.respol.2017.02.004

Cruz-Sánchez, O., Cruz-Cázares, C., & Hernandez-Vivanco, A. (2026). Business model innovation from dynamic capabilities perspective: A systematic literature review. *Journal of Business Research, 204*, 115835.

Dabić, M., Obradović, T., Vlačić, B., Sahasranamam, S., & Paul, J. (2022). Frugal innovations: A multidisciplinary review and agenda for future research. *Journal of Business Research, 142*, 914–929. https://doi.org/10.1016/j.jbusres.2021.12.063

Dangelico, R. M., Pontrandolfo, P., & Pujari, D. (2013). Developing sustainable new products in the textile and upholstered furniture industries: Role of external integrative capabilities. *Journal of Product Innovation Management, 30*(3), 642–658. https://doi.org/10.1111/jpim.12013

Daradkeh, M. (2023). Exploring the boundaries of success: A literature review and research agenda on resource, complementary, and ecological boundaries in digital platform business model innovation. *Informatics, 10*(2), 41. https://doi.org/10.3390/informatics10020041

Davenport, T. H. (1993). *Process Innovation: Reengineering Work Through Information Technology* (Vol. 30). Harvard Business Press.

De Silva, M., Al-Tabbaa, O., & Khan, Z. (2021). Business model innovation by international social purpose organizations: The role of dynamic capabilities. *Journal of Business Research, 125*, 733–749. https://doi.org/10.1016/j.jbusres.2019.12.030

Delgado-Verde, M., Amores-Salvadó, J., Martín-de Castro, G., & Navas-López, J. E. (2014). Green intellectual capital and environmental product innovation: The mediating role of green social capital. *Knowledge Management Research & Practice, 12*(3), 261–275. https://doi.org/10.1057/kmrp.2014.5

Delmas, M. A., & Pekovic, S. (2018). Corporate sustainable innovation and employee behavior. *Journal of Business Ethics, 150*(4), 1071–1088. https://doi.org/10.1007/s10551-016-3175-3

Demeter, K., Qerimi, D., Losonci, D., & Keresztély, T. (2023). Key drivers of business process innovation: The role of strategic focuses and product innovation. Vezetéstudomány / Budapest Management Review, 54(11), Artigo 11. https://doi.org/10.14267/VEZTUD.2023.11.02

Demil, B., & Lecocq, X. (2010). Business model evolution: In search of dynamic consistency. *Long Range Planning, 43*(2–3), 227–246. https://doi.org/10.1016/j.lrp.2010.02.004

Demil, B., Lecocq, X., Ricart, J. E., & Zott, C. (2015). Introduction to the SEJ special issue on business models: Business models within the domain of strategic entrepreneurship. *Strategic Entrepreneurship Journal, 9*(1), 1–11. https://doi.org/10.1002/sej.1194

Denac, M., Obrecht, M., & Radonjič, G. (2018). Current and potential ecodesign integration in small and medium enterprises: Construction and related industries. *Business Strategy and the Environment, 27*(7), 825–837. https://doi.org/10.1002/bse.2032

Doz, Y. L., & Kosonen, M. (2010). Embedding strategic agility: A leadership agenda for accelerating business model renewal. *Long Range Planning, 43*(2–3), 370–382. https://doi.org/10.1016/j.lrp.2009.07.006

Dranev, Y., Izosimova, A., & Meissner, D. (2020). Organizational Ambidexterity and Performance: Assessment Approaches and Empirical Evidence. *Journal of the Knowledge Economy*, *11*(2), 676–691. https://doi.org/10.1007/s13132-018-0560-y

Duncan, R. B. (1976). The Ambidextrous Organization: Designing Dual Structures for Innovation. The Management of Organization, 1(1), 167–188.

Edmondson, D. L., Kern, F., & Rogge, K. S. (2019). The co-evolution of policy mixes and socio-technical systems: Towards a conceptual framework of policy mix feedback in sustainability transitions. *Research Policy, 48*(10), 103555. https://doi.org/10.1016/j.respol.2018.03.010

Eurostat. (2022). Community innovation survey—Microdata—Eurostat [European Union official website]. Eurostat. https://ec.europa.eu/eurostat/web/microdata/community-innovation-survey

Fagerberg, J. (2018). Mobilizing innovation for sustainability transitions: A comment on transformative innovation policy. *Research Policy, 47*(9), 1568–1576. https://doi.org/10.1016/j.respol.2018.04.018

Falaster, C. D., & Costa, P. R. da. (2021). Innovation Efforts of Small Businesses in Latin America. REGEPE Entrepreneurship and Small Business Journal, 10(1), Artigo 1. https://doi.org/10.14211/regepe.v10i1.1957

Ferraz Minatogawa, V. L., Vieira Franco, M. M., de Pinto, J. S., & Batocchio, A. (2018). Business model innovation influencing factors: An integrative literature review. *Brazilian Journal of Operations & Production Management, 15*(4), 610–617. https://doi.org/10.14488/BJOPM.2018.v15.n4.a14

Foss, N. J., & Saebi, T. (2015). Business models and business model innovation: Bringing organization into the discussion. In *Business model innovation: The organizational dimension* (pp. 1–23). Oxford University Press. https://doi.org/10.1093/acprof:oso/9780198701873.001.0001

Foss, N. J., & Saebi, T. (2017). Fifteen years of research on business model innovation: How far have we come, and where should we go? *Journal of Management, 43*(1), 200–227. https://doi.org/10.1177/0149206316675927

Foss, N. J., & Saebi, T. (2018). Business models and business model innovation: Between wicked and paradigmatic problems. *Long Range Planning, 51*(1), 9–21. https://doi.org/10.1016/j.lrp.2017.07.006

Francis, D., & Bessant, J. (2005). Targeting innovation and implications for capability development. *Technovation, 25*(3), 171–183.

Funke, A., Wilden, R., & Gudergan, S. (2023). Only senior managers lead business model innovation, or do they? Levels of management and dynamic capability deployment. *Industrial Marketing Management, 114*, 181–195. https://doi.org/10.1016/j.indmarman.2023.08.011

García-Granero, E. M., Piedra-Muñoz, L., & Galdeano-Gómez, E. (2020). Measuring eco-innovation dimensions: The role of environmental corporate culture and commercial orientation. *Research Policy, 49*(8), 104028. https://doi.org/10.1016/j.respol.2020.104028

García-Quevedo, J., Jové-Llopis, E., & Martínez-Ros, E. (2020). Barriers to the circular economy in European small and medium-sized firms. *Business Strategy and the Environment, 29*(6), 2450–2464. https://doi.org/10.1002/bse.2513

García-Sánchez, I. M., Gallego-Álvarez, I., & Zafra-Gómez, J. L. (2021). Do independent, female and specialist directors promote eco-innovation and eco-design in agri-food firms? *Business Strategy and the Environment, 30*(3), 1136–1152. https://doi.org/10.1002/bse.2669

Garr, D. (2000). *IBM redux: Lou Gerstner and the business turnaround of the decade*. HarperCollins.

Garud, R., Tuertscher, P., & van de Ven, A. H. (2013). Perspectives on innovation processes. *Academy of Management Annals, 7*(1), 775–819. https://doi.org/10.5465/19416520.2013.783111

Gault, F. D., & Pattinson, W. (1995). Innovation in service industries: The measurement issues (Voorburg Group Meeting, p. 1–9).

Geissdoerfer, M., Vladimirova, D., & Evans, S. (2018). Sustainable business model innovation: A review. *Journal of Cleaner Production, 198*, 401–416. https://doi.org/10.1016/j.jclepro.2018.06.240

Gerdoçi, B., Busho, N., Lena, D., & Cucculelli, M. (2023). Disentangling the relationship between business model, absorptive capacity, differentiation strategy and performance: Evidence from a transition economy. *European Journal of Innovation Management, 26*(7), 385–414. https://doi.org/10.1108/EJIM-10-2022-0596

Ghisetti, C., Montresor, S., & Vezzani, A. (2021). Design and environmental technologies: Does "green-matching" actually help? *Research Policy, 50*(7), 104208. https://doi.org/10.1016/j.respol.2021.104208

Gibson, C. B., & Birkinshaw, J. (2004). The Antecedents, Consequences, and Mediating Role of Organizational Ambidexterity. The Academy of Management Journal, 47(2), 209–226. https://doi.org/10.2307/20159573

Gomes, L. A. V., Facin, A. L. F., Salerno, M. S., & Ikenami, R. K. (2018). Unpacking the innovation ecosystem construct: Evolution, gaps and trends. *Technological*

Forecasting and Social Change, *136*, 30–48. https://doi.org/10.1016/j.techfore.2016.11.009

Gomes, P. J., & Silva, G. M. (2018). The Value of Supply Network for Product Innovation. *IEEE Engineering Management Review*, *46*(4), 36–45. https://doi.org/10.1109/EMR.2018.2883617

Grégoire-Zawilski, M., & Popp, D. (2024). Do technology standards induce innovation in environmental technologies when coordination is important? *Research Policy*, *53*(2), 104888. https://doi.org/10.1016/j.respol.2023.104888

Guo, H., Guo, A., & Ma, H. (2022). Inside the black box: How business model innovation contributes to digital start-up performance. *Journal of Innovation and Knowledge*, *7*(2), 100188. https://doi.org/10.1016/j.jik.2022.100188

Guo, L., Cao, Y., Qu, Y., & Tseng, M. L. (2022). Developing sustainable business model innovation through stakeholder management and dynamic capability: A longitudinal case study. *Journal of Cleaner Production*, *372*, 133626. https://doi.org/10.1016/j.jclepro.2022.133626

Ha, Y. J. (2021). Attention green aliens? Activities of multinational enterprises in host countries and eco-innovation diffusion. *Journal of Business Research*, *123*, 32–43. https://doi.org/10.1016/j.jbusres.2020.09.061

Hajiheydari, N., Kargar Shouraki, M., Vares, H., & Mohammadian, A. (2023). Digital sustainable business model innovation: Applying dynamic capabilities approach (DSBMI-DC). *Foresight*, *25*(3), 420–447. https://doi.org/10.1108/FS-02-2022-0012

Hamel, G. (2000). *Leading the revolution*. Harvard Business School Press.

Heidenreich, S., Spieth, P., & Petschnig, M. (2017). Ready, steady, green: Examining the effectiveness of external policies to enhance the adoption of eco-friendly innovations. *Journal of Product Innovation Management*, *34*(3), 343–359. https://doi.org/10.1111/jpim.12363

Heider, A., Gerken, M., van Dinther, N., & Hülsbeck, M. (2021). Business model innovation through dynamic capabilities in small and medium enterprises: Evidence from the German Mittelstand. *Journal of Business Research*, *130*, 635–645. https://doi.org/10.1016/j.jbusres.2020.04.051

Henderson, R., & Clark, K. (1990). Architectural innovation: The reconfiguration of existing product technologies and the failure of established firms. *Administrative Science Quarterly*, *35*(1), 9–30.

Heubeck, T., & Meckl, R. (2022). Antecedents to cognitive business model evaluation: A dynamic managerial capabilities perspective. *Review of Managerial Science*, *16*(8), 2441–2466. https://doi.org/10.1007/s11846-021-00503-7

Hock, M., Clauss, T., & Schulz, E. (2016). The impact of organizational culture on a firm's capability to innovate the business model. *R&D Management, 46*(3), 433–450. https://doi.org/10.1111/radm.12153

Hoogendoorn, B., van der Zwan, P., & Thurik, R. (2020). Goal heterogeneity at start-up: Are greener start-ups more innovative? *Research Policy, 49*(6), 104061. https://doi.org/10.1016/j.respol.2020.104061

Hu, J., Pan, X., & Huang, Q. (2020). Quantity or quality? The impacts of environmental regulation on firms' innovation—Quasi-natural experiment based on China's carbon emissions trading pilot. *Technological Forecasting and Social Change, 158*, 120122. https://doi.org/10.1016/j.techfore.2020.120122

Huang, W., & Ichikohji, T. (2022). Do dynamic capabilities facilitate business model innovation in small and medium-sized Chinese family companies? *International Journal of Innovation Management, 26*(6), 22500402. https://doi.org/10.1142/S1363919622500402

Huang, W., & Ichikohji, T. (2023). A review and analysis of the business model innovation literature. *Heliyon, 9*(7), e17895. https://doi.org/10.1016/j.heliyon.2023.e17895

Hwang, B.-N., Lai, Y.-P., & Wang, C. (2023). Open innovation and organizational ambidexterity. *European Journal of Innovation Management, 26*(3), 862–884. https://doi.org/10.1108/EJIM-06-2021-0303

Iles, A., & Martin, A. N. (2013). Expanding bioplastics production: Sustainable business innovation in the chemical industry. *Journal of Cleaner Production, 45*, 38–49. https://doi.org/10.1016/j.jclepro.2012.05.008

Inigo, E. A., Albareda, L., & Ritala, P. (2017). Business model innovation for sustainability: Exploring evolutionary and radical approaches through dynamic capabilities. *Industry and Innovation, 24*(5), 515–542. https://doi.org/10.1080/13662716.2017.1310034

Jansen, J. J. P., Van Den Bosch, F. A. J., & Volberda, H. W. (2006). Exploratory Innovation, Exploitative Innovation, and Performance: Effects of Organizational Antecedents and Environmental Moderators. *Management Science, 52*(11), 1661–1674. https://doi.org/10.1287/mnsc.1060.0576

Jorzik, P., Klein, S. P., Kanbach, D. K., & Kraus, S. (2024). AI-driven business model innovation: A systematic review and research agenda. *Journal of Business Research, 182*, 114764. https://doi.org/10.1016/j.jbusres.2024.114764

Jové-Llopis, E., & Segarra-Blasco, A. (2020). Why does eco-innovation differ in service firms? Some insights from Spain. *Business Strategy and the Environment, 29*(5), 918–938. https://doi.org/10.1002/bse.2402

Junni, P., Sarala, R. M., Taras, V., & Tarba, S. Y. (2013). Organizational Ambidexterity and Performance: A Meta-Analysis. *Academy of Management Perspectives*, *27*(4), 299–312.

Kafetzopoulos, D., Samara, E. T., & Theodorakioglou, Y. (2023). Multiple organizational capabilities for effective business model innovation and increased performance. *European Journal of Innovation Management*. https://doi.org/10.1108/EJIM-01-2023-0065

Kanbach, D. K., Heiduk, L., Blueher, G., Schreiter, M., & Lahmann, A. (2023). The GenAI is out of the bottle: Generative artificial intelligence from a business model innovation perspective. *Review of Managerial Science*. https://doi.org/10.1007/s11846-023-00696

Kao, P. J., Dacko, S., & Hu, Y. (2026). Unraveling the complexity of radical service innovation: A systematic review, integrative framework, and research roadmap. Journal of Business Research, 202, 115754.

Kariv, D., Krueger, N., Kashy, G., & Cisneros, L. (2024). Process innovation is technology transfer too! How entrepreneurial businesses manage product and process innovation. *The Journal of Technology Transfer*, *49*(5), 1762–1786. https://doi.org/10.1007/s10961-023-10061-7

Kawai, N., Strange, R., & Zucchella, A. (2018). Stakeholder pressures, EMS implementation, and green innovation in MNC overseas subsidiaries. *International Business Review, 27*(5), 933–946. https://doi.org/10.1016/j.ibusrev.2018.02.004

Khin, S., & Ho, T. C. (2018). Digital technology, digital capability and organizational performance: A mediating role of digital innovation. *International Journal of Innovation Science, 11*(2), 177–195. https://doi.org/10.1108/IJIS-08-2018-0083

Khosravi, P., Newton, C., & Rezvani, A. (2019). Management innovation: A systematic review and meta-analysis of past decades of research. *European Management Journal*, *37*(6), 694–707. https://doi.org/10.1016/j.emj.2019.03.003

Kim, W., & Mauborgne, R. (2005). *Blue ocean strategy: How to create uncontested market space and make the competition irrelevant*. Harvard Business School Press. Tidd, J., & Hull, F. (Eds.). (2003). *Service innovation: Organizational responses to technological opportunities and market imperatives*. Imperial College Press.

Kim, Y. (2015). Environmental, sustainable behaviors and innovation of firms during the financial crisis. *Business Strategy and the Environment, 24*(1), 58–72. https://doi.org/10.1002/bse.1819

Klewitz, J., & Hansen, E. G. (2014). Sustainability-oriented innovation of SMEs: A systematic review. *Journal of Cleaner Production, 65*, 57–75. https://doi.org/10.1016/j.jclepro.2013.07.017

Kulakli, A., & Arikan, C. L. (2023). Research trends of the Internet of Things in relation to business model innovation: Results from co-word and content analyses. *Future Internet, 15*(2), 81. https://doi.org/10.3390/fi15020081

Lakshman, C., & Gonzalez, J. (2023). From TMT multiculturalism to strategic agility: Business model innovation in MNEs. *Multinational Business Review, 31*(2), 157–175. https://doi.org/10.1108/MBR-02-2022-0030

Laurensia, L., Amna, L. S., & Aminah, A. (2024). Fintech, MSME Digitalization, Financial Literacy and Financial Performance: A Study on MSMEs in Bandar Lampung City. International Journal of Economics, Business and Innovation Research, 3(02), Artigo 02. https://doi.org/10.63922/ijebir.v3i02.737

Leih, S., Linden, G., & Teece, D. J. (2015). Business model innovation and organizational design: A dynamic capabilities perspective. In *Business model innovation: The organizational dimension* (pp. 24–42). Oxford University Press. https://doi.org/10.1093/acprof:oso/9780198701873.003.0002

Liao, S., Liu, Z., & Ma, C. (2019). Direct and configurational paths of open innovation and organizational agility to business model innovation in SMEs. *Technology Analysis and Strategic Management, 31*(10), 1213–1228. https://doi.org/10.1080/09537325.2019.1601693

Liao, S., Liu, Z., Fu, L., & Ye, P. (2019). Investigate the role of distributed leadership and strategic flexibility in fostering business model innovation. *Chinese Management Studies, 13*(1), 93–112. https://doi.org/10.1108/CMS-02-2018-0420

Lin, H.-E., & McDonough III, E. F. (2011). Investigating the Role of Leadership and Organizational Culture in Fostering Innovation Ambidexterity. IEEE Transactions on Engineering Management, 58(3), 497–509. https://doi.org/10.1109/TEM.2010.2092781

Liu, Y., & Yu, Y. (2021). Business model adaptation of small and medium-sized information technology firms: The role of dynamic capabilities. *Journal of Global Information Management, 29*(6), 1–22. https://doi.org/10.4018/JGIM.20211101.oa1

López Pérez, G., García Sánchez, I. M., & Zafra Gómez, J. L. (2024). A systematic literature review and bibliometric analysis of eco-innovation on financial performance: Identifying barriers and drivers. Business Strategy and the Environment, 33(2), 1321–1340. https://doi.org/10.1002/bse.3550

Maclean, M., Harvey, C., Golant, B. D., & Sillince, J. A. (2021). The role of innovation narratives in accomplishing organizational ambidexterity. *Strategic Organization, 19*(4), 693–721. https://doi.org/10.1177/1476127019897234

Magro, E., & Wilson, J. R. (2019). Policy-mix evaluation: Governance challenges from new place-based innovation policies. *Research Policy, 48*(1), 103612. https://doi.org/10.1016/j.respol.2018.10.026

Malik, A., Pereira, V., Budhwar, P., Varma, A., & Del Giudice, M. (2022). Sustainable innovations in an indigenous Indian Ayurvedic MNE. *Journal of Business Research, 145*, 402–413. https://doi.org/10.1016/j.jbusres.2022.03.009

Malik, A., Sharma, P., Kingshott, R., & Laker, B. (2022). Leveraging cultural and relational capabilities for business model innovation: The case of a digital media EMMNE. *Journal of Business Research, 149*, 270–282. https://doi.org/10.1016/j.jbusres.2022.05.004

Marín-García, A., Gil-Saura, I., & Ruiz-Molina, M. E. (2021). Understanding innovativeness and commitment to sustainable service practices. *Journal of Services Marketing, 35*(8), 1092–1103. https://doi.org/10.1108/JSM-02-2020-0089

Martínez-Martínez, A., Cegarra-Navarro, J. G., Garcia-Perez, A., & De Valon, T. (2023). Active listening to customers: Eco-innovation through value co-creation in the textile industry. *Journal of Knowledge Management, 27*(7), 1810–1829. https://doi.org/10.1108/JKM-09-2022-0747

Martins, L. L., Rindova, V. P., & Greenbaum, B. E. (2015). Unlocking the hidden value of concepts: A cognitive approach to business model innovation. *Strategic Entrepreneurship Journal, 9*(1), 99–117. https://doi.org/10.1002/sej.1191

Marxt, C., & and Hacklin, F. (2005). Design, product development, innovation: All the same in the end? A short discussion on terminology. *Journal of Engineering Design, 16*(4), 413–421. https://doi.org/10.1080/09544820500131169

Matarazzo, M., Penco, L., Profumo, G., & Quaglia, R. (2021). Digital transformation and customer value creation in Made in Italy SMEs: A dynamic capabilities perspective. *Journal of Business Research, 123*, 642–656. https://doi.org/10.1016/j.jbusres.2020.10.033

McGrath, R. G. (2010). Business models: A discovery-driven approach. *Long Range Planning, 43*(2–3), 247–261. https://doi.org/10.1016/j.lrp.2009.07.005

Mezger, F. (2014). Toward a capability-based conceptualization of business model innovation: Insights from an explorative study. *R&D Management, 44*(5), 429–449. https://doi.org/10.1111/radm.12076

Mihailova, I. (2023). Business model adaptation for realized international scaling of born-digitals. *Journal of World Business, 58*(2), 101418. https://doi.org/10.1016/j.jwb.2022.101418

Miles, M. B., Huberman, A. M., & Saldana, J. (2014). *Qualitative data analysis*. Sage.

Minatogawa, V. L. F., Franco, M. M. V., Pinto, J. D. S., & Batocchio, A. (2018). Business model innovation influencing factors: An integrative literature review. *Brazilian Journal of Operations & Production Management, 15*(4), 610–617. https://doi.org/10.14488/bjopm.2018.v15.n4.a14

Mom, T. J. M., Chang, Y.-Y., Cholakova, M., & Jansen, J. J. P. (2019). A Multilevel Integrated Framework of Firm HR Practices, Individual Ambidexterity, and Organizational Ambidexterity. *Journal of Management*, *45*(7), 3009–3034. https://doi.org/10.1177/0149206318776775

Montobbio, F., & Solito, I. (2018). Does the eco-management and audit scheme foster innovation in European firms? *Business Strategy and the Environment*, *27*(1), 82–99. https://doi.org/10.1002/bse.1985

Muhic, M., & Bengtsson, L. (2021). Dynamic capabilities triggered by cloud sourcing: A stage-based model of business model innovation. *Review of Managerial Science*, *15*(1), 33–54. https://doi.org/10.1007/s11846-019-00372-1

Nosella, A., Cantarello, S., & Filippini, R. (2012). The intellectual structure of organizational ambidexterity: A bibliographic investigation into the state of the art. Strategic Organization, 10(4), 450–465. https://doi.org/10.1177/1476127012457979

Nosratabadi, S., Mosavi, A., Shamshirband, S., Zavadskas, E. K., Rakotonirainy, A., & Chau, K. W. (2019). Sustainable business models: A review. *Sustainability*, *11*(6), 1663. https://doi.org/10.3390/su11061663

O'Reilly III, C. A., & Tushman, M. L. (2004). The ambidextrous organization. *Harvard Business Review*, *82*(4), 74–81, 140.

OECD/ Eurostat. (2005). *Oslo Manual: Guidelines for Collecting and Interpreting Innovation Data* (No. 3rd Edition; The Measurement of Scientific and Technological Activities, p. 164). OECD and Eurostat. https://doi.org/10.1787/9789264063525-en

OECD/Eurostat. (2018). *Oslo Manual 2018: Guidelines for Collecting, Reporting and Using Data on Innovation* (No. 4th Edition; The Measurement of Scientific, Technological and Innovation Activities, p. 258). OECD and Eurostat. https://doi.org/10.1787/9789264304604-en.

Oliveira-Dias, D., Kneipp, J. M., Bichueti, R. S., & Gomes, C. M. (2022). Fostering business model innovation for sustainability: A dynamic capabilities perspective. *Management Decision*, *60*(13), 105–129. https://doi.org/10.1108/MD-05-2021-0590

Ordover, J. A., & Willig, R. D. (1981). An Economic Definition of Predation: Pricing and Product Innovation. *The Yale Law Journal*, *91*(1), 8–53. https://doi.org/10.2307/795848

Pan, L., Xu, Z., & Skare, M. (2023). Sustainable business model innovation literature: A bibliometrics analysis. *Review of Managerial Science*, *17*(3), 757–785. https://doi.org/10.1007/s11846-022-00548-2

Pang, C., Wang, Q., & Wu, S. (2022). Influence of dynamic capabilities on novelty-centered business model design: A moderated mediating effect analysis. *European Journal of Innovation Management*. https://doi.org/10.1108/EJIM-09-2021-0465

Parmigiani, A., Irwin, J., & Lahneman, B. (2022). Building greener motorhomes: How dual-purpose technical and relational capabilities affect component and full product innovation. *Strategic Management Journal, 43*(6), 1110–1140. https://doi.org/10.1002/smj.3335

Przychodzen, W., Przychodzen, J., & Lerner, D. A. (2016). Critical factors for transforming creativity into sustainability. *Journal of Cleaner Production, 135*, 1514–1523. https://doi.org/10.1016/j.jclepro.2016.06.015

Qi, G. Y., Shen, L. Y., Zeng, S. X., & Jorge, O. J. (2010). The drivers for contractors' green innovation: An industry perspective. *Journal of Cleaner Production, 18*(14), 1358–1365. https://doi.org/10.1016/j.jclepro.2010.04.017

Rabetino, R., Kohtamäki, M., Foss, N. J., Rahman, N., & Huikkola, T. (2025). Microfoundations for business model innovation: Exploring the interplay between individuals, practices, and organizational design. *Journal of Product Innovation Management*. https://doi.org/10.1111/jpim.12784

Raisch, S., & Birkinshaw, J. (2008). Organizational Ambidexterity: Antecedents, Outcomes, and Moderators. Journal of Management, 34(3), 375–409. https://doi.org/10.1177/0149206308316058

Raisch, S., Birkinshaw, J., Probst, G., & Tushman, M. L. (2009). Organizational Ambidexterity: Balancing Exploitation and Exploration for Sustained Performance. *Organization Science, 20*(4), 685–695. https://doi.org/doi 10.1287/orsc.1090.0428

Randhawa, K., Wilden, R., & Gudergan, S. (2021). How to innovate toward an ambidextrous business model? The role of dynamic capabilities and market orientation. *Journal of Business Research, 130*, 618–634. https://doi.org/10.1016/j.jbusres.2020.05.046

Real, K., & Poole, M. S. (2005). Innovation implementation: Conceptualization and measurement in organizational research. In R. W. Woodman & W. A. Pasmore (Eds.), *Research in organizational change and development* (Vol. 15, pp. 63–134). Elsevier.

Reguia, C. (2014). Product Innovation and the Competitive Advantage. *European Scientific Journal, 1*, 140–157. https://doi.org/10.19044/esj.2014.v10n10p%p

Reim, W., Åström, J., & Eriksson, O. (2020). Implementation of artificial intelligence (AI): A roadmap for business model innovation. *AI, 1*(2), 11. https://doi.org/10.3390/ai1020011

Rennings, K. (2000). Redefining innovation—Eco-innovation research and the contribution from ecological economics. *Ecological Economics, 32*(2), 319–332. https://doi.org/10.1016/S0921-8009(99)00112-3

Reyes-Santiago, M. d. R., Sánchez-Medina, P. S., & Díaz-Pichardo, R. (2017). Eco-innovation and organizational culture in the hotel industry. *International Journal of Hospitality Management, 65*, 71–80. https://doi.org/10.1016/j.ijhm.2017.06.001

Rogge, K. S., & Schleich, J. (2018). Do policy mix characteristics matter for low-carbon innovation? A survey-based exploration of renewable power generation technologies in Germany. *Research Policy, 47*(9), 1639–1654. https://doi.org/10.1016/j.respol.2018.05.002

Rothwell, R. (1992). Successful industrial innovation: Critical success factors for the 1990s. *R&D Management, 22*(3), 221–239.
Van de Ven, A. (1999). *The innovation journey*. Oxford University Press.

Ruiz-Castillo, M., Aragón-Correa, J. A., & Hurtado-Torres, N. E. (2024). Independent directors and environmental innovations: How the visibility of public and private shareholders' environmental activism moderates the influence of board independence. *Business Strategy and the Environment, 33*(3), 424–440. https://doi.org/10.1002/bse.3456

Sahebalzamani, S., Jørgensen, E. J. B., Bertella, G., & Nilsen, E. R. (2023). A dynamic capabilities approach to business model innovation in times of crisis. *Tourism Planning and Development, 20*(2), 138–161. https://doi.org/10.1080/21568316.2022.2107560

Santa-Maria, T., Vermeulen, W. J. V., & Baumgartner, R. J. (2022). How do incumbent firms innovate their business models for the circular economy? Identifying micro-foundations of dynamic capabilities. *Business Strategy and the Environment, 31*(4), 1308–1333. https://doi.org/10.1002/bse.2956

Saunders, M. (2009). *Research methods for business students*. Person Education Limited.

Schaffer, N., Hermes, S., Weking, J., Hein, A., & Krcmar, H. (2022). Continuous business model innovation and dynamic capabilities: The case of CEWE. *International Journal of Innovation Management, 26*(6), 22500384. https://doi.org/10.1142/S1363919622500384

Schmidt, A. L., & Scaringella, L. (2020). Uncovering disruptors' business model innovation activities: Evidencing the relationships between dynamic capabilities and value proposition innovation. *Journal of Engineering and Technology Management, 57*, 101589. https://doi.org/10.1016/j.jengtecman.2020.101589

Schoemaker, P. J. H., Heaton, S., & Teece, D. (2018). Innovation, dynamic capabilities, and leadership. *California Management Review, 61*(1), 15–42. https://doi.org/10.1177/0008125618790246

Schroedel, S. (2023). The sustainable business model database: 92 patterns that enable sustainability in business model innovation. *Sustainability*, *15*(10), 8081. https://doi.org/10.3390/su15108081

Shahzad, M., Qu, Y., Zafar, A. U., & Appolloni, A. (2021). Does the interaction between the knowledge management process and sustainable development practices boost corporate green innovation? *Business Strategy and the Environment, 30*(8), 4206–4222. https://doi.org/10.1002/bse.2857

Shin, J., Kim, Y. J., Jung, S., & Kim, C. (2022). Product and service innovation: Comparison between performance and efficiency. *Journal of Innovation & Knowledge, 7*(3), 1–11. https://doi.org/10.1016/j.jik.2022.100191

Sihvonen, S., & Partanen, J. (2016). Implementing environmental considerations within product development practices: A survey on employees' perspectives. *Journal of Cleaner Production, 125*, 189–203. https://doi.org/10.1016/j.jclepro.2016.03.023

Simsek, Z., Heavey, C., Veiga, J. F., & Souder, D. (2009). A Typology for Aligning Organizational Ambidexterity's Conceptualizations, Antecedents, and Outcomes. Journal of Management Studies, 46(5), 864–894. https://doi.org/10.1111/j.1467-6486.2009.00841.x

Sinkovics, N., Gunaratne, D., Sinkovics, R. R., & Molina-Castillo, F.-J. (2021). Sustainable business model innovation: An umbrella review. *Sustainability, 13*(13), 7266. https://doi.org/10.3390/su13137266

Soluk, J., Miroshnychenko, I., Kammerlander, N., & De Massis, A. (2021). Family influence and digital business model innovation: The enabling role of dynamic capabilities. *Entrepreneurship Theory and Practice, 45*(4), 867–905. https://doi.org/10.1177/1042258720929891

Sosna, M., Trevinyo-Rodríguez, R. N., & Velamuri, S. R. (2010). Business model innovation through trial-and-error learning: The Naturhouse case. *Long Range Planning, 43*(2–3), 383–407. https://doi.org/10.1016/j.lrp.2010.02.003

Stalmokaitė, I., Larsson Segerlind, T., & Yliskylä-Peuralahti, J. (2023). Revival of wind-powered shipping: Comparing the early-stage innovation process of an incumbent and a newcomer firm. *Business Strategy and the Environment, 32*(2), 958–975. https://doi.org/10.1002/bse.3084

Stryja, C., & Satzger, G. (2019). Digital nudging to overcome cognitive resistance in innovation adoption decisions. *The Service Industries Journal, 39*(15–16), 1123–1139. https://doi.org/10.1080/02642069.2018.1472245

Tahavori, M., & Bayanati, M. (2024). The effect of business intelligence, organizational learning and innovation on the financial performance of Mino Industrial Group. *Journal of Data and Computer Science Innovation, 1*(1), 1–19.

Takalo, S. K., Tooranloo, H. S., & Parizi, Z. S. (2021). Green innovation: A systematic literature review. *Journal of Cleaner Production, 279*, 122474. https://doi.org/10.1016/j.jclepro.2020.122474

Teece, D. J. (2007). Explicating dynamic capabilities: The nature and microfoundations of (sustainable) enterprise performance. *Strategic Management Journal*, *28*(13), 1319–1350. https://doi.org/10.1002/smj.640

Teece, D. J. (2010). Business models, business strategy and innovation. *Long Range Planning*, *43*(2–3), 172–194. https://doi.org/10.1016/j.lrp.2009.07.003

Teece, D. J. (2012). Dynamic capabilities: Routines versus entrepreneurial action. *Journal of Management Studies*, *49*(8), 1395–1401. https://doi.org/10.1111/j.1467-6486.2012.01080.x

Teece, D. J. (2018). Business models and dynamic capabilities. *Long Range Planning*, *51*(1), 40–49. https://doi.org/10.1016/j.lrp.2017.06.007

Teece, D. J., & Linden, G. (2017). Business models, value capture, and the digital enterprise. *Journal of Organization Design*, *6*(1), 8. https://doi.org/10.1186/s41469-017-0018-x

Teece, D. J., Pisano, G., & Shuen, A. (1997). Dynamic capabilities and strategic management. *Strategic Management Journal*, *18*(7), 509–533. https://doi.org/10.1002/(SICI)1097-0266(199708)18:73.0.CO;2-Z

Tian, H., Siddik, A. B., Pertheban, T. R., & Rahman, M. N. (2023). Does fintech innovation and green transformational leadership improve green innovation and corporate environmental performance? A hybrid SEM–ANN approach. *Journal of Innovation and Knowledge*, *8*(1), 100396. https://doi.org/10.1016/j.jik.2023.100396

Trischler, M. F. G., & Li-Ying, J. (2023). Digital business model innovation: Toward construct clarity and future research directions. *Review of Managerial Science*, *17*(1), 3–32. https://doi.org/10.1007/s11846-021-00508-2

Tsai, K. H., & Liao, Y. C. (2017). Innovation capacity and the implementation of eco-innovation: Toward a contingency perspective. *Business Strategy and the Environment*, *26*(8), 1000–1013. https://doi.org/10.1002/bse.1978

Tushman, M. L., & O'Reilly III, C. A. (1996). Ambidextrous Organizations: Managing Evolutionary and Revolutionary Change. *California Management Review*, *38*(4), 8–29. https://doi.org/10.2307/41165852

Tutar, H., Nart, S., & Bingöl, D. (2015). The Effects of Strategic Orientations on Innovation Capabilities and Market Performance: The Case of ASEM. *Procedia - Social and Behavioral Sciences*, *207*, 709–719. https://doi.org/10.1016/j.sbspro.2015.10.144

Utterback, J. (1994). *Mastering the dynamics of innovation*. Harvard Business School Press.

Von Stamm, B. (2003). *The innovation wave*. John Wiley & Sons. Jones, D., Womack, J., & Rawson Associates. (1991). *The machine that changed the world*. HarperCollins.

van Eechoud, T., & Ganzaroli, A. (2023). Exploring the role of dynamic capabilities in digital circular business model innovation: Results from a grounded systematic inductive analysis of seven case studies. *Journal of Cleaner Production, 401*, 136665. https://doi.org/10.1016/j.jclepro.2023.136665

Van Looy, A. (2021). A quantitative and qualitative study of the link between business process management and digital innovation. *Information & Management*, *58*(2), 103413. https://doi.org/10.1016/j.im.2020.103413

Vaska, S., Massaro, M., Bagarotto, E. M., & Dal Mas, F. (2021). The digital transformation of business model innovation: A structured literature review. *Frontiers in Psychology*, *11*, 539363. https://doi.org/10.3389/fpsyg.2020.539363

Velu, C. (2017). A systems perspective on business model evolution: The case of an agricultural information service provider in India. *Long Range Planning*, *50*(5), 603–620. https://doi.org/10.1016/j.lrp.2016.10.003

Wang, C., Chen, M., Wang, Q., & Fang, Y. (2023). The study of value network reconstruction and business model innovation driven by entrepreneurial orientation. *International Entrepreneurship and Management Journal*, *19*(4), 2013–2036. https://doi.org/10.1007/s11365-023-00869-y

Wang, Y., Yi, Y., & Wei, Z. (2023). Top management team internal social capital, market dynamics and business model design: A dynamic managerial capability perspective. *Management Decision*, *61*(1), 97–119. https://doi.org/10.1108/MD-08-2021-1057

Weimann, V., Gerken, M., & Hülsbeck, M. (2020). Business model innovation in family firms: Dynamic capabilities and the moderating role of socioemotional wealth. *Journal of Business Economics*, *90*(3), 369–399. https://doi.org/10.1007/s11573-019-00958-x

Wirtz, B. W., Pistoia, A., Ullrich, S., & Göttel, V. (2016). Business models: Origin, development and future research perspectives. *Long Range Planning*, *49*(1), 36–54. https://doi.org/10.1016/j.lrp.2015.04.001

Witschel, D., Döhla, A., Kaiser, M., Voigt, K. I., & Pfletschinger, T. (2019). Riding on the wave of digitization: Insights how and under what settings dynamic capabilities facilitate digital-driven business model change. *Journal of Business Economics*, *89*(8–9), 1023–1095. https://doi.org/10.1007/s11573-019-00950-5

Xiao, H., Yang, Z., & Hu, Y. (2021). Influencing mechanism of strategic flexibility on corporate performance: The mediating role of business model innovation. *Asia Pacific Business Review*, *27*(3), 470–492. https://doi.org/10.1080/13602381.2021.1896256

Xie, X., Wu, Y., Xie, P., Yu, X., & Wang, H. (2019). Organizational innovation culture and firms' new product performance in two emerging markets: The moderating

effects of institutional environments and organizational cohesion. *Journal of Management & Organization*, *27*(5), 972–991. https://doi.org/10.1017/jmo.2019.8

Xu, Y., & Zhu, N. (2024). The Effect of Environmental, Social, and Governance (ESG) Performance on Corporate Financial Performance in China: Based on the Perspective of Innovation and Financial Constraints. *Sustainability*, *16*(8), Artigo 8. https://doi.org/10.3390/su16083329

Zimmermann, A., Raisch, S., & Cardinal, L. B. (2018). Managing Persistent Tensions on the Frontline: A Configurational Perspective on Ambidexterity. *Journal of Management Studies*, *55*(5), 739–769. https://doi.org/10.1111/joms.12311

Zuniga, P., & Crespi, G. (2013). Innovation strategies and employment in Latin American firms. *Structural Change and Economic Dynamics*, *24*, 1–17. https://doi.org/10.1016/j.strueco.2012.11.001

Authors' Contribution

All authors contributed equally to the development of this article.

Data availability

All datasets relevant to this study's findings are fully available within the article.

How to cite this article (APA)

Dias, M. de O., & Lopes, R. de O. A. (2026). INNOVATION AT THE CORE OF COMPETITIVE ADVANTAGE: A THEMATIC EXPLORATION OF EMERGING ORGANIZATIONAL PATHWAYS. *Veredas Do Direito*, 23(6), e235771. https://doi.org/10.18623/rvd.v23.5771