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Unpacking disruptive innovation: Key insights and strategies for competitive advantage

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ABSTRACT

Disruptive innovation plays a decisive role in business success, yet its practical implementation remains underexplored. Despite extensive theoretical work, a persistent gap exists between understanding the concept and applying it effectively within organizations. This systematic literature review analyzes 50 high-impact articles published since 2000 to identify best practices and barriers to implementing disruptive innovation, with particular attention to the role of open innovation as a catalyst. Findings show that adopting innovative, often collaboratively developed business models reduced market-entry barriers in 68 % of the cases studied. Open innovation practices—such as external partnerships, co-creation with customers, and digital platform collaboration—emerged as critical enablers, alongside organizational culture and customer engagement. Key obstacles include incumbent resistance, rigid performance metrics, and resource allocation constraints. The study contributes theoretically by clarifying conceptual boundaries between disruptive and open innovation, and empirically by offering an actionable framework for leveraging open innovation to foster disruptive change in dynamic markets. These findings provide evidence-based guidance for managers, policymakers, and researchers seeking to translate innovation theory into sustainable competitive advantage.

1. Introduction

Disruptive innovation is one technological innovation that has been crucial to business success. It represents an effective yet different way of developing new markets and offering new services/products (O'Reilly III and Tushman, 2004). This type of innovation challenges the status quo of an industry by providing simpler, higher-quality solutions to a group of customers (Kitchin, 2014). In fact, the future success of any company depends on its ability to innovate; without innovation, failure is almost inevitable, as it becomes more difficult for the company to keep up with competitors in its market (Guttentag, 2015).

Disruptive innovation research has evolved significantly over the years, encompassing various dimensions and implications. Initially, disruptive innovation was primarily associated with technological change frameworks, focusing on low-end and new-market disruptions (Liu et al., 2020). However, more recent studies have broadened the scope to encompass high-end disruptive innovations, such as the replacement of film cameras by digital cameras and video recorders by digital versatile disks (Liu et al., 2020). This broader perspective acknowledges that disruptive innovation is not limited to specific market segments, but can occur across various industries and technologies.

Studies have emphasised the importance of understanding the antecedents and implications of disruptive innovation (Wan et al., 2015). Organisational preconditions play a crucial role in fostering disruptive innovation, emphasising the need to explore response strategies, performance trajectories and innovation metrics in order to guide future research (Christensen et al., 2018). Furthermore, disruptive innovation has been linked to firm performance. Research indicates that it encourages standardised production processes, reducing research and development time and facilitating rapid product launches (Wang et al., 2021).

The evolution of disruptive innovation theory has been traced from its intellectual origins to its current status as a causal theory of innovation and competitive response (Christensen et al., 2017). This

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evolution has been driven by anomaly-seeking research and a shift towards a broader view of innovation processes. Furthermore, disruptive innovation has been recognised as a strategic tool enabling firms to achieve sustainable competitiveness, underscoring the importance of integrating it into business models (Taneo et al., 2019).

Disruptive innovation is associated with market dynamics whereby the adoption of new technologies by consumers leads to market disruption (Montgomery et al., 2018). When disruptive innovations reach a level of performance that consumers deem to be 'good enough', a shift towards these innovations occurs, challenging existing market structures and creating new opportunities for new market entrants.

Disruptive innovation research has evolved from a narrow focus on technology-driven disruptions to a broader perspective encompassing various industries, response strategies and performance implications. Understanding the antecedents, implications and evolution of disruptive innovation is crucial for firms seeking to leverage innovation as a strategic tool for achieving sustainable competitiveness and market disruption.

Disruptive innovation is a topic of considerable interest and debate in academia and industry. It refers to the introduction of a new product, service or technology that creates a new market and eventually displaces established market leaders (AISDL, 2022). It is characterised by its ability to create a new market by offering an alternative set of values that eventually overtake those of the existing market (Finch et al., 2023). Disruptive innovations can be technology-enabled or -driven, and typically offer limited performance initially, gradually improving over time (Montgomery et al., 2018).

One area of focus in the study of disruptive innovation is the role of platform-based ecosystems. Traditional disruptive innovation theory has primarily focused on the characteristics and value of end users, neglecting the broader interdependencies within the ecosystem of complementary providers. However, recent research has extended the theory to the context of platform-based ecosystems, emphasising the importance of disaffected technology complements as a key source of disruption. Intergenerational platform-technology transitions have been studied as an example of disruptive innovation at the ecosystem level (Ozalp et al., 2018).

The healthcare industry has also been the subject of disruptive innovation research. Many hospital systems face the challenge of disruptive innovation when introducing new technology, as this can create a new market and potentially render existing ones obsolete. However, not all technological advances in healthcare can be considered disruptive innovations, as disruptive innovation involves more than just technological advances (Finch et al., 2023).

Government policies, particularly those related to green development, can influence firms' behaviour with regard to disruptive innovation. Studies have found that local government green development policies influence the disruptive innovation behaviour of firms, particularly in the manufacturing sector. Start-ups, in particular, are more likely to engage in disruptive innovation after a green or sustainable development policy is announced by the local government (Xu et al., 2022). Disruptive innovation has also been studied in the context of trade and internationalisation. The spread of disruptive innovation practices, enabled by digital technologies, has significantly altered the manner in which small and medium-sized enterprises (SMEs) innovate and compete within the retail sector. Disruptive innovation provides latecomers with an important way to catch up with advanced incumbents and expand their international market presence (Liu and Si, 2022).

Healthcare and manufacturing are referenced here as illustrative cases, given their contrasting characteristics—healthcare as a highly regulated, service-driven sector and manufacturing as a production-based, digitally transforming industry. Highlighting these examples underscores that barriers to disruptive innovation are not confined to one type of industry but are cross-sectoral in nature.

In terms of research methodology, efforts have been made to clarify the concept of disruptive innovation and address common misconceptions (Guo et al., 2023). Bibliometric analyses have mapped the structure and evolution of disruptive innovation research, providing insights into the field's current state and influential trends (Shang et al., 2019). Disruptive innovation is a complex and evolving field of study. Spanning multiple industries and contexts, researchers continue to explore its theoretical underpinnings, practical implications, and potential societal impact. However, one of the biggest concerns regarding disruptive innovation is how organisations can implement it, given that data is often generated after the innovation has already occurred within the organisation. There are indeed some common misconceptions about disruptive innovation. Key research issues include: 1) clarifying the concept and preventing possible misinterpretations; 2) identifying factors within firms that may prevent them from creating disruptive innovations; and 3) identifying possible changes that would help firms implement disruptive innovations.

Despite the extensive scholarship on disruptive innovation since Christensen's seminal work, the literature reveals a persistent theoretical–practical gap. While many studies elaborate conceptual models of disruption, far fewer examine the inhibitors that prevent organizations from translating these models into practice. For example, Assink (2006) emphasizes how entrenched mental models obstruct disruptive capabilities, whereas Das et al. (2018) identify cultural risk aversion as a core inhibitor within financial services. However, these insights are often treated in isolation rather than as part of a coherent framework. Similarly, industry-specific studies highlight barriers across healthcare (Newton et al., 2020), manufacturing (Roblek et al., 2021), and medical services (Lai et al., 2024), yet remain siloed, limiting the development of generalizable insights. Moreover, empirical research shows how knowledge embeddedness (Lin et al., 2018) and industrial cluster inertia (Chen et al., 2022) constrain innovation, but these findings are rarely connected to broader organizational strategies for bridging the theory–practice divide. This fragmentation underscores a critical gap in the literature: although inhibitors of disruptive innovation are recognized across contexts, there is insufficient integration of these findings into a holistic understanding of how organizations can overcome them. Addressing this gap, this paper seeks to synthesize diverse perspectives and propose a structured framework for aligning disruptive innovation theory with organizational practice.

To address this gap, the present study systematically examines 50 key scholarly contributions on disruptive innovation, synthesizing insights across different sectors and perspectives. By concentrating on these representative studies, the paper seeks to provide a consolidated framework that bridges the divide between theory and practice.

1.1. Justification and expected contributions

Disruptive innovation is widely recognized as a driver of business success, yet the persistent gap between theory and practical application leaves organizations without clear guidance on how to implement it effectively. This gap is compounded by the predominance of retrospective analyses and generalized frameworks that do not account for industry-specific challenges or organizational resistance. Addressing this disconnect is essential for enabling firms to harness disruptive innovation for sustainable competitive advantage.

This study makes three primary contributions:

1. Theoretical contribution – Clarifies the conceptual boundaries of disruptive innovation by synthesizing definitions, mechanisms, and enabling conditions from 50 high-impact studies.
2. Practical contribution – Develops an actionable framework of best practices and barriers that managers can use to navigate the adoption of disruptive innovation in diverse contexts.
3. Policy contribution – Provides insights for policymakers to design supportive regulatory environments and incentives that foster innovation without stifling competition.

1.2. Research objectives

The primary objective of this study is to demystify the concept of disruptive innovation and provide a clear, evidence-based roadmap for organizations to implement it successfully. Specifically, the study aims to:

1. Identify and categorize best practices that facilitate the adoption of disruptive innovation.
2. Examine the main barriers organizations face when attempting to implement disruptive innovation.

1.3. Research questions

This study addresses the following key research questions:

1. RQ1 – What are the best practices for implementing disruptive innovation within organizations?
2. RQ2 – What barriers do organizations encounter when attempting to implement disruptive innovation?
3. RQ3 – How do organizational capabilities and strategies influence the successful adoption of disruptive innovation?

The research addresses the ambiguity surrounding the concept of disruptive innovation by providing a nuanced definition, derived from a systematic review of the literature. This clarification is vital for academics and practitioners alike, as it enables them to develop a shared understanding of what constitutes disruptive innovation and how it differs from other forms of innovation. By synthesising insights from a broad range of studies, the research identifies critical best practices for implementing disruptive innovation. These include adopting new business models to accommodate market shifts, fostering an organisational culture conducive to innovation and strategically integrating digital transformation efforts. These best practices serve as valuable guidelines for organisations looking to leverage disruptive innovation for a competitive advantage.

The study also sheds light on the many barriers that organisations face when adopting disruptive innovations, ranging from internal resistance and organisational inertia to external challenges such as regulatory hurdles and market dynamics. Understanding these barriers is crucial for developing effective strategies to overcome them. Beyond its academic contributions, the research provides practical insights for business leaders and policymakers. By grasping the pathways to successful innovation implementation and the obstacles that may impede progress, organisations can navigate the complexities of disruption in their industries more effectively. Finally, the study highlights the need for further research in this area, particularly in developing more nuanced frameworks for understanding the conditions under which disruptive innovations can succeed or fail. This paves the way for future studies to build on the work presented here.

This study makes a significant contribution to literature on disruptive innovation, clarifying its conceptual boundaries, identifying best practices and barriers to implementation, and offering insights that bridge theory and practice. This comprehensive approach enriches academic discourse and provides valuable guidance for practitioners in the field.

It is important to outline the systematic and structured approach that was taken to conduct the literature review on disruptive innovation. This study employed a meticulous protocol inspired by Kitchenham and Charters (2007) to ensure an exhaustive and impartial examination of the existing literature. The process involved several key steps: first, identifying the need for the review; second, formulating the research questions; and third, developing the review protocol. The literature search was then conducted using predefined keywords and inclusion-exclusion criteria within the Scopus database to ensure that only high-quality, relevant articles published between 2000 and the present were selected. Scopus was selected as the sole database for this study due to its comprehensive, multidisciplinary coverage of peer-reviewed literature, advanced search and citation tracking capabilities, and alignment with the interdisciplinary scope of disruptive innovation research. Specifically, the review focused on articles that received over 100 citations and were published in Q1 and Q2 journals or A/B conferences, indicating their significance and impact in the field. The selection process was rigorous, involving the screening of titles, abstracts, and keywords to ensure alignment with the study's objectives. Data extraction and synthesis were conducted systematically, with findings categorized into definitions of disruptive innovation, best practices for its implementation, and barriers to its adoption. This structured methodology enabled a thorough exploration of the concept of disruptive innovation, ensuring the research findings are both reliable and relevant to academics and practitioners aiming to navigate the complexities of disruptive innovation in various organizational contexts.

The concept of disruptive innovation has transformed the way academics and practitioners perceive market dynamics, technological advancements and competitive strategies. At its core, disruptive innovation challenges the status quo by enabling new market entrants to displace established incumbents with novel products or services that are typically simpler, cheaper, or more convenient. This research is important for theoretical purposes because it contributes to a deeper understanding of how disruptive innovations can emerge and flourish within different industries. It enriches academic discourse by exploring the multifaceted nature of disruption, including its antecedents, processes and outcomes. By systematically reviewing and synthesising existing literature on disruptive innovation, this study addresses gaps in the theoretical framework. These include the need for clearer definitions, identification of factors that enable or inhibit innovation and the mechanisms through which disruption influences market structures and organisational strategies. These insights refine existing theories and pave the way for new hypotheses and models to guide future academic research.

In practice, the relevance of this research is manifold. In an era of rapid technological change and increasing market volatility, an understanding of disruptive innovation is essential for businesses seeking to maintain a competitive advantage. This study elucidates best practices for harnessing disruptive innovations, offering organisations actionable strategies to successfully navigate market transformations. It emphasises the pivotal role of agile business models, customer-centric value propositions and a culture of innovation in fostering disruption. Furthermore, by identifying the barriers to the adoption of disruptive innovations, the research provides organisations with a roadmap to help them anticipate and overcome challenges.

The remainder of this article is organized as follows: Section 2 details the research methodology employed in the systematic literature review. Section 3 presents the theoretical background on disruptive innovation, including its foundations, models, and applications across industries. Section 4 reports the results of the bibliometric analysis, best practices, and barriers to implementation. Section 5 discusses the findings, highlighting theoretical and practical implications. Finally, Section 6 concludes the study, outlines its limitations, and suggests avenues for future research.

2. Background

2.1. Disruptive innovation foundations

The concept of disruptive innovation, introduced by Christensen in The Innovator's Dilemma (Beshyah, 2019), remains a cornerstone in innovation theory, yet its application in practice reveals both its enduring relevance and its conceptual limitations. The distinction between sustaining and disruptive innovations, articulated by Bower and Christensen (Powell et al., 2015), provided an early framework for understanding market transformation by targeting underserved segments.

However, while this typology is still widely cited, critics argue it has been applied too loosely, often conflating different innovation types and diluting its predictive power.

Over time, the theory has evolved from a predominantly technology-driven framework to a broader perspective encompassing competitive responses and strategic adaptation (Christensen et al., 2017). This shift reflects an anomaly-seeking research tradition that has uncovered diverse innovation pathways, but it also highlights the absence of universally accepted operational definitions—an omission that continues to limit comparability across studies. For instance, Godelnik (2020) demonstrates that incumbents' responses to disruption vary widely, shaped as much by organizational culture and governance structures as by the nature of the disruptive threat itself. This raises an important question: is the resilience of incumbents a function of strategy, or does it depend on the degree to which the disruption challenges their core value networks?

The increasing relevance of digital disruption as a subset of disruptive innovation (Baiyere and Hukal, 2020) underscores the accelerating pace of market change. Digital technologies amplify the reach and speed of disruption, but they also complicate strategic decision-making by blurring industry boundaries. Baiyere and Hukal (2020) rightly emphasize the transformative potential of such technologies, yet the literature often overlooks the uneven capacity of firms—particularly SMEs—to absorb and integrate these changes. In multinational enterprises, Cowden and Alhorr (2013) show that subsidiaries can act as important sources of disruptive ideas, challenging the headquarters-driven model of innovation diffusion. This suggests that hierarchical structures may hinder rather than help the spread of disruptive innovation within global organizations.

In emerging economies, the lens of reverse innovation (Corsi and Minin, 2013) offers a valuable counterpoint to the dominant narrative of innovation diffusion from advanced to developing markets. Innovations originating in these contexts—often under severe resource constraints—can challenge entrenched global players, though their long-term scalability remains contingent on cross-border adaptation and policy support. Similarly, sector-specific studies, such as Lee et al. (2023) on hospitality and Edelstein (2020) on dentistry, illustrate that disruption is not purely technological; it often requires deep reconfiguration of service delivery models and consumer engagement strategies.

Scholars such as Boniface (2022) remind us that countering disruptive innovation is not solely about technological catch-up but about reshaping business models to accommodate or neutralize disruption. This aligns with the broader recognition that while Christensen's original framing remains influential, it is insufficient as a standalone explanatory model in today's hyper-connected and volatile markets. The challenge lies in reconciling the elegance of the original theory with the messy realities of organizational adaptation, resource dependence, and institutional constraints.

The trajectory of disruptive innovation research reflects both theoretical maturation and persistent blind spots. While the literature provides a robust conceptual foundation, future work must move beyond descriptive case accumulation toward integrative frameworks that account for digital acceleration, organizational heterogeneity, and the socio-economic contexts in which disruption unfolds.

2.2. Concepts, models and gaps

The literature on disruptive innovation presents a paradox: it is both prolific and fragmented. While definitions abound, their conceptual boundaries remain blurred, creating challenges for theory-building and empirical validation. Yu and Hang (2010) aptly diagnose this problem, noting that scattered and often conflicting interpretations over the past decade have produced ambiguity rather than consensus. This lack of definitional clarity is not a mere academic concern—it undermines the comparability of empirical findings and hampers the operationalization of the concept in both research and practice.

Attempts to define disruptive innovation—such as Mahto et al.'s (2020) framing of it as a new product, idea, process, or business model that triggers significant market change—provide a useful baseline but risk oversimplification if not situated within specific industrial and technological contexts. The absence of agreed operational constructs for related concepts, particularly the business model in empirical research (Habtay, 2012), means that studies often rely on idiosyncratic interpretations, limiting cumulative knowledge. This definitional instability partly explains why robust frameworks for studying disruptive business model innovation remain elusive.

The literature does acknowledge contextual contingencies. Tait and Wield (2019) emphasize the role of policy frameworks—particularly in life sciences—in shaping the trajectory and impact of disruptive innovations, while Zubizarreta et al. (2020) propose structured project management models to enhance firms' capacity to manage such innovations. Yet, even these sector-specific contributions raise questions about generalizability: are these insights transferable to fast-moving, digitally enabled industries, or are they confined to regulated, capital-intensive sectors?

Conceptually, Powell et al. (2015) capture the essence of disruption through the creation of new business models offering unique features or lower costs. However, Wilson and Tyfield (2018) challenge the sufficiency of such traditional definitions in addressing systemic issues like energy transition and climate change, pushing for a broader socio-technical perspective. This critical view is especially pertinent given that conventional definitions often ignore the systemic interactions, infrastructure dependencies, and policy dimensions that influence whether a potentially disruptive innovation achieves large-scale adoption.

Beyond definitions, the literature identifies several persistent gaps. Capability development and strategic management practices emerge as central themes for enabling organizations to anticipate and navigate disruption (Assink, 2006; Beltagui et al., 2020). Yet, there is a shortage of research examining how these capabilities are cultivated in different organizational and industry settings. Wan et al. (2015) highlight the importance of innovative resource allocation, but empirical studies that link specific allocation strategies to successful disruption remain rare.

Equally concerning is the scarcity of predictive models and forward-looking empirical research (Christensen et al., 2017; Müller & Kunderer Tiku, 2022). Much of the existing work remains retrospective, providing post-hoc explanations rather than actionable foresight. This limitation is particularly problematic in the digital economy, where startups face unique disruption dynamics (Zhang et al., 2022) and digital ecosystems present both opportunities and structural challenges (Beltagui et al., 2020).

Critical linkages between disruptive innovation and firm performance remain under-theorized. Wang et al. (2021) point to the need for examining the mechanisms and moderators of this relationship, while Taneo et al. (2019) note a parallel gap at the intersection of disruption and sustainable competitiveness. Without such integrative work, our understanding of how disruptive innovation contributes to long-term strategic advantage will remain incomplete.

While the field has matured in scope and sectoral diversity, it still suffers from conceptual ambiguity, underdeveloped frameworks, and an overreliance on retrospective analysis. Closing these gaps will require methodological pluralism, cross-sectoral studies, and a stronger integration of contextual variables—particularly digitalization, sustainability, and policy environments—into our theoretical and empirical models. Only then can the study of disruptive innovation advance from fragmented insight to coherent, actionable understanding.

2.3. Disruptive innovation across industries

The ubiquity of disruptive innovation across industries underscores both its transformative potential and the varied contextual challenges it presents. While case studies in sectors as diverse as healthcare,

construction, finance, and creative industries illustrate its breadth, the literature often treats these examples as isolated instances rather than interconnected phenomena shaped by common drivers and constraints.

Healthcare, for example, has witnessed the diffusion of disruptive innovations that challenge entrenched delivery models (Sounderajah et al., 2020), yet the outcomes have been uneven, reflecting differences in regulatory environments and organizational capacity. This pattern repeats in other sectors: in manufacturing, disruptive innovation can significantly enhance economic competitiveness (Bing-qiang and Huang, 2019), while in construction it is framed as a lever for achieving sustainable development goals (Lekan et al., 2020). These contrasts suggest that disruption's impact is mediated less by the abstract nature of the innovation and more by the institutional, technological, and market infrastructures into which it is introduced.

Industry-specific drivers also reveal underlying tensions between incumbents and entrants. Studies highlight that large established firms often focus on incremental "micro-innovations" to defend market share, whereas more radical disruption tends to emerge from new entrants (Utoyo et al., 2019). This dynamic is visible in the real estate project finance industry, where novel financing platforms have expanded market access (Montgomery et al., 2018), and in music, where digital platforms have redefined competition rules (Urbinati et al., 2019). The persistence of this entrant-driven pattern raises the question of whether established firms can—or should—seek to internalize disruptive capabilities, or whether their survival depends on alliances with external innovators.

Some industries show that strategic adaptation can mitigate decline. The printing industry, facing obsolescence, illustrates how diversification, consolidation, and internationalization can serve as counter-disruption strategies (Khan and Luiz, 2023). In contrast, sectors like banking in Indonesia (Kurniati and Suryanto, 2022) and the Chinese e-book industry (Ren, 2020) demonstrate how digital transformation can be embraced to reconfigure value propositions and capture new markets. However, these examples also highlight a methodological gap: many studies describe sector-specific responses but rarely compare effectiveness across industries, leaving unanswered which strategies are most transferable.

Emerging technologies, from regenerative medicine (Banda et al., 2019) to ICT-based information systems (Lyytinen and Rose, 2003), illustrate how disruption often requires simultaneous shifts in technological infrastructure, workforce competencies, and business models. Guo et al. (2023) point to the importance of ex-ante project management for anticipating and scaling such innovations, yet empirical evidence on how these planning practices interact with sector-specific constraints remains scarce. Similarly, in retail and SME internationalization, as in the Yiwu Commodity Market (Wan and Si, 2022), disruptive innovation has proven a growth enabler, but research seldom accounts for the broader supply chain and institutional factors that determine sustainability.

The role of policy and regulation emerges as a critical but inconsistently addressed factor. Trubnikov's (2017) study on wireless technology regulation demonstrates how governance can either accelerate or impede disruption. Comparable challenges arise in the aerospace and defense industries in India (Rao et al., 2019), where innovation momentum is tempered by barriers such as limited user participation and insufficient access to global expertise. These cases suggest that without enabling regulatory frameworks and cross-border knowledge exchange, even technologically viable disruptions may fail to achieve systemic impact.

The literature emphasizes the importance of contextual responsiveness in disruptive innovation strategies. Uber's case (Urbinati et al., 2018) shows how disruptive entrants must navigate not only consumer adoption but also socio-political pushback, reinforcing the notion that disruption is as much about institutional negotiation as it is about technological novelty.

While sector-specific studies richly illustrate the diversity of disruptive innovation, the field still lacks integrative models that explain how drivers, barriers, and strategic responses vary across contexts. Addressing this gap requires comparative, cross-industry research that connects industry-specific findings to a more generalizable understanding of how disruption unfolds—and how organizations can best position themselves to survive and thrive in its wake.

2.4. Role of open innovation in triggering disruptive innovation

The intersection of open innovation and disruptive innovation has emerged as a critical focus in both academic research and managerial practice, due to its potential to generate sustainable competitive advantages and drive transformative market changes. Open innovation, as introduced by Chesbrough and developed in later literature, involves leveraging both external and internal knowledge sources to accelerate innovation processes and capture value through multiple pathways (Kuan, 2020). This paradigm departs from the closed innovation model, which relies exclusively on in-house R&D, by embracing collaborative networks, external partnerships, and knowledge flows that cross organizational boundaries. Disruptive innovation, in contrast, refers to the process by which new entrants—often resource-constrained—successfully challenge incumbents by introducing products or services that are simpler, more affordable, or more accessible, eventually redefining industry norms (Katsamakas and Georgantzas, 2010; MacKay et al., 2023).

While these concepts differ in scope and mechanics, recent research suggests that open innovation can be a catalyst for disruptive innovation, acting both as an enabler of market entry for new players and as a strategic defense for incumbents under threat. By intentionally opening their innovation processes, firms can tap into external knowledge bases, diverse skill sets, and novel technological trajectories that would otherwise remain beyond their internal capabilities. This diversity of input not only broadens the idea pool but also accelerates experimentation, increasing the likelihood of identifying disruptive opportunities before competitors (Zhan et al., 2025; Urbinati et al., 2019).

One of the primary mechanisms through which open innovation triggers disruptive innovation lies in collaborative value creation. Organizations that co-develop products, services, or business models with suppliers, customers, research institutions, and even competitors gain access to non-redundant insights and unconventional solutions. These collaborations help firms bridge knowledge gaps, reduce innovation cycle times, and align solutions more closely with unmet or latent market needs—conditions that are fertile for disruptive breakthroughs. In practice, this can be seen in industries such as technology and software, where open-source strategies allow firms to iterate rapidly, challenge industry incumbents, and reshape entire market structures (Zemlin, 2024; Stroh, 2019; Jin et al., 2010).

Furthermore, open innovation serves as a risk-balancing mechanism in the pursuit of disruptive innovation. Because disruptive projects often involve high uncertainty, resource-intensive R&D, and potential market rejection, many firms—especially incumbents—are reluctant to pursue them within a closed system. Open innovation mitigates these risks by enabling shared investments, distributed development responsibilities, and collective learning (Huan and Zhang, 2013; Dencik et al., 2023). Smaller entrants, in particular, can benefit from access to external funding, technology platforms, and expert knowledge, thereby overcoming resource constraints and positioning themselves competitively against established players (Kuan, 2020).

Leadership and organizational culture play a decisive role in this dynamic. Open innovation requires leaders who can cultivate trust, encourage cross-boundary collaboration, and support adaptive

strategies that respond quickly to environmental changes. Leadership styles emphasizing inclusivity and adaptability have been shown to enhance organizational agility, enabling faster pivots towards disruptive opportunities when market signals change (Katsamakas and Georgantzas, 2010; Yulianti et al., 2025). This leadership-driven cultural openness increases employees' willingness to engage with external partners, adopt novel ideas, and challenge conventional thinking - all of which are prerequisites for initiating disruptive change.

The open innovation–disruptive innovation relationship is particularly salient for small- and medium-sized enterprises (SMEs). SMEs often lack the internal resources to engage in large-scale R&D or withstand long development timelines. Open innovation offers them a viable pathway to tap into external expertise, access new markets, and respond rapidly to changing customer needs (Radziwon and Bogers, 2017; Akbar and Hartono, 2024). Evidence suggests that SMEs integrating open innovation into their strategy can deliver more targeted, agile, and market-responsive disruptive solutions than their closed innovation counterparts (Jabeen et al., 2022).

Another dimension reinforcing this interplay is the increasingly empowered role of consumers. In an open innovation environment, consumer co-creation not only enriches product development with real-world insights but also ensures higher acceptance rates for disruptive offerings (Zhan et al., 2025). The iterative feedback from early adopters helps firms refine their disruptive innovations, shortening the adoption curve and strengthening market penetration.

Finally, technological infrastructure - particularly digital platforms—amplifies the connection between open and disruptive innovation. Collaborative tools, cloud-based development environments, and virtual co-creation platforms have reduced geographic and disciplinary barriers, enabling innovation ecosystems that are more inclusive, fast-moving, and capable of mobilizing diverse expertise (Barb, 2023; Aranha et al., 2015). These technologies not only facilitate the rapid prototyping and scaling of disruptive ideas but also provide real-time market intelligence, allowing firms to detect and seize disruptive opportunities early.

Open innovation acts as both a trigger and accelerator of disruptive innovation by expanding the scope of idea generation, reducing the risks associated with radical change, fostering inclusive leadership, empowering SMEs, integrating consumer perspectives, and leveraging digital collaboration tools. Organizations embedding open innovation into their strategic core are better positioned to anticipate, initiate, and adapt to disruptive shifts, turning potential threats into avenues for growth and competitive renewal. As markets continue to evolve under technological and societal pressures, the synergy between open and disruptive innovation will likely become an even more critical determinant of long-term business success.

2.5. Beyond disruptive innovation

Groundbreaking innovations - whether emerging from radical technological advances, entrepreneurial ecosystems, or sustainability imperatives - are widely recognized as catalysts for reshaping competitive landscapes. However, while the literature captures their transformative potential across industries, it also reveals uneven attention to the mechanisms, contexts, and long-term effects that determine their actual impact.

Henderson and Weiler's (2009) analysis of radical patents illustrates how such innovations can inaugurate entirely new product categories and shift industry standards. Yet, while patents serve as useful indicators of technological novelty, their predictive validity for market transformation remains contested—many patented inventions never achieve commercial traction, suggesting that complementary capabilities and market readiness are equally decisive.

Entrepreneurship emerges as a recurrent driver of breakthrough innovation. Hofmann and Giones (2019) emphasize its catalytic role in industrial ecosystems, noting that entrepreneurial initiatives often challenge entrenched business models and create conditions for continuous improvement. This perspective aligns with Arnold and Hockerts' (2010) study on "green flagging" at Royal Philips Electronics, which illustrates how sustainability-oriented strategies can become sources of disruptive market advantage. However, these cases also point to an underexplored tension: sustainability-driven innovation often requires reconciling long-term environmental goals with short-term commercial imperatives.

Cultural and grassroots movements are another source of transformative change. Braybrooke and Jordan's (2017) exploration of the maker movement highlights how DIY ethics and open-source collaboration not only drive technological experimentation but also reshape cultural identities and industrial practices. This finding challenges the traditional firm-centric model of innovation by foregrounding the role of distributed, community-led processes.

Digitalization represents both a pervasive enabler and a competitive necessity. Barthel et al. (2020) underscore its ubiquity across industries, framing digital products, services, and processes as foundational to survival in modern markets. This perspective is echoed in sector-specific research, such as Tajuddin et al. (2015) in construction, who link advanced design and project management innovations to improved performance and resilience. However, as Albert and Maudos (2013) note, the pace and nature of innovation remain uneven across industries, shaped by technological regimes, resource availability, and external pressures.

A notable imbalance in the literature is the comparative neglect of process innovations. Goel and Nelson (2018) highlight that empirical research disproportionately focuses on product innovation, despite process innovations' proven potential to improve efficiency, lower costs, and enhance quality. This bias suggests that strategic innovation research still underestimates operational transformation as a source of competitive advantage.

Patent-related studies, such as Fontana et al. (2013), further complicate the innovation narrative by demonstrating that substantial innovation activity occurs outside formal intellectual property protections. Their work raises critical questions about how innovation is measured and valued, and whether traditional metrics capture the breadth of transformative activity.

The interplay between exploration and exploitation—central to sustaining competitive advantage—is increasingly mediated by digital technologies. Xu et al. (2022) argue that digitalization facilitates "ambidextrous" innovation strategies, enabling firms to balance radical exploration with incremental improvement. This insight is particularly relevant given the growing consensus that long-term innovation capacity depends on mastering both modes simultaneously.

The literature paints a picture of groundbreaking innovation as multifaceted and context-dependent. While existing studies illuminate its drivers—from entrepreneurial initiative and cultural movements to digital transformation and sustainability—the field still lacks integrative models that connect these elements into a coherent framework. Bridging this gap will require comparative, cross-sectoral analyses that not only describe innovation but also evaluate its strategic, cultural, and policy dimensions over time.

2.6. Disruptive innovation in the new era

The concept of disruptive innovation, first introduced by Clayton Christensen in 1997, has evolved significantly and claims a prominent place in contemporary business and management discourse. Disruptive innovations are characterized by their ability to create new markets and value networks, eventually displacing established market leaders, products, and alliances through technological advancements or innovative business models (AISDL, 2022). The emergence and adoption of digital technologies play a critical role in driving these disruptive changes, with companies often requiring innovative strategies to survive and thrive (Wang et al., 2023; Puttaraju, 2024).

The current understanding of disruptive innovation suggests that the mechanisms behind these innovations are increasingly complicated due to the rapid pace of technological development and market changes. For instance, the integration of digital tools such as AI, big data analytics, and blockchain technologies into traditional business practices has facilitated the creation of disruptive innovation while reshaping existing business models to accommodate new consumer demands and behaviors (Sharma, 2023; Cubero et al., 2020). This transformation is evident in various sectors, including retail, which has undergone significant changes due to innovations that prioritize value delivery through enhanced customer experiences and operational efficiencies (Aujirapongpan et al., 2020; Sunarmo et al., 2023);

Furthermore, the ability of organizations to leverage dynamic capabilities—defined as the ability to integrate, build, and reconfigure internal and external competencies to address rapidly changing environments—has been highlighted as crucial for achieving sustained competitive advantage through disruptive innovation (Wang et al., 2023). Companies that remain agile and willing to embrace change are more likely to capitalize on disruptive innovations, as seen in case studies of firms like BYD in the electric vehicle market and Rocket Lawyer in the legal services sector (Adewumi et al., 2024; Indıran et al., 2023). These organizations prioritize innovative leadership and proactive management strategies to foster an environment conducive to entrepreneurial thinking and resilience in the face of market disruptions (Aujirapongpan et al., 2020; Sunarmo et al., 2023).

The implications of these dynamics extend to all organizational levels, emphasizing the need for leadership that cultivates an innovative culture while aligning operational practices with emergent technologies (Fu et al., 2023). The role of leadership becomes especially nuanced in settings marked by high degrees of competitive turbulence, wherein firms face increasing pressure to innovate and adapt quickly to avoid obsolescence. This has led to the exploration of innovative leadership as a means of bridging the gap between traditional practices and contemporary, technology-driven approaches within organizations (Sunarmo et al., 2023; Adama and Okeke, 2024).

Additionally, the significance of innovative business models in effectively harnessing the potential of disruptive innovations cannot be understated. The literature reveals that organizations must undergo a comprehensive transformation, necessitated by technological adoption and shifts in consumer preferences, to remain relevant in the market (Imam, 2022). Many traditional business models are proving inadequate in addressing the rapid changes characterizing the contemporary landscape, leading to an urgent call for innovation in how businesses operate (Sithole and Wotela, 2024).

Real-world applications of disruptive innovation can be observed across various industries, such as hospitality, where platforms like Airbnb have redefined market norms and consumer engagement with innovative business practices that prioritize accessibility and convenience (Hongdao et al., 2022; Neuhauser and Snihur, 2024). These platforms disrupt traditional service providers and create new value propositions that resonate with contemporary consumer values, highlighting a fundamental shift in transactional dynamics and service expectations.

The development of disruptive innovations also interacts with broader economic trends, such as the push towards sustainability and circular economy principles. Many startups leverage disruptive innovation to create business models that align with sustainable practices, illustrating how innovation can drive not only economic growth but also social and environmental stewardship (Lee et al., 2023). This confluence of disruptive technology and sustainability is becoming increasingly relevant as consumers become more aware of environmental issues and demand accountability from businesses.

However, challenges related to implementing disruptive innovations persist, particularly regarding balancing exploration and exploitation of existing capabilities. This tension, termed the "innovator's dilemma," arises as established firms often find their existing resources and managerial processes hindering the radical changes necessary for pursuing disruptive innovations effectively (Stoiber et al., 2022). Consequently, organizations must navigate these complexities while maintaining their core competencies.

The current state of disruptive innovation in the business and management field signifies a landscape characterized by rapid technological advancements, the necessity for innovative leadership, and the imperative for organizations to adapt their business models to remain competitive. The intricacies involved in managing disruptive innovations require an understanding of dynamic capabilities, sustainable practices, and leadership paradigms that support transformative change.

Table 1
Methodology followed in this study (adapted from Kitchenham and Charters, 2007).

Planning	
Identification of the need for a review	To bring awareness towards the use of disruptive innovation when it comes to business transformation
Specification of the research question(s)	How important is disruptive innovation to a company?Is disruptive innovation a must in business?
Development of a review protocol	Search strings, datasets, and inclusion/exclusion criteria
Conducting	
Identification of the research	Disruptive innovation strategies in business
Selection of primary studies	Disruption innovation strategies in business – 50 filtered articles
Study quality assessment	Verify if all the questions were answered, based on the filtered articles
Data extraction and monitoring	Select all data from the articles and apply it accordingly
Data synthesis	Verify if all data is accurate and not redundant
Reporting	
Specifying dissemination mechanisms	Divide data into research topics
Formatting the main report	Prepare data to be presented

3. Research methodology

This research aims to conduct an exploratory study based on existing literature on disruptive innovation. The study will identify the best practices and barriers to adoption (Saunders et al., 2009). The protocol followed in this systematic literature review was that suggested by Kitchenham and Charters (2007), which includes the following steps:

Table 2
Filters used and inclusion and exclusion criteria.

Database	**Keywords**	**Filter / Criteria**	**Results**
Scopus	"Disruptive innovation" or "groundbreaking" or "groundbreaking technologies"	No Filter - Original search of selected keywords without any filter	14220
		Title, abstract, and keywords - Search for selected keywords within the title, abstract, and keywords	2501
		Scientific Area - A search of selected keywords into Scientific Areas (Business Management OR Computer Science)	935
		English - A search of selected keywords in articles written in English	927
		Papers written from 2000 until now, excluding white papers	826
		More than 100 citations	55
		Q1 and Q2 quality journal	50

Table 3
Summary of the data extraction and synthesis processes.

No.	Author(s)	Year	Quality Journal	Journal Title	Citations
1	O'Reilly III & Tushman	2004	Q1	*Harvard Business Review*	1385
2	Johnson, Christensen & Kagermann	2008	Q1	*Harvard Business Review*	1377
3	Kitchin	2014	Q2	*Big Data and Society*	1121
4	Guttentag	2015	Q2	*Current Issues in Tourism*	1021
5	Markides	2006	Q1	*Journal of Product Innovation Management*	684
6	Kivimaa & Kern	2016	Q1	*Research Policy*	483
7	Christensen, Bohmer & Kenagy	2000	Q1	*Harvard Business Review*	450
8	Lee & Shin	2018	Q1	*Business Horizons*	412
9	Christensen, Baumann, Ruggles & Sadtler	2006	Q1	*Harvard Business Review*	397
10	Guttentag, Smith, Potwarka & Havitz	2018	Q1	*Journal of Travel Research*	374
11	Karimi & Walter	2015	Q1	*Journal of Management Information Systems*	305
12	Guttentag & Smith	2017	Q1	*International Journal of Hospitality Management*	295
13	Yu & Hang	2010	Q1	*International Journal of Management Reviews*	280
14	Assink	2006	Q2	*European Journal of Innovation Management*	275
15	So, Oh & Min	2018	Q1	*Tourism Management*	253
16	Pagani	2013	Q1	*MIS Quarterly: Management Information Systems*	239
17	Govindarajan & Kopalle	2006	Q1	*Journal of Product Innovation Management*	225
18	Ansari, Garud & Kumaraswamy	2016	Q1	*Strategic Management Journal*	213
19	Christensen, McDonald, Altman & Palmer	2018	Q1	*Journal of Management Studies*	212
20	Henderson	2006	Q1	*Journal of Product Innovation Management*	212
21	Bergek, Berggren, Magnusson & Hobday	2013	Q1	*Research Policy*	201
22	Slater & Mohr	2006	Q1	*Journal of Product Innovation Management*	197
23	Schmidt & Druehl	2008	Q1	*Journal of Product Innovation Management*	191
24	Renko, Carsrud & Brännback	2009	Q1	*Journal of Small Business Management*	183
25	Frizzo-Barker, Chow-White, Adams, Mentanko, Ha & Green	2020	Q1	*International Journal of Information Management*	180
26	Christensen, Johnson & Rigby	2002	Q1	*MIT Sloan Management Review*	180
27	Riffai, Grant & Edgar	2012	Q1	*International Journal of Information Management*	176
28	Osiyevskyy & Dewald	2015	Q1	*Strategic Entrepreneurship Journal*	165
29	Anagnostopoulos	2018	Q2	*Journal of Economics and Business*	153
30	Voelpel, Leibold & Tekie	2004	Q2	*Journal of Change Management*	149
31	Yeh, Talwar, Wu, Himayat & Johnsson	2011	Q1	*IEEE Wireless Communications*	148
32	King & Baatartogtokh	2015	Q1	*MIT Sloan Management Review*	145
33	Rao	2013	Q2	*Technology in Society*	144
34	Akamavi, Mohamed, Pellmann & Xu	2015	Q1	*Tourism Management*	139
35	Sultan	2015	Q1	*International Journal of Information Management*	133
36	Govindarajan, Kopalle & Danneels	2011	Q1	*Journal of Product Innovation Management*	129
37	Agarwal, Grottke, Mishra & Brem	2017	Q2	*IEEE Transactions on Engineering Management*	126
38	Alles	2015	Q1	*Accounting Horizons*	123
39	Nagy, Schuessler & Dubinsky	2016	Q1	*Industrial Marketing Management*	119
40	Dogru, Mody & Suess	2019	Q1	*Tourism Management*	117
41	Paap & Katz	2004	Q2	*Research Technology Management*	117
42	Wan, Williamson & Yin	2015	Q1	*Technovation*	116
43	Ray & Kanta Ray	2011	Q1	*Technovation*	115
44	Lettice & Parekh	2010	Q2	*International Journal of Technology Management*	115
45	Sedlmeir, Buhl, Fridgen & Keller	2020	Q1	*Business and Information Systems Engineering*	114
46	Dewald & Bowen	2010	Q1	*Entrepreneurship: Theory and Practice*	111
47	Cozzolino, Verona & Rothaermel	2018	Q1	*Journal of Management Studies*	109
48	Sultan	2013	Q1	*International Journal of Information Management*	109
49	Blal, Singal & Templin	2018	Q1	*International Journal of Hospitality Management*	108
50	Wainstein & Bumpus	2016	Q1	*Journal of Cleaner Production*	104

1) Planning the literature review
   a. Identification of the need for the literature review
   b. Identification of the research issues
   c. Developing the research protocol
2) Conducting the literature review
   d. Identification of the studies
   e. Selection of studies
   f. Conducting a quality assessment
   g. Data extraction and synthesis
3) Conclusions of the literature review (the present report).

In addition, the strategy described above is used to summarise the evidence on the use of disruptive innovation strategies in firms, with the main aim of answering the research question of this study. Table 1 presents an adaptation of the methodology proposed by Kitchenham and Charters (2007) and followed in this research.

The research process begins with a literature search using a number of search terms in a selected database. The aim is to obtain as many studies as possible that address the proposed research questions. The database chosen to serve as a source of information was Scopus. The keywords selected for this research were 'disruptive innovation'. The filters used in the search, along with the respective criteria, are listed in Table 2, as well, the inclusion and exclusion criteria used in this research. The quality criterion is to accept only Q1 and Q2 journals, as

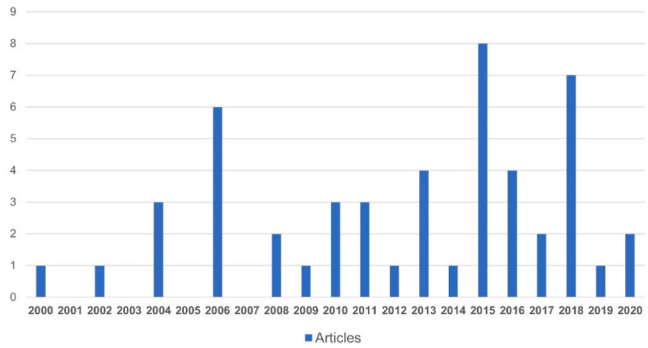

Fig. 1. Number of articles published per year (own elaboration).

Table 4
List of sources (own elaboration).

Source Title	N. of articles	Source Title	N. of articles
Journal of Product Innovation Management	6	International Journal of Management Reviews	1
Harvard Business Review	4	Strategic Management Journal	1
International Journal of Information Management	4	European Journal of Innovation Management	1
Tourism Management	3	Journal of Cleaner Production	1
Research Policy	2	IEEE Wireless Communications	1
International Journal of Hospitality Management	2	MIS Quarterly: Management Information Systems	1
Journal of Management Studies	2	IEEE Transactions on Engineering Management	1
MIT Sloan Management Review	2	Journal of Small Business Management	1
Technovation	2	Strategic Entrepreneurship Journal	1
Big Data and Society	1	Journal of Economics and Business	1
Current Issues in Tourism	1	Journal of Change Management	1
Business Horizons	1	Industrial Marketing Management	1
Journal of Travel Research	1	Research Technology Management	1
Journal of Management Information Systems	1	International Journal of Technology Management	1
Accounting Horizons	1	Business and Information Systems Engineering	1
Technology in Society	1	Entrepreneurship: Theory and Practice	1
		Total	**50**

well as A/B conferences. This section reviews the previously defined protocol and analyses the extracted studies. After applying filters to the Scopus database, the results obtained are shown in Table 2.

To avoid redundancy, the research was based on a single database. After applying all the filters to the Scopus database, 50 articles were extracted. These results reflect the research filters, as well as the inclusion and exclusion criteria. In other words, the 50 articles were written between 2000 and the present day, have received more than 100 citations, and belong to a Q1 or Q2 quality journal. Having read all the

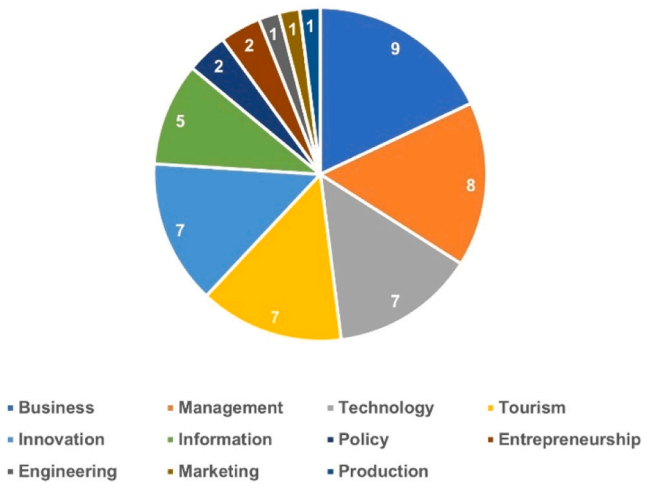

Fig. 2. Articles per subject (own elaboration).

Table 5
Articles per country (own elaboration).

Country	N. of articles
United States	26
Ireland	1
Canada	2
United Kingdom	6
Canada	2
Singapore	1
Netherlands	1
Italy	2
Sweden	1
Oman	2
India	2
Germany	2
China	1
Australia	1

articles, it was concluded that they were all appropriate for this research as they were directly related to the previously presented research questions and thus provided meaningful insight into the present study. Table 3 summarises the data extraction and synthesis processes by referring to the selected articles after the database research (Scopus) was completed.

The validity and reliability of the analysis were ensured through the application of explicit inclusion criteria, systematic screening procedures, and structured thematic synthesis, while ethical considerations were addressed by using only publicly available, peer-reviewed literature and by maintaining proper citation and attribution throughout the study.

4. Data analysis

4.1. Bibliometric analysis

The selected articles were analysed in detail to identify common trends. Overall, the articles were published between 2000 and 2020, although some years had no articles selected for this study (Fig. 1). These years were 2001, 2003, 2005 and 2007. Most of the selected articles were published in 2015 (8), 2018 (7), 2006 (6), 2013 (4) and 2016 (4). However, Fig. 1 shows that almost every year is represented by at least one article, providing a broader scope of analysis over a period of 20 years. This significant temporal representation of the selected articles

Table 6
Articles per methodology (own elaboration).

Methodology	N. of articles
Review	19
Conceptual model	4
Research/survey	20
Analytical framework	5
Case study	2

Table 7
Articles per industry (own elaboration).

Industry	N. of articles
Commerce	2
Business	16
Computational sciences	1
Tourism	7
Policy	1
Health	2
Financial	5
Management	11
Marketing	1
Biotechnology	1
Technology	3

Table 8
Categorization of the selected articles (own elaboration).

Category	Articles
Definition of disruptive innovation	O'Reilly III and Tushman (2004); Kitchin (2014); Guttentag (2015); Markides (2006); Kivimaa and Kern (2016); Christensen, Bohmer and Kenagy (2000); Lee and Shin (2018); Christensen, Baumann, Ruggles and Sadtler (2006); Guttentag, Smith, Potwarka and Havitz (2018); Karimi and Walter (2015); Guttentag and Smith (2017); Yu and Hang (2010); Assink (2006); Govindarajan and Kopalle (2006); Ansari, Garud and Kumaraswamy (2016); Christensen, McDonald, Altman and Palmer (2018); Henderson (2006); Bergek, Berggren, Magnusson and Hobday (2013); Slater and Mohr (2006); Schmidt and Druehl (2008); Osiyevskyy and Dewald (2015); Anagnostopoulos (2018); King and Baatartogtokh (2015); Rao (2013); Sultan (2015); Govindarajan, Kopalle and Danneels (2011); Agarwal, Grottke, Mishra and Brem (2017); Nagy, Schuessler and Dubinsky (2016); Dogru, Mody and Suess (2019); Wan, Williamson and Yin (2015); Ray and Kanta Ray (2011); Lettice and Parekh (2010); Dewald and Bowen (2010); Cozzolino, Verona and Rothaermel (2018); Sultan (2013); Blal, Singal and Templin (2018); Wainstein and Bumpus (2016)
Best practices and techniques of disruptive innovation	O'Reilly III and Tushman (2004); Johnson, Christensen and Kagermann (2008); Markides (2006); Kivimaa and Kern (2016); Christensen, Bohmer and Kenagy (2000); Lee and Shin (2018); Christensen, Baumann, Ruggles and Sadtler (2006); Guttentag, Smith, Potwarka and Havitz (2018); Karimi and Walter (2015); Guttentag and Smith (2017); Yu and Hang (2010); So, Oh and Min (2018); Pagani (2013); Govindarajan and Kopalle (2006); Ansari, Garud and Kumaraswamy (2016); Christensen, McDonald, Altman and Palmer (2018); Henderson (2006); Slater and Mohr (2006); Schmidt and Druehl (2008); Renko, Carsrud and Brännback (2009); Frizzo-Barker, Chow-White, Adams, Mentanko, Ha and Green (2020); Christensen, Johnson and Rigby (2002); Riffai, Grant and Edgar (2012); Osiyevskyy and Dewald (2015); Anagnostopoulos (2018); Voelpel, Leibold and Tekie (2004); Yeh, Talwar, Wu, Himayat and Johnsson (2011); King and Baatartogtokh (2015); Rao (2013); Akamavi, Mohamed, Pellmann and Xu (2015); Sultan (2015); Govindarajan, Kopalle and Danneels (2011); Nagy, Schuessler and Dubinsky (2016); Paap and Katz (2004); Wan, Williamson and Yin (2015); Ray and Kanta Ray (2011); Lettice and Parekh (2010); Sedlmeir, Buhl, Fridgen and Keller (2020); Dewald and Bowen (2010); Cozzolino, Verona and Rothaermel (2018); Sultan (2013); Blal, Singal and Templin (2018); Wainstein and Bumpus (2016)
Barriers to the implementation of disruptive innovation	Johnson, Christensen and Kagermann (2008); Guttentag (2015); Markides (2006); Kivimaa and Kern (2016); Christensen, Bohmer and Kenagy (2000); Lee and Shin (2018); Yu and Hang (2010); Assink (2006); So, Oh and Min (2018); Govindarajan and Kopalle (2006); Ansari, Garud and Kumaraswamy (2016); Henderson (2006); Bergek, Berggren, Magnusson and Hobday (2013); Frizzo-Barker, Chow-White, Adams, Mentanko, Ha and Green (2020); Riffai, Grant and Edgar (2012); Osiyevskyy and Dewald (2015); Sultan (2015); Agarwal, Grottke, Mishra and Brem (2017); Alles (2015); Paap and Katz (2004); Ray and Kanta Ray (2011); Lettice and Parekh (2010); Dewald and Bowen (2010); Cozzolino, Verona and Rothaermel (2018)

Table 9
Definitions of the concept of disruptive innovation based on the selected articles (own elaboration).

Authors	Definition of disruptive innovation
O'Reilly III and Tushman (2004)	Radical advances that can profoundly change an industry's competitiveness
Kitchin (2014)	**Big Data**, which presents a new approach to science
Agarwal et al. (2017); Blal et al. (2018); Christensen et al. (2018); Dewald and Bowen (2010); Dogru et al. (2019); Govindarajan et al. (2011); Guttentag (2015); Guttentag et al. (2018); Guttentag and Smith (2017); Karimi and Walter (2015); Lettice and Parekh (2010); Ray and Kanta Ray (2011); Schmidt and Druehl (2008); Wainstein and Bumpus (2016); Wan et al. (2015)	Describes how companies can fail by ignoring the progress of a disruptive product that lacks traditionally favored attributes (i.e., performance) but offers alternative benefits; it changes the current value proposition, appealing to other consumers, and possibly creating a new market; it is initially perceived as inferior to incumbent product or service providers
Markides (2006)	**Business model innovation:** discovery of a different business model in an existing business; **Radical innovation:** new products and value propositions that disturb current customer habits and behaviors in major ways
Kivimaa and Kern (2016)	**Disruptive policies** can impact the institutional context, both reducing the value of current practices and technologies, and creating transitions that incentivize incumbents to be active in the transformation process
Christensen et al. (2000); Rao (2013)	Cheaper, more convenient, and simpler products/services that start by meeting less-demanding customers' needs
Lee and Shin (2018)	**Financial technology (Fintech)**, which presents personalized niche services, data-driven solutions, an innovative culture, and a nimble organization
Christensen et al. (2006)	**Catalytic innovations:** primary focus on social change, often on a national scale; they can surpass the status quo by providing good-enough solutions to inadequately addressed social problems
Govindarajan and Kopalle (2006); Yu and Hang (2010)	Broadens and develops new markets and provides new functionalities, which can disrupt existing market linkages
Assink (2006)	"A successfully exploited radical new product, process, or concept that significantly transforms the demand and needs of an existing market or industry, disrupts its former key players, and creates whole new business practices or markets with significant societal impact" (p. 218)
Ansari et al. (2016); Osiyevskyy and Dewald (2015)	New technologies, products, or business models that are financially unattractive to incumbents
Henderson (2006); Sultan (2013); Sultan (2015)	**Low-end disruptions:** cheaper and lower quality products/services that offer no performance improvement; **New market disruptions:** offer better performance on attributes that current customers do not greatly value
Bergek et al. (2013)	They imply a different package of performance attributes and tend to redefine the level, rate, and direction of performance improvements in an industry
Slater and Mohr (2006)	**Technological innovations:** create new products based on new underlying technological underpinnings, ultimately cannibalizing the existing technology
Anagnostopoulos (2018)	A process whereby smaller companies with fewer resources can successfully challenge established incumbent businesses
King and Baatartogtokh (2015)	**4 key elements of disruptive innovation theory:** 1) Incumbents in a market are improving along a trajectory of sustaining innovation 2) They overshoot customer needs 3) They possess the capability to respond to disruptive threats 4) Incumbents end up floundering because of the disruption
Nagy et al. (2016)	"An innovation with radical functionality, discontinuous technical standards, and/or new forms of ownership that redefine marketplace expectations" (p. 125)
Cozzolino et al. (2018)	**Disruptive technologies:** disrupt an established trajectory/performance improvement or redefine the concept of performance; **Disruptive business models:** disrupt an established model or redefine the meaning of value creation and capture

therefore helps establish an evolutionary perspective on disruptive innovation in general, as well as on the best practices and techniques for its implementation in organisations, which have changed over the years.

Moreover, the articles were published in 32 different scientific journals, most of which focus on specific topics such as management, innovation, economics, business and technology (see Table 4).

Fig. 2 illustrates the distribution of the selected articles by topic. While the majority of articles focus on business and management, a significant proportion of the research covers topics such as technology, tourism, innovation and information. Some articles, however, are based on subjects such as policy, entrepreneurship, engineering, marketing and production.

The articles analysed include studies carried out in 14 different countries, demonstrating a wide variety of contexts with regard to disruptive innovation. However, most of the studies were conducted in the United States (26) and the United Kingdom (6), as Table 5 confirms.

After a first reading of the articles, the methodology used was identified. Overall, there is a clear preference for conducting research/surveys (20) and reviews (19), although some articles used other methods such as analytical frameworks (5), conceptual models (4) and case studies (2) (Table 6).

An evaluation of the industry focus of the articles shows that they cover 11 different industries in total, proving that the concept of disruptive innovation is extremely widespread and applied in a variety of fields and sectors. Of the 50 articles analysed, 16 focus on business, 11 on management, seven on tourism, and five on finance. Other sectors highlighted in the articles include trade, computer science, politics, health, marketing, biotechnology and technology (see Table 7).

After analysing the selected articles, they were grouped into three different categories, although most of them appear in more than one theme (Table 8). The selected categories are: 1) definition of disruptive innovation; 2) best practices and techniques of disruptive innovation; and 3) barriers to implementing disruptive innovation. These categories were chosen because they all relate to the research questions of this study, which should be answered after analysing all fifty articles.

4.2. *Best practices in disruptive innovation adoption*

Based on an investigation of different contexts, several authors have identified the best practices and techniques of disruptive innovation, comprising twenty different perspectives (Table 9).

4.2.1. *Implementing new business models for market transformation*

Eight studies have identified the implementation of new business

Table 10
Best practices and techniques of disruptive innovation based on the selected articles (own elaboration).

Best practices and techniques	Authors
Ambidextrous organizations: teams that are structurally separate units and that constitute their procedures, architecture, and cultures, but are incorporated into the current organizational management hierarchy, considering their client orientation (mainstream and emerging customer).	Govindarajan et al. (2011); O'Reilly III and Tushman (2004)
New business models: Relevant organizational innovation is needed to accommodate ongoing market transformations and boost industry competitiveness.	Akamavi et al. (2015); Christensen et al. (2018); Dewald and Bowen (2010); Johnson et al. (2008); Osiyevskyy and Dewald (2015); Voelpel et al. (2004); Wainstein and Bumpus (2016); Yu and Hang (2010)
The distinction between traditional vs. innovative markets: emerging and innovative businesses have different key success factors, necessitating different operations and clients from established/traditional markets.	Blal et al. (2018); Markides (2006)
Policy mixes: a mixture of original and destruction functions is effective to accomplish sustainability transitions.	Kivimaa and Kern (2016)
Research funding: to gain knowledge of how to meet people's needs more cheaply, conveniently, and quickly without sacrificing effectiveness or quality.	Christensen et al. (2000); Sultan (2015)
Ecosystem: components of the fintech ecosystem should involve – 1) Fintech companies (startups); 2) Technology developers; 3) Government; 4) Financial clients; 5) Conventional financial institutions	Lee and Shin (2018)
Processes of disruptive innovation: 1) Identify signs of disruption in procedures; 2) Detect specific catalytic innovations to decide if the development belongs to a catalytic innovation; and 3) Evaluate the business models.	Ansari et al. (2016); Christensen et al. (2006); Paap and Katz (2004)
Offer fresh value propositions to draw in customers by offering alternative benefit packages that are focused on being more affordable, compact, straightforward, and/or convenient. Price value, authenticity, uniqueness, satisfaction, home benefits, and social interactions are some driving factors for consumers to accept disruptive innovation.	Guttentag et al. (2018); Guttentag and Smith (2017); Rao (2013); Schmidt and Druehl (2008); So et al. (2018)
Digital transformation: aids the sector in using digital material to improve, expand, and redefine their physical and/or traditional products and services while also redesigning the value proposition to consumers and generating new revenue streams to guarantee the sustainability of the company.	Karimi and Walter (2015); Renko et al. (2009); Riffai et al. (2012)
Value creation and capture points: 1) Value in client access; 2) Value in conventional infrastructure; 3) Value in modularity; 4) Value in content access; 5) Value in planning	Pagani (2013); Yeh et al. (2011)
Organizational characteristics: 1) Recognize the organizational skills required to create disruptive innovation; 2) Consider customers and technology as the two primary skills that fuel innovation; 3) Incentives, culture, and structure are important design factors for creativity; 4) Businesses must encourage initiative, risk-taking, adaptability, and originality; 5) Adhocracy culture encourages disruptive innovation; 6) Distinct organizational units can promote disruptive ideas.	Govindarajan and Kopalle (2006); Henderson (2006); Wan et al. (2015)
Creation and commercialization of technological innovation: relation between an organization's tactical orientation and (1) its choice of the target market; and (2) how its market orientation is carried out.	Slater and Mohr (2006); Sultan (2013)
Blockchain is a disruptive technology for companies: it carries multiple advantages – 1) It is trustworthy and open; 2) Promotes governance activities; 3) It features a protocol and a decentralized structure that guarantee truthfulness and safety; 4) It is consistent and durable; 5) It boosts operational effectiveness and brings down transaction costs; 6) It offers economic benefits; 7) It provides safety, privacy, and data ownership assurances.	Frizzo-Barker et al. (2020); Sedlmeir et al. (2020)
Development of a fresh market for disruptive innovation centered both on the disruption of the previous business model from the bottom up and the creation of an innovation mechanism.	Christensen et al. (2002)
Financial innovations: factors to be well-thought-out by corporations – 1) Demographics and national internet and mobile diffusion; 2) Changes in expectations; 3) Readaptation of business models; 4) Cost-effectiveness; 5) Niche focus; 6) Cyber safety; 7) Regulatory growth and the financial crisis; 8) Broadening and disintermediation of financial services; 9) Regulation as a foundation of disruption.	Anagnostopoulos (2018)
Diagnostic centered on verified modes of analysis: 1) Evaluate the value of succeeding; 2) Leverage existing expertise; 3) Cooperate with other enterprises.	King and Baatartogtokh (2015)
Focus on innovation: 1) Detect the innovation and its features; 2) Determine where innovation is applied in a company's value chain; 3) Contrast the possibly disruptive innovation with presently used technologies for that value chain sector.	Nagy et al. (2016)
Groundbreaking leadership and management: 1) To acknowledge the possibility for growth in disruptive innovation; 2) To comprehend the context and the features of the environment; 3) To use local skills in evolving markets; 4) To test with cheap logistics and distribution models.	Ray and Kanta Ray (2011)
Social innovation: they should be systemic and oppose the current status and the conventional belief.	Lettice and Parekh (2010)
Disruptive technologies and business models: improve the broadness of the business model to take advantage of external economies of scale and externalities after disruption to production and distribution.	Cozzolino et al. (2018)

models in organisations as one of the most effective practices for disruptive innovation. These models aim to address ongoing market changes and increase industry competitiveness (Akamavi et al., 2015; Christensen et al., 2018; Dewald and Bowen, 2010; Johnson et al., 2008; Osiyevskyy and Dewald, 2015; Voelpel et al., 2004; Wainstein and Bumpus, 2016; Yu and Hang, 2010).

4.2.2. *Offering new value propositions to attract customers*

Another disruptive innovation practice is offering a new value proposition to attract customers. More specifically, this new value

proposition involves offering an alternative package of benefits that is more affordable, compact, simple and/or convenient. Some authors have identified various motivations that can positively influence consumer acceptance of disruptive innovation, including price, value, authenticity, uniqueness, satisfaction, home benefits and social interaction (Guttentag and Smith, 2017; Guttentag et al., 2018; Rao, 2013; Schmidt and Druehl, 2008; So et al., 2018).

4.2.3. Establishing processes for disruptive innovation

According to Ansari et al. (2016), Christensen et al. (2006) and Paap and Katz (2004), the most effective approach for companies to adopt disruptive innovation is to implement specific processes based on the following three guidelines: 1) identifying signs of disruption in operations, 2) identifying specific catalytic innovations to determine whether a development constitutes a catalytic innovation, and 3) evaluating business models.

4.2.4. Leveraging digital transformation

In a different context, some authors suggest that best practice refers to digital transformation. This helps the sector use digital material to enhance, expand and redefine its physical and/or traditional products and services. It also involves redesigning the value proposition to consumers and generating new revenue streams to ensure business sustainability. (Karimi and Walter, 2015; Renko et al., 2009; Riffai et al., 2012).

4.2.5. Fostering organizational characteristics for innovation

Nevertheless, some studies focus on certain organizational characteristics as the best practice to implement disruptive innovation, namely:

- Understand the organizational abilities needed to develop disruptive innovation
- Consider customers and technology as the key abilities that drive innovation
- Key design variables for innovation: incentives, culture, and structure
- Value on entrepreneurship, risk-taking, flexibility, and creativity
- Adhocracy promotes disruptive innovation
- Distinct organizational units can promote disruptive ideas (Govindarajan and Kopalle, 2006; Henderson, 2006; Wan et al., 2015).

4.2.6. Embracing ambidexterity in organizations

At the macro level, Govindarajan et al. (2011) and O'Reilly III and Tushman (2004) emphasise that best practices refer to ambidextrous organisations. This means that companies must create teams that are structurally separate units, complete with their own procedures, structures, and cultures. This is especially important given their customer orientation, even if they are integrated into the current organisational management hierarchy. In this context, the studies by Pagani (2013) and Yeh et al. (2011) are important as they highlight the need for firms to identify value creation and capture points in order to implement disruptive innovations. Specifically, they must seek to address the following five value points: 1) value in customer access; 2) value in conventional infrastructure; 3) value in modularity; 4) value in content access; and 5) value in planning.

4.2.7. Other best practices

Still, the remaining articles suggest different practices for disruptive innovation, such as:

- Distinction between traditional and innovative markets, requiring different activities and key success factors (Blal et al., 2018; Markides, 2006)
- Policy mixes, aiming to combine original and destruction functions to accomplish sustainability transitions (Kivimaa and Kern, 2016)
- Research funding, in the sense of gaining knowledge of how to meet people's needs more cheaply, conveniently, and quickly without sacrificing effectiveness or quality (Christensen et al., 2000; Sultan, 2015)
- Specific components within the company's ecosystem, in this case in the financial technology (FinTech) industry (Lee and Shin, 2018)
- Development/creation and commercialization of technological innovation (Slater and Mohr, 2006; Sultan, 2013)
- Blockchain as a disruptive technology for organizations (Frizzo-Barker et al., 2020; Sedlmeir et al., 2020)
- Development of a fresh market for disruptive innovation (Christensen et al., 2002)
- Financial innovations, comprising several key factors (Anagnostopoulos, 2018)
- Diagnostic focused on authenticated modes of analysis, centered on the estimation of the value of succeeding, leveraging on existing expertise, and cooperating with other corporations (King and Baatartogtokh, 2015)
- Focus on innovation (Nagy et al., 2016)
- Groundbreaking leadership and management (Ray and Kanta Ray, 2011)
- Social innovation/changes (Lettice and Parekh, 2010)
- Combination of disruptive technologies with disruptive business models (Cozzolino et al., 2018).

4.3. Barriers in disruptive innovation adoption

4.3.1. Incumbency and legacy barriers

In terms of the main barriers to the implementation of disruptive innovation, the selected articles revealed eighteen different challenges and/or obstacles that organisations may have to overcome (see Table 12). Four studies suggest that one of these barriers relates to established/traditional firms (incumbents), in that implementing disruptive innovation affects them, consequently changing the market (Ansari et al., 2016; Christensen et al., 2000; Markides, 2006; Riffai et al., 2012). Berg et al. (2013) and Govindarajan and Kopalle (2006), however, claim that the main barriers relate to two aspects: performance measures and customer factors. Companies rely on market size, growth rate and profitability ex ante as a basis for incentives, which is inappropriate, and fail to understand new customer needs or change customer behaviour.

From a different perspective, some studies suggest that companies may undervalue disruptive innovation technologies in terms of analytical power and lack valuable frameworks to mitigate their impact, thus resisting this type of innovation (Alles, 2015; Paap and Katz, 2004). Furthermore, Assink (2006) and Henderson (2006) propose a more detailed analysis, suggesting additional barriers such as organisational dualism, unnecessary bureaucracy, suffocation of the status quo, lack of distinctive capabilities, outdated mental models, high risk and unpredictability, a risk-averse environment, lack of inspiration and market awareness, mishandling of the innovation process, lack of necessary infrastructure, and insufficient follow-up.

4.3.2. Financial and operational barriers

However, some articles adopt a broader approach to the barriers to disruptive innovation, describing the various challenges to its implementation within firms. For instance, Johnson et al. (2008) highlight financial barriers such as gross margins, opportunity size, unit prices, margins and fixed cost investments, as well as operational barriers including supplier quality, final product quality, customer service, channels and lead times. Other barriers include pricing, performance requirements and brand parameters. In their study, Lee and Shin (2018) identify six barriers: 1) investment management, 2) customer management, 3) legislation, 4) technological integration, 5) security and confidentiality, and 6) risk management.

4.3.3. Culture, governance and human behavior barriers

Based on the perspective presented by Yu and Hang (2010), the barriers associated with implementing disruptive innovations include various organisational factors, such as culture, human resources, resource allocation, organisational structure, context, environment, customer orientation and technological strategies. In turn, Frizzo-Barker et al. (2020) argue that the main barriers fall under the technical, firm or societal levels, thus highlighting a broader range of obstacles that organisations must overcome.

4.3.4. Other barriers

The remaining studies suggest other types of obstacles to the implementation of disruptive innovation in organizations, such as:

- Legality and tax duties (illegal or legal, and not paying taxes) (Guttentag, 2015)
- Governments, in the sense each government takes a different approach to the difficulties of accelerating sustainability transformations. (Kivimaa and Kern, 2016)
- Consumers' constraints, such as the perceived danger of consuming the product or service, doubt, unusualness, subjective norms, and sustainability and preference for the local community and economy (So et al., 2018)
- Perceived performance-decreasing threat and critical threats (Osiyevskyy and Dewald, 2015)
- Higher costs and public acceptability (Sultan, 2015)
- Low technology and resource-limited areas within the business/industry (Agarwal et al., 2017)
- Hesitant management, present market research tactics, and lack of design expertise (Ray and Kanta Ray, 2011)
- Social innovation and changes (in terms of thinking, working, and overcoming complex circumstances in new ways) (Lettice and Parekh, 2010)
- Disruptive business models (reluctance to change and limitations in consolidating or exploiting existing business models) (Dewald and Bowen, 2010)
- And strategic management (resource dependence upon mainstream consumers, rigidity of practices and skills, demand uncertainty, financial incentives, reliance on established value networks, and institutional pressures) (Cozzolino et al., 2018).

4.4. Key insights and strategies from literature

To provide a consolidated view of the literature analysis, the following Table 12 synthesizes the main barriers, insights, and strategies identified across the reviewed studies. While the preceding subsections present a detailed discussion, the table serves as a concise overview that highlights the thematic patterns, proposed organizational responses, and representative references. This integrative summary is intended to enhance clarity for the reader and underscore the key contributions of the analysis.

5. Results and discussion

RQ1. – What are the best practices for implementing disruptive innovation within organizations?

Our analysis identified several recurring best practices across the literature. These include the integration of digital technologies such as AI, big data analytics, and blockchain into core business processes to enhance flexibility and scalability; the development of dynamic capabilities that allow rapid adaptation to market shifts; and leadership approaches that foster a culture of experimentation and cross-functional collaboration. Additionally, aligning disruptive initiatives with customer-centric value propositions emerged as a critical factor for ensuring adoption and market penetration. These practices are supported by multiple high-impact studies that consistently link them to sustained competitive advantage.

RQ2. – What barriers do organizations encounter when attempting to implement disruptive innovation?

The review highlighted common structural, cultural, and resource-based barriers. These include organizational inertia rooted in legacy processes, resistance to change among management and staff, insufficient resource allocation for exploratory projects, and the tension between short-term profitability pressures and long-term innovation investments. External factors—such as regulatory constraints, industry-specific standards, and market entry barriers—also play a significant role. Importantly, many studies noted that firms often underestimate the complexity of integrating disruptive technologies into existing value networks, leading to implementation failures.

RQ3. – How do organizational capabilities and strategies influence the successful adoption of disruptive innovation?

Findings indicate that organizational agility, absorptive capacity, and ambidextrous innovation strategies (balancing exploration and exploitation) are key determinants of success. Firms that invest in capability development, encourage interdepartmental knowledge sharing, and establish strategic alliances with external innovators show higher success rates in disruptive innovation adoption. Moreover, leadership commitment and a clearly articulated innovation vision serve as enablers, ensuring that disruptive initiatives receive sustained support and are integrated into the organization's strategic roadmap.

Disruptive innovation is critical to business success, opening up new markets and providing new services and products. However, a major concern regarding its implementation is that data is often generated after the innovation has already been adopted by the organisation. The literature also suggests that there are some common misconceptions about disruptive innovation. Therefore, this study aimed to gather knowledge about the best practices and techniques that enable the successful implementation and management of disruptive innovation, as well as the barriers that prevent companies from doing so.

A systematic literature review was conducted, including 50 articles from various industries and contexts to provide in-depth knowledge in answer to the research question. Disruptive innovation implies an innovative product or service that impacts the organisation and the market/industry, and is likely to change the current market disposition and competitiveness requirements, irrespective of the industry, market level or technologies. Overall, the concept is strongly associated with technology, either in terms of the final product or service or the technology used to develop it, thus correlating with the current pace of development, which is inextricably linked to digital transformation. In conclusion, companies must consider disruptive innovation to be a key concept, particularly given the profound changes it can implement in the current global scenario.

Examining the best practices and techniques of disruptive innovation (see Table 11), it is evident that implementing new business models in organisations is a common practice. The primary objective of this approach is to address permanent changes in the market and enhance industry competitiveness (Akamavi et al., 2015; Dewald and Bowen, 2010; Voelpel et al., 2004; Yu and Hang, 2010). However, other important factors for successfully implementing disruptive innovation in organisations include offering a new value proposition to attract customers (Guttentag and Smith, 2017; Schmidt and Druehl, 2008), implementing disruptive innovation processes (Ansari et al., 2016; Christensen et al., 2006; Paap and Katz, 2004), undergoing digital transformation (Karimi and Walter, 2015) and considering different organisational characteristics and resulting changes (Wan et al., 2015).

Overall, the best practices for implementing disruptive innovation in organisations must recognise that it is an inevitable part of today's world and that companies must address this evolutionary parameter to remain successful and competitive in the market. This success and

Table 11
Barriers to the implementation of disruptive innovation based on the selected articles (own elaboration).

Barriers to implementation	Authors
Financial: gross margins, opportunity size, unit pricing, and margins, fixed cost investment; **Operational:** end-product quality, supplier quality, customer service, channels, lead times; **Others:** pricing, performance demands, brand parameters.	Johnson et al. (2008)
Legality and tax duties: can be either illegal or legal, and not paying taxes.	Guttentag (2015)
Established/traditional firms (incumbents): disruptive innovation influences existing firms and changes the market.	Ansari et al. (2016); Christensen et al. (2000); Markides (2006); Riffai et al. (2012)
Governments: each government takes a different approach to the difficulties of accelerating sustainability transformations.	Kivimaa and Kern (2016)
1) Investment management; 2) Client management; 3) Law; 4) Technological integration; 5) Safety and confidentiality; 6) Risk management.	Lee and Shin (2018)
Human resources: managers' abilities and executive incentive programs; **Organizational culture:** avoiding cultural change; **Resource allocation:** organized procedures and dependence on resources; **Organizational structure:** lack of self-directed corporations and the size is inversely correlated to the success of disruptive innovations; **Context and environment:** companies are devoted to specific individuals and goals and some contextual aspects vary through time; **Client orientation:** absence of a connection between the company's innovation and the existing market, client needs, and/or market circumstances; **Technological strategies:** lack or inadequate technology road mapping.	Yu and Hang (2010)
1) Organizational dualism; 2) Unnecessary bureaucracy; 3) Smothering of the current situation; 4) Deficiency of distinctive capabilities; 5) Outdated mental models; 6) High risks and unpredictability; 7) Risk averse environment; 8) Lack of inspiration; 9) Lack of market awareness and vision; 10) Innovation process mishandling; 11) Lack of required infrastructure; 12) Insufficient follow-up.	Assink (2006); Henderson (2006)
Client's restrictions: 1) Perceived danger of using the product or service; 2) Doubt; 3) Unusualness; 4) Subjective norms; 5) Sustainability and preference for the local community and economy.	So et al. (2018)
Performance measures: being dependent on market size, growth rate, and profitability ex-ante as a foundation for choosing incentives is inadequate; **Client's factors:** lack of understanding concerning new customer needs or the incapacity to influence customer conduct.	Bergek et al. (2013); Govindarajan and Kopalle (2006)
Technical level: scalability, dependability, volatility, safety, wasted resources, damaging environmental effects, and absence of uniform norms; **Corporate level:** problems related to governance and legislation, implementing and incorporating blockchain into existing business, and lack of universal standards; **Societal level:** increased hazards of surveillance and scam, security, crime, corporatization, as well as a number of other social and ethical issues.	Frizzo-Barker et al. (2020)
Perceived performance-decreasing threat: it is triggered by forecasted loss, or anticipated results below the desired objectives, in terms of revenues and profits; **Critical threat:** events that are expected to bring great difficulties and result in the closure of the whole business.	Osiyevskyy and Dewald (2015)
1) Higher costs; 2) Little applications available to use with wearable devices; 3) Problems of confidentiality and safety (digital data); 4) Public acceptability; 5) Suitability and accessibility of wearable technology; 6) Health and personal life issues.	Sultan (2015)
Businesses or industries operating in low-tech or resource-limited environments.	Agarwal et al. (2017)
Firms may not understand the disruptive innovation technology's analytical capacity, oppose the innovation, or may not have access to effective frameworks to lessen its effects.	Alles (2015); Paap and Katz (2004)
1) Senior executives are hesitant to allocate resources to meet disruptive innovation; 2) Existing market research tactics; 3) Absence of design skills among local providers.	Ray and Kanta Ray (2011)
Social innovation/changes: 1) Incapacity to reflect on the existing problems in new ways; 2) Not dealing with the difficulty of systems' change; 3) Incapacity to overcome opposition from established players and inability to transition from an active niche to the mainstream; 4) Not receiving the proper kind of assistance.	Lettice and Parekh (2010)
Disruptive business models: 1) Small incumbents usually are unsure when to actively oppose or adopt the new business models; 2) Reluctance to change because of the idea of the business model innovation as a risk; 3) Limitations to combining or utilizing current business models.	Dewald and Bowen (2010)
Strategic management: 1) Dependency on mainstream consumers for resources; 2) Rigidity of current practices and skills; 3) Demand uncertainty; 4) Institutional pressures in handling diverse organizational demands of disruptive innovations; 5) Financial incentives and reliance on recognized value networks.	Cozzolino et al. (2018)

competitiveness can only be achieved if companies change their outdated operational and management strategies, integrate innovation into their organisational culture, and modify all their internal structures to fully implement this innovation. Organisations that resist this innovation will end up being overtaken by their competitors, either struggling to survive or disappearing completely.

Finally, the main barriers to implementing disruptive innovation were identified (see Table 12), relating to various levels and aspects of the organisation, as well as some external factors. Several studies have identified one barrier relating to established/traditional companies, given that disruptive innovation significantly impacts them and changes the market (Ansari et al., 2016; Christensen et al., 2000; Markides, 2006; Riffai et al., 2012). However, other barriers to the implementation of disruptive innovation in organisations are usually performance measures and customer factors (Bergek et al., 2013). Companies may disregard the value of disruptive innovation technology in terms of analytical power (Alles, 2015; Paap and Katz, 2004), or face financial and operational barriers (Johnson et al., 2008). Other factors include some aspects of the organisational context (Yu and Hang, 2010), government (Kivimaa and Kern, 2016), consumer constraints (So et al., 2018) and disruptive business models (Cozzolino et al., 2018). Together, these factors contribute to the rejection of disruptive innovation by firms or challenge its implementation within organisations, pointing to obstacles that must be overcome for firms to implement disruptive innovation successfully, ultimately leading to growth and competitiveness in the market.

5.1. *Implications of the findings for existing knowledge*

This systematic review makes a significant contribution to academic discourse on disruptive innovation, providing a nuanced understanding of its definitions, mechanisms and implications across various industries. By synthesising insights from a diverse set of studies, the review enhances the existing theoretical frameworks surrounding disruptive innovation, particularly with regard to clarifying its multifaceted nature and the conditions under which it flourishes.

The identification of best practices for implementing disruptive innovation within organisations, such as adopting new business models

Table 12
main barriers, insights, and strategies identified across the reviewed studies (own elaboration).

Theme / Barrier	Key Insights (from Literature)	Strategies / Responses (Proposed or Observed)	Representative References
Cognitive Barriers (mental models, knowledge rigidity)	Organizations resist unlearning dominant designs; entrenched knowledge assets hinder novelty	Promote knowledge flexibility, invest in organizational learning	Assink (2006); Lin et al. (2018)
Cultural Barriers (risk aversion, innovation climate)	Risk-averse cultures discourage experimentation and failure	Encourage risk-taking, build innovation-supportive culture	Das et al. (2018); Lindsay and Hopkins (2010)
Structural Barriers (organizational design, cluster inertia)	Industrial clusters foster systemic inertia; structural silos constrain innovation	Structural separation for experimentation, partnerships, ecosystem collaboration	Chen et al. (2022); Kuhlmann et al. (2022)
Sector-Specific Constraints	Sectoral regulations, slow adaptation (e.g., healthcare, manufacturing)	Tailored innovation strategies depending on sector context	Newton et al. (2020); Roblek et al. (2021); Lai et al. (2024)
Cross-Sectoral Evidence	Barriers are pervasive across industries but treated in siloed studies	Integrative frameworks needed for cross-sectoral insights	Newton et al. (2020); Lai et al. (2024)

and fostering an organisational culture conducive to innovation, provides businesses with a set of refined strategies to help them navigate market transformations. These best practices serve as actionable guidelines for companies, thereby bridging the gap between theory and practical application.

By highlighting the wide range of barriers to the adoption of disruptive innovation, including incumbent resistance and operational and cultural obstacles, this study contributes to a deeper understanding of the challenges organisations face. This comprehensive overview helps organisations to anticipate potential pitfalls and develop targeted strategies to overcome them.

5.2. Uncovered gaps and avenues for future research

Although best practices have been identified, there is a lack of empirical research examining the effectiveness of these strategies in different contexts. Future studies could focus on the practical application of these best practices to provide data-driven insights into their impact on organisational performance and market competitiveness.

The review highlights the variability of disruptive innovation across industries. However, there is still a need for in-depth analyses that explore how industry-specific factors influence the adoption of, and response to, disruptive innovations. Such research could offer tailored innovation management recommendations for different sectors.

While the review discusses offering new value propositions as a means of driving disruptive innovation, further research is needed to understand the nuances of consumer acceptance and its effect on market dynamics. Studies could investigate the psychological and socio-economic factors that influence consumer behaviour towards disruptive innovations.

Given the crucial role of digital transformation in facilitating disruptive innovation, there is a need to explore the synergies between technological advancements and innovation strategies. Future work could examine how emerging technologies, such as artificial intelligence and blockchain, are reshaping the landscape of disruptive innovation.

The review provides an overview of the current state of disruptive innovation research. However, longitudinal studies tracking the evolution of disruptive innovation concepts, practices and impacts over time are needed, particularly in response to rapid technological changes and global market shifts.

This systematic literature review makes a significant contribution to the body of knowledge on disruptive innovation. Highlighting the implications of these findings reveals both the advancements made and the gaps that remain. Addressing these gaps through future research will further enrich our understanding of, and ability to manage, disruptive innovation, ensuring that businesses can leverage these insights to sustain growth and competitiveness in an ever-evolving landscape.

5.3. Practical implications of the best practices and barriers

5.3.1. Addressing best practices to innovation

Businesses should proactively seek to understand and adapt to ongoing market transformations by reevaluating and, if necessary, redesigning their business models to align with disruptive innovations. This might include exploring subscription-based models, platform services, or customer-centric solutions that leverage digital technologies. Leadership teams must foster an organizational culture that embraces change, encourages experimentation, and is resilient to the failures that may accompany innovation efforts.

Companies should focus on identifying unmet customer needs and developing value propositions that address these gaps. This could involve simplifying product offerings, reducing costs, improving accessibility, or enhancing user experiences. Marketing and product development teams need to work closely with customer insights and analytics departments to continuously gather and analyze customer feedback, adapting offerings in real-time to meet evolving preferences.

Businesses must cultivate an environment that supports innovation through incentives, culture, structure, and leadership. Promoting a culture of risk-taking, flexibility, and creativity is essential for sustaining innovation. Human resources and organizational development professionals should implement training programs focused on creative thinking and innovation management. Additionally, recognizing and rewarding innovative efforts can motivate employees to contribute to the company's disruptive innovation goals.

Policymakers should strive to develop and adjust regulations that encourage innovation and support the growth of new business models without stifling competition or inhibiting technological advancement. Engaging with industry stakeholders through consultative processes can help ensure that regulations are both effective and conducive to innovation. This might involve temporary regulatory sandboxes where new technologies can be tested in a controlled environment.

Increasing funding and support for research and development activities, particularly in emerging technologies, can help foster an ecosystem conducive to disruptive innovation. Policymakers should consider targeted tax incentives, grants, and partnerships between academia and industry to stimulate innovation in key sectors identified as having high growth potential or strategic importance.

5.3.2. Addressing barriers to innovation

Identifying and addressing the systemic barriers to innovation within industries can help remove obstacles that prevent the adoption of disruptive technologies. This might include facilitating access to finance for startups, improving intellectual property protections, or enhancing digital infrastructure. Developing policies that support cross-industry collaboration and knowledge sharing can accelerate the diffusion of innovative practices and technologies across the economy.

To prepare the workforce for the demands of a rapidly changing economy driven by disruptive innovation, education and training programs need to emphasize digital literacy, critical thinking, and

Table 13
Best Practices, Barriers, and Their Practical Implications for Disruptive Innovation (own elaboration).

Dimension	Best Practices	Barriers	Practical Implications
Cognitive	Promote knowledge flexibility; encourage unlearning of outdated models	Entrenched mental models; rigid knowledge structures	Organizations must design training and learning systems that foster adaptability, enabling employees to let go of dominant designs and embrace novel approaches.
Cultural	Foster experimentation and acceptance of failure	Risk-averse corporate cultures	Leaders need to cultivate an innovation-friendly climate by rewarding experimentation and tolerating failure, which are essential for disruptive innovation.
Structural	Use structural separation for innovation projects; build cross-sector partnerships	Organizational inertia; siloed structures	Firms should create semi-autonomous units or collaborative ecosystems to test disruptive initiatives without being constrained by existing operations.
Knowledge Assets	Leverage embedded knowledge while keeping it adaptable	Over-embedded or highly specific knowledge impedes flexibility	Knowledge management should focus on balance: valuing expertise while avoiding excessive path-dependency that limits disruptive innovation.
Sectoral / Cross-Sectoral	Tailor innovation strategies to regulatory or industry contexts	Regulatory constraints; slow adaptation in critical services	Policymakers and managers must align innovation strategies with sector-specific realities, while fostering cross-sector learning to overcome siloed practices.

entrepreneurial skills. Policymakers should collaborate with educational institutions and industry partners to align curricula with the future skills needs, including lifelong learning and re-skilling initiatives for the existing workforce.

The practical implications of the best practices and barriers to disruptive innovation highlight the need for both businesses and policymakers to adopt proactive, strategic approaches to innovation. By addressing these considerations, stakeholders can better navigate the challenges and opportunities presented by disruptive innovation, fostering environments that not only support but thrive on continual change and innovation.

5.3.3. Practical implications examples

The results of this study offer actionable guidance for organizations seeking to implement disruptive innovation effectively. For example, firms in the manufacturing sector can apply the identified best practices by integrating predictive maintenance technologies—such as AI-driven equipment monitoring - into their production lines, thus enhancing operational efficiency while enabling flexible product customization. In healthcare, adopting modular digital platforms can improve interoperability between hospital systems, directly addressing the barrier of fragmented data identified in our results.

In the financial services industry, the capability-building strategies discussed in this research can inform the creation of internal "innovation sandboxes," where new products or services are tested with a small customer segment before full-scale launch, thereby reducing risk while fostering agility. Similarly, SMEs engaged in international retail expansion—as seen in the Yiwu Commodity Market case—can leverage our findings by using digital marketplaces to bypass traditional distribution networks, lowering entry barriers and accelerating market penetration.

The reframing of certain barriers as adaptive challenges, rather than fixed obstacles, suggests that organizations across sectors can implement targeted interventions such as cross-functional training programs to reduce cultural resistance, or flexible budget allocations that allow rapid reallocation of resources toward emerging innovation opportunities. These concrete applications demonstrate how the study's insights can be operationalized in varied industry contexts, bridging the gap between conceptual findings and managerial action.

The findings of this study confirm several well-documented success factors for disruptive innovation, such as the importance of dynamic capabilities and customer-centric strategies (Wang et al., 2023; Aujirapongpan et al., 2020), but they also extend the literature by demonstrating how these factors operate differently in digital-intensive industries compared to more traditional sectors. For example, while previous studies (Christensen et al., 2017; Baiyere and Hukal, 2020) emphasize the role of leadership vision, our results suggest that in high-velocity digital environments, leadership agility—defined as the ability to rapidly reconfigure priorities and resources - may be more critical than long-term vision alone.

Unlike prior work that treats barriers largely as static obstacles (Habtay, 2012; Khan and Luiz, 2023), our synthesis indicates that several barriers - particularly cultural resistance and resource constraints - are dynamic and can be mitigated through targeted interventions such as innovation training and iterative resource allocation. This perspective reframes barriers not as immutable limitations but as adaptive challenges, offering a more actionable approach for practitioners.

Building on the analysis of best practices and barriers, it is essential to translate these findings into actionable insights for organizations. To this end, the following Table 13 provides a schematic overview that links each thematic dimension to the corresponding best practices, barriers, and their practical implications. By presenting the results in this structured way, the table highlights how organizations can leverage enabling factors while addressing critical obstacles, thereby offering a clearer path for aligning disruptive innovation theory with practice.

6. Conclusion

This systematic literature review aimed to assess the best practices and techniques for implementing disruptive innovation in organisations, as well as investigating the barriers to doing so. It was concluded that the most effective disruptive innovation implementation strategies all involve changes to the current organisational context and structure, as well as to society in general. The focus is on introducing new business models, products, services and technologies so that the industry and market can evolve, thereby contributing to the organisation's success and survival. In terms of the main barriers to implementing disruptive innovation, it was found that they all involve rejecting innovation and are associated with multiple contexts and scenarios, ranging from societal perspectives to organisational structures and business models. Ultimately, these barriers are related to outdated thinking and strategic management, favouring more traditional and established businesses and strategies.

Despite the fact that disruptive innovation is an increasingly discussed concept with growing popularity and implementation in various markets and industries, this systematic literature review revealed that there are still few studies focusing on it. Furthermore, existing studies show a lack of consensus when discussing disruptive innovation. A significant number of studies develop in-depth analyses based on different contexts and assumptions, which ultimately lead to misconceptions about the concept itself.

This study was based on a single database containing papers written in English with more than 100 citations, published in Q1 and Q2 quality journals. Therefore, other relevant papers were not included in this systematic literature review. Additionally, the final screening was based on the titles, abstracts, and keywords of the papers. This means that papers focusing on this concept that did not exactly fit the aim of this study were not included.

The following recommendations for future research are directly

informed by the key findings of this review, ensuring that each suggested direction addresses specific themes, gaps, or tensions identified in the results.

One significant area that demands attention is the expansion of empirical evidence concerning the best practices for implementing disruptive innovation. There is a compelling need for longitudinal case studies across diverse industries to evaluate the long-term effectiveness of these practices. Such studies could illuminate how these practices impact organizational performance, market competitiveness, and industry standards over time, providing much-needed empirical validation.

Another critical area involves a deeper exploration of the barriers to disruptive innovation. Qualitative research that delves into the micro-perspectives of internal and external barriers, including organizational culture, leadership resistance, regulatory challenges, and market acceptance, could offer nuanced strategies for navigating these obstacles.

The interplay between digital transformation and disruptive innovation also warrants further investigation. Understanding how digital technologies can serve as enablers and accelerators of innovation, alongside the challenges and risks associated with digital transformation efforts, is vital for guiding effective innovation strategies.

Consumer behavior and market response to disruptive innovations present another fertile ground for research. Studies aimed at deciphering the factors driving consumer acceptance and adoption, as well as how these innovations reshape market dynamics and expectations, are essential for crafting effective market entry strategies and regulatory policies.

The sustainability implications of disruptive innovations constitute an important research direction. Investigating the environmental, social, and economic impacts of these innovations, especially in the realms of green technology and social entrepreneurship, aligns with global sustainability goals and offers insights into how innovation efforts can contribute to a more sustainable future.

Evaluating the impact of policy and regulatory environments on the development and adoption of disruptive innovations is crucial. Comparative studies across different geopolitical landscapes and analyses of policy interventions designed to foster innovation could provide policymakers with evidence-based insights for supporting innovation while mitigating potential societal and economic impacts.

The role of education and training in preparing the workforce for the age of disruptive innovation demands thorough exploration. Research on the effectiveness of current educational curricula, lifelong learning programs, and skills development initiatives could ensure that individuals and economies are well-equipped to thrive amidst rapid technological and market transformations.

Pursuing these research directions could significantly advance the field of disruptive innovation. By addressing these critical areas, future research can offer valuable insights that bridge the gap between theory and practice, aiding businesses, policymakers, and society in navigating the complexities of disruptive innovation more adeptly.

While this study offers a comprehensive synthesis of the literature on disruptive innovation, several limitations should be acknowledged. First, the analysis is based exclusively on publications indexed in Scopus, which, despite its breadth and quality, may omit relevant studies from other databases or grey literature sources. Second, the inclusion criteria—focusing on articles with more than 100 citations and published in Q1/Q2 journals or A/B-ranked conferences—ensured high-impact sources but may have excluded emerging research with valuable, yet less cited, insights. Third, although the systematic screening and thematic synthesis provide a structured and reliable approach, the findings are inherently shaped by the interpretations of the selected studies, and potential biases in those primary sources may influence the conclusions. Finally, the sector-specific examples provided are illustrative rather than exhaustive; industry contexts not explicitly covered in the sample may require adaptation of the identified practices and strategies. Acknowledging these limitations reinforces the need for further empirical research, particularly cross-industry and longitudinal studies, to test and refine the proposed insights in diverse organizational and market environments.

Ethical considerations

This study was conducted in accordance with established academic research ethics. As a systematic literature review, it relied exclusively on publicly available, peer-reviewed sources, ensuring that no primary data collection involving human participants was undertaken. All sources have been cited appropriately to acknowledge intellectual property and avoid plagiarism. The selection, analysis, and presentation of data were carried out objectively and transparently, with no conflicts of interest influencing the findings or interpretations.

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Ethical statement

This study was conducted with strict adherence to ethical standards in research, ensuring integrity, transparency, and respect for intellectual property. The systematic literature review was performed using established methodologies to minimize bias and ensure the reliability of findings. All referenced works have been appropriately cited to acknowledge contributions from prior research. This study does not involve human or animal subjects, and thus no ethical approval was required. The authors declare no conflicts of interest, financial or otherwise, that could influence the outcomes or interpretations of this research. Any funding sources are transparently acknowledged, and the authors commit to open data sharing upon request, consistent with the principles of open science promoted by the Journal of Open Innovation: Technology, Market, and Complexity.

CRediT authorship contribution statement

Crespo de Carvalho José: Validation, Supervision, Resources, Funding acquisition. **Álvaro L. Dias:** Validation, Methodology. **Pereira Leandro:** Writing – review & editing, Validation, Supervision. **Bárbara Gemelgo:** Writing – original draft, Formal analysis, Conceptualization.

Declaration of Competing Interest

In accordance with the guidelines of Journal of Open Innovation: Technology, Market, and Complexity, we declare that we have no financial or personal relationships that could inappropriately influence or bias the submitted work, specifically:

- Employment: We have no employment connections that could influence the study's findings or conclusions.
- Consultancies: We have no consulting relationships relevant to the work presented.
- Stock Ownership: We do not hold stock or other ownership interests in any organizations that could present a conflict of interest.
- Honoraria: We have not received any honoraria related to this work.
- Paid Expert Testimony: We have not provided any paid expert testimony relevant to the study or related subject areas.
- Patent Applications/Registrations: We do not have any patent applications or registrations that may present a conflict.
- Grants/Funding: This study received no external grants or funding that might influence its findings.

Data Availability

Data was collected from the Scopus database and is available on request from the corresponding author.

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