# Reviewing The Antecedents and Outcomes of Business Model Innovation in Startups

*Raditya Ardianwiliandri*[1*], *Sandra Hasanefendic*[1], *Bart Bossink*[1]

**Abstract:**
Business Model Innovation (BMI) is pivotal for startups navigating dynamic business environments, allowing them to leverage opportunities arising from technological advancements and evolving consumer behavior. Despite its significance, there is a lack of comprehensive knowledge for understanding the antecedents influencing the value creation, delivery, and capture processes of startups' BMI and its outcomes. This study addresses this gap by conducting a systematic literature review over the past decade. It presents a research framework for startups' BMI, emphasizing the connections between antecedents and outcomes across the entrepreneurial, organizational, and environmental levels. This review highlights the central role of technology adoption and experimentation, alongside organizational capabilities, market orientation, and collaboration, in driving BMI. This study further shows how external conditions, including regulatory environments, institutional contexts, and techno-economic trends that shape startups' BMI trajectories, particularly in emerging economies, where startups are often compelled to engage in early-stage market creation while navigating institutional voids. Furthermore, this study consolidates the operationalization of BMI outcomes into a parsimonious set of key performance indicators, providing a coherent measurement baseline for assessing the effectiveness of BMI in startups. By integrating antecedents, contextual influences, and outcome measurements, this review provides a structured foundation for future empirical research and progress in practice.

**Keywords:** strategy, innovation, technology, startups, business model

Submitted: May 22, 2025 / Approved: April 18, 2026

## 1. Introduction

In today's rapidly evolving business landscape, Business Model Innovation (BMI) has emerged as a pivotal strategy and blueprint for organizational value generation, value capture, and delivery, accelerating upscaling, and building resilience in the face of uncertainty (Foss & Saebi, 2018; Snihur & Markman, 2023). BMI is vital for organizational agility (Sahebalzamani et al., 2023; Teece, 2018) and transcends traditional organizational boundaries, offering a holistic framework for businesses to revitalize their strategies and realign with market dynamics (Khodaei & Ortt, 2019). Additionally, it plays a pivotal role in navigating the complexities of the modern global economy and in securing sustainable growth amid technological change (Demil & Lecocq, 2010; Van Tonder et al., 2024). For instance, in Small and Medium Enterprises (SMEs), BMI positively affects overall business performance through digital technology transformation (Van Tonder et al., 2023). In the context of startups, BMI plays a crucial role in their growth and survival (Dopfer, 2018). Startups are both beneficiaries and victims of the dynamic business environment in which they operate (Calvino et al., 2015). On the one hand, they are uniquely positioned to seize opportunities from technological advancements and changing consumer behavior. Limited resources, including financial capital and human talent, increase startup complexity (Barney, 1991). Sudden shocks, such as COVID-19 and geopolitical instability, profoundly impact startups and other business entities (Aldianto et al., 2021). Ultimately, startups are volatile and among the vulnerable organizations in the business landscape (Kézai & Kurucz, 2023). To survive, startups must consistently adapt by adopting technology, and BMI offers a well-defined framework to guide this process. Startups can strategically position themselves to survive and achieve competitive advantages by re-evaluating their value propositions, experimenting with revenue models, and seeking novel, often digital, technology-based ways to engage customers (Dopfer, 2018; Kézai & Kurucz, 2023).

Scholars have explored the significance of the BMI in entrepreneurial ventures and the strategic evolution of startups. Recent research has highlighted the importance of agility and adaptability, influenced by technology adoption, in ensuring the success of startups (Sreenivasan & Suresh, 2023). These findings align with studies that emphasize the importance of startups experimenting with technology to assess the viability of their Business Models (BMs) and manage uncertainty effectively (N. Bocken & Snihur, 2020; Felin et al., 2020; Koning et al., 2019). Other research highlights the transformative impact of digital technologies on the development of startups' BMI. The rise of digital technologies has catalyzed disruptive changes, enabling startups to create innovative BMs that leverage data, automation, and connectivity to offer unique value propositions (G. Gupta & Bose, 2019; Kulkov, 2021; Lamperti et al., 2023; Richter et al., 2017; Singh et al., 2022). Furthermore, a notable techno-economic trend emerging from recent studies is the growing prominence of sustainable and circular business models within startups (Han et al., 2023, 2023; Huynh, 2022a; Long et al., 2018; Richter et al., 2017; Sanasi et al., 2020a; Todeschini et al., 2017; Van Opstal & Borms, 2023). This trend

[1]Vrije Universiteit Amsterdam, Netherlands.
[*]Corresponding author: r.ardianwiliandri@vu.nl

exemplifies a shift towards more responsible and resource-efficient practices, enabled by technological advancements and aligned with evolving consumer preferences for socially responsible and environmentally friendly products and services (Marques Kneipp et al., 2025; Peripolli Sanfelice et al., 2024). This evolving research landscape sheds light on how startups, through technology adoption, excel at creating, delivering, and capturing value, effectively navigate the complexities of the business environment, foster innovation, and enhance their competitiveness.

However, despite such scholarly work, the current research landscape on startups' BMI lacks a cohesive and organized structure to provide a better understanding of how various factors influence the success of the BMI process of startups in a dynamic business landscape (Farhana & Swietlicki, 2020; Spieth et al., 2025a; Wirtz et al., 2016). Consequently, the absence of a comprehensive approach prevents scholars and practitioners from understanding the critical elements and dynamics of startups in creating, delivering, and capturing value. Foss and Saebi (2017) argue that this gap must be addressed to advance the BMI literature on the unity and identification of its antecedents and outcomes. A comprehensive review of the existing literature on startups' BMI, which explores antecedents of the dynamic innovation process and strategies, provides insights into the factors that contribute to startups' survival and growth in a dynamic business environment.

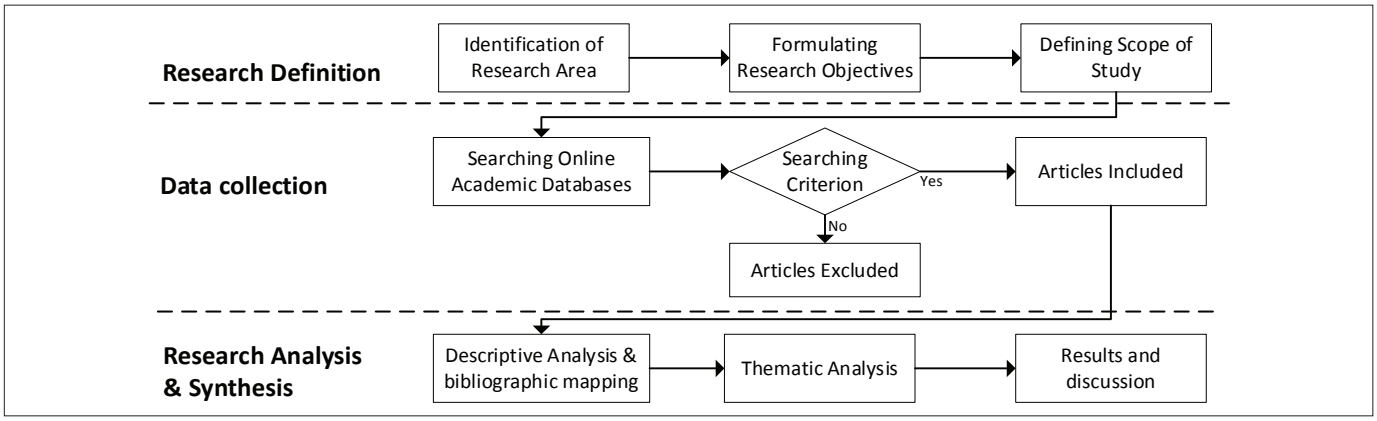
This study systematically reviews the literature on the BMI of startups in a dynamic business environment. It focuses on the research question of *which antecedents influence the value creation, delivery, and capture process of startups' business model innovation (BMI), and what are these BMIs' outcomes?* Furthermore, it aims to unveil emerging trends within this field, providing insights for future research and practical applications.

The remainder of this paper is organized as follows. First, it explores the literature to map the existing body of knowledge, highlighting the key themes, trends, and current research methodologies. Second, the focus shifts to thoroughly investigating the antecedents and outcomes of startups' BMI, aiming to identify factors that influence the value-creation, delivery, and capture processes and their outcomes. This study constructs a model to visualize the research framework on startups' BMI, emphasizing the connections between the antecedents of value creation, delivery, and capture in startups' BMI and their corresponding outcomes. The findings underscore the pivotal role of technology adoption in enhancing business performance at the entrepreneurial, organizational, and environmental levels. Key contributors include fostering collaboration among stakeholders, engaging in market orientation, building internal and external competencies to address rapidly changing environments, and conducting business experimentation. This study also recognizes external factors, including regulatory environments, institutional contexts, and techno-economic trends that shape BMI trajectories, particularly in emerging economies where startups are often compelled to engage in early-stage market creation while navigating institutional voids. Finally, by consolidating fragmented outcome measures into a coherent set of Key Performance Indicators (KPIs), this study identifies critical gaps and provides a structured foundation for future empirical research on BMI across diverse contexts.

## 2. Methodology

This study was conducted using a systematic literature review method, which follows a well-defined, scientific, and transparent approach to reduce bias by searching for published and unpublished studies and documenting the reviewer's decision-making process, methodology, and conclusions (Tranfield et al., 2003). As shown in Figure 1, the overall process is divided into three main phases: research definition, data collection, and analysis and synthesis of results. This systematic review was guided by the Preferred Reporting Items for Systematic Review and Meta-Analysis (PRISMA) statement (Page et al., 2021). PRISMA is a standardized checklist for conducting and reporting systematic literature reviews. Furthermore, this study follows Linnenluecke's approach, a systematic literature review method that emphasizes in-depth analysis and synthesis of the literature (Linnenluecke et al., 2020). Both approaches emphasize the importance of a systematic, comprehensive search for relevant studies and the need to evaluate the quality of those included in the review. Additionally, both approaches prioritize transparency and reproducibility in the review process, ensuring that the literature review results are comprehensive, rigorous, and relevant to the research questions.

**Figure 1.** Methodological framework of the study



### 2.1 Research *Framework*

The first phase involved identifying the research area, objectives, and scope of the study. The research area of this study is a systematic review of startups' innovative BMs. Objective research refers to the characteristics of startup business model innovation in a dynamic business environment, as evidenced by empirical findings. The scope of the study was then narrowed to focus on the research area relevant to the objective. The primary research question is *which antecedents influence the value creation, delivery, and capture process of startups' business model innovation (BMI), and what are the outcomes of this BMI? This* study formulated several specific review questions to guide data collection as part of determining the scope of the study, as follows:

- What is known in the current literature on startup BMI?
- What knowledge gaps exist, and how are the different research streams related?
- How do current and future research advance the understanding of the antecedents and outcomes of the value creation, delivery, and capture processes of startup BMI?

### 2.2 Data Collection

In the second phase, we developed a search strategy that included criteria for selecting articles. Relevant articles in academic databases were identified using search strings and Boolean operators to retrieve studies within the scope of this study. As shown in Table 1, two categories of keywords are identified associated with "Business model innovation" and "Startup."

Search strings must identify and include synonyms and closely related concepts (Hausner et al., 2012). This study used the search strings from Foss and Saebi (2017) to identify concepts closely related to BMI. Meanwhile, closely related startup concepts are defined and characterized based on definitions and characteristics introduced by the Massachusetts Institute of Technology (Aulet & Murray, 2013). Since most publications use "startup" as a general term for businesses covering both SMEs and high-tech startups (which MIT calls 'innovation-driven enterprises,' IDEs), careful examination during the screening of the articles was carried out as part of the analysis to enhance the understanding of the current study of startups.

**Table 1.** Search strings were applied to different academic databases

| Business model* | | Innovation-Driven Enterprises | Number of Results |
|---|---|---|---|
| TITLE-ABS-KEY ("Business Model Innovation" OR "innov* business model" OR "business model transformation" OR "business model renewal" OR "business model reinvention" OR "business model evolution" OR "business model dynamics") | AND | TITLE-ABS-KEY ("Innov* driven enterprise" OR "start-up" OR "startup") | 260 |

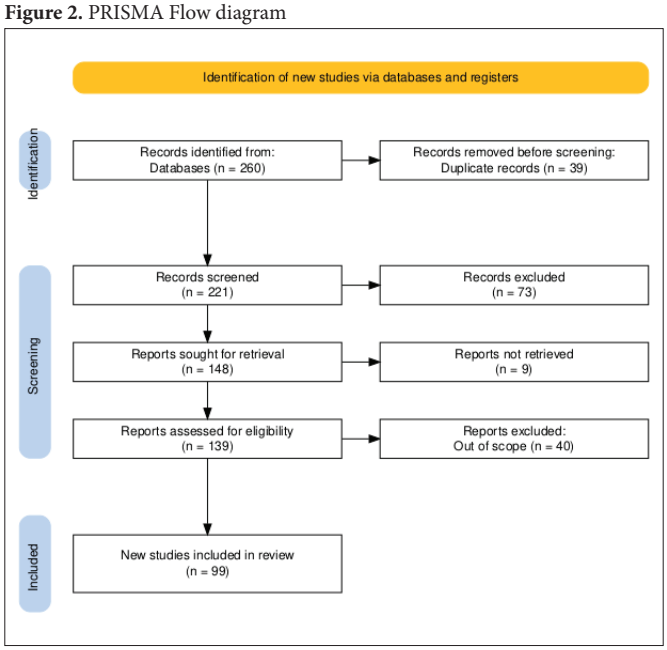
The developed keywords were then transformed into search strings in the title, abstract, or keywords of academic databases using Boolean operators. The inclusion and exclusion criteria are shown in Table 2, ensuring that the review results were focused and comprehensive (Linnenluecke et al., 2020). A PRISMA flow diagram (Sarkis-Onofre et al., 2021), shown in Figure 2, was created using the Shiny App to produce clear and PRISMA 2020-compliant systematic review flow diagrams (Haddaway et al., 2022). A PRISMA flow diagram visually depicts the process of identifying, screening, and selecting relevant studies for inclusion in a systematic review, ensuring transparency and replicability, which are essential to the credibility of the review.

**Table 2.** Inclusion and Exclusion Criteria

| | Criteria | Aims | Justification |
|---|---|---|---|
| Inclusion | Publication since 2013 | To compile all available knowledge regarding the topic from more than past ten years | The business environment has changed rapidly over the past ten years, representing a dynamic environment. |
| | Articles on the business model innovation of startups worldwide. | To ensure that any potentially relevant findings on the business model innovation of startups are considered. | Determined based on the research question.<br>Most publications use "startup" as a general term for businesses; therefore, careful examination is crucial to ensure that the findings are relevant to the research questions. |
| Exclusion | Non-English language papers | To prevent misinterpretations. | Authors' language abilities and English as a global language |
| | Journals in unrelated areas<br>Journal without SJR impact factor is excluded | To ensure that the selected publications related to the topic are of high peer-reviewed quality. | The significance of research findings |
| | Not peer-reviewed papers | | |
| | Conference papers, books, working papers, and reports. | | |
| | Journals not accessible online | | |
| | Duplication publication | To prevent redundancy. | |
| | Articles on the business model innovation of legacy or established firms | To prevent out-of-context findings | Legacy or established firms have different characteristics, business aspirations, and trajectories than those of startups. |

The articles identified using the search strings yielded 260 results. After duplicates (39) were identified and removed, 221 articles were evaluated. First, the titles and abstracts of each article were reviewed, and the article's relevance to the review was determined using the inclusion and exclusion criteria shown in Figure 2, which excluded 73 articles from the review. The remaining 148 papers were retrieved from the databases. Nonetheless, nine studies could not be accessed, resulting in 139 articles for complete analysis. This analysis involved extracting critical information from each study, such as the study design, object of study, sample size, research method, and key findings. Consequently, 40 articles were excluded because they focused on BMI in non-startup companies (legacy or established firms) and were therefore irrelevant to this study. Finally, the process yielded 99 articles that were selected for review (see Appendix A).

**Figure 2.** PRISMA Flow diagram




### 2.3 Research Analysis and Synthesis

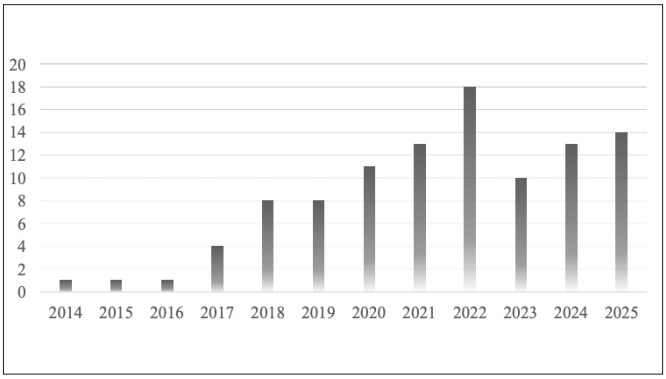
The third phase analyzed and synthesized the data based on the final article selection. A descriptive analysis of the selected articles and a bibliographic mapping approach were used to visualize the bibliometric information and findings. Given the diversity of research methodologies and techniques across the articles, thematic analysis was used to address the study's review questions, drawing on the insights generated by each study (Linnenluecke et al., 2020). This analysis integrates the results of individual studies to identify commonalities and differences, ultimately drawing conclusions based on the collective evidence. These findings are contextualized within the existing literature, considering the practical implications and the relevance of future research directions in the dynamic, ever-changing business landscape of startups' BMI.

The literature was analyzed at three stages. The factors that contribute to the value creation, delivery, and capture of startups operate at three *levels: entrepreneurial*, organizational, and environmental (cf. Foss & Saebi, 2017). The entrepreneurial level represents the factors that influence an organization's value creation, delivery, and capture. It encompasses the characteristics, behaviors, and attitudes of key individuals or teams involved in the innovation process, including the roles of entrepreneurs and startup founders, the entrepreneurial mindset, individual creativity, risk tolerance, and the decision-making styles of the organization's leaders and employees. At the *organizational level,* researchers examine factors specific to the organization that influence their ability to innovate their BMs, including internal resources, capabilities, structure, design, culture, and the organization's strategic orientation, which drives value creation, delivery, and capture. At the *environmental level*, researchers take a broader view and analyze external factors affecting value creation, delivery, and capture at the industry, sector, or national level. These include market conditions, technological trends, regulatory environments, economic factors, and supportive ecosystems for innovation.

## 3. Results

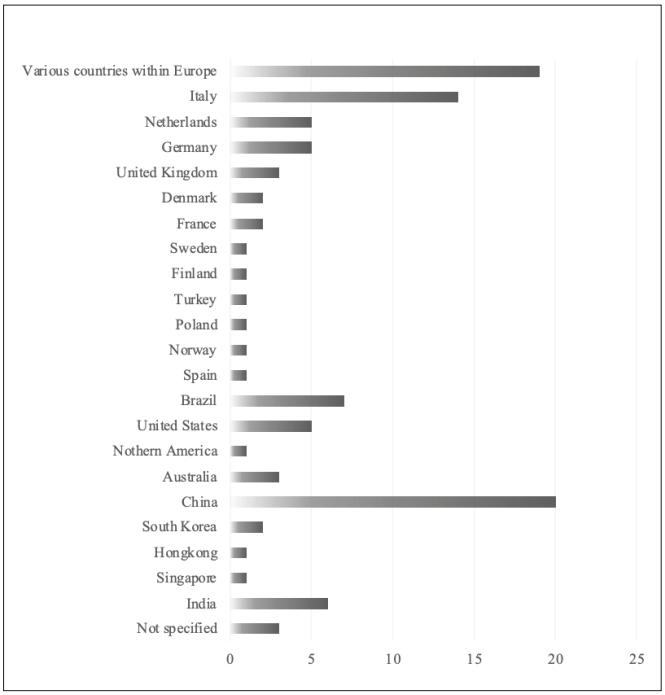
This section provides a descriptive summary of the 99 publications selected. In recent years, research on BMI, particularly in the context of startups, has gained significant importance across various academic fields, including business, management, accounting, innovation, strategy, entrepreneurship, economics, marketing, and environmental science. The growing interest in startups' BMI research since 2017 (see Figure 3) reflects a dynamic period of innovation and investment in the global startup landscape.

**Figure 3.** Publications per year



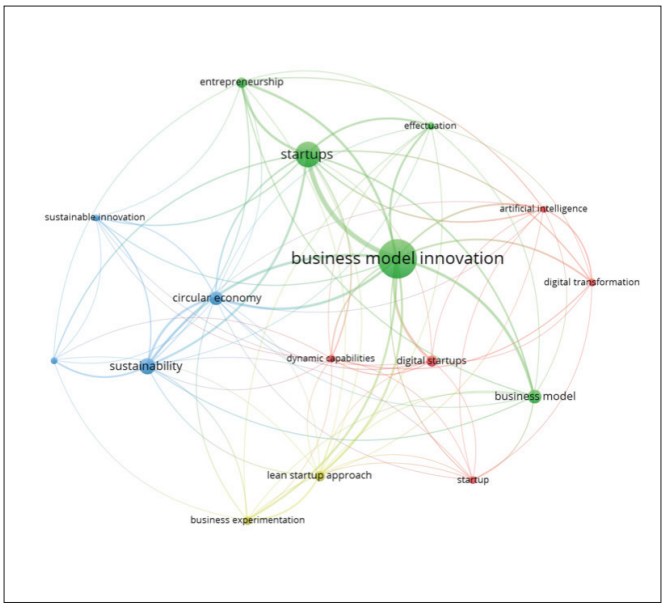

Based on the analysis of geographical regions in research on startups' BMI, there is an imbalance in the distribution of studies, with a strong emphasis on developed countries, especially in Europe, comprising over half of the total research, focusing primarily on Italy, Germany, and the Netherlands (see Figure 4).

**Figure 4.** Studied regions in the selected articles




In contrast, despite the significant rise in startups in emerging economies, research in this area across Asia, Africa, and South and Central America is underrepresented, and most research in these areas is concentrated on China, India, and Brazil. The substantial differences in business environments between developed and emerging economies suggest the need for a more comprehensive analysis of emerging economies (Zhao et al., 2022). This study also categorizes research by industry sector, with digital technology being the most represented sector, followed by circular/sustainable, energy, environmental initiatives, and logistics startups (see Figure 5).

**Figure 5.** Industry sectors analyzed in the selected articles




Finally, keyword co-occurrence analysis in VOSviewer was used to identify the most representative research themes in BMI for startups ( Figure 6). A total of 15 keywords were chosen from a list of 218 that appeared in at least five publications.

**Figure 6. Keyword co-occurrence network from selected publications**

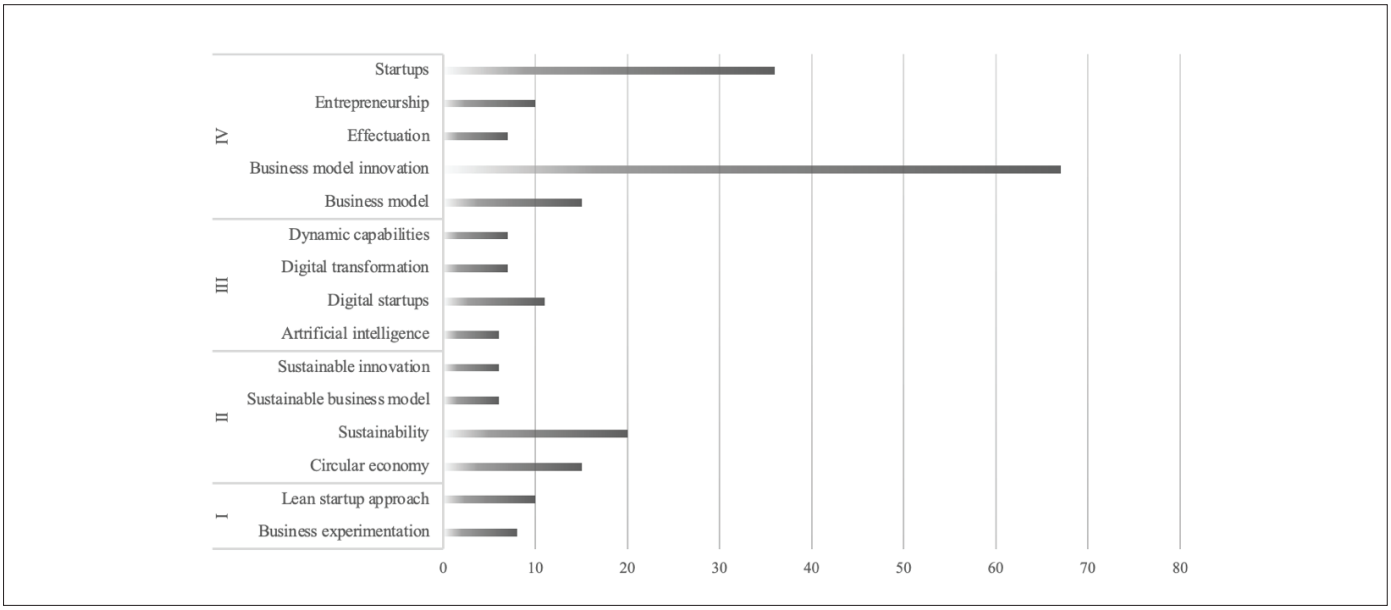
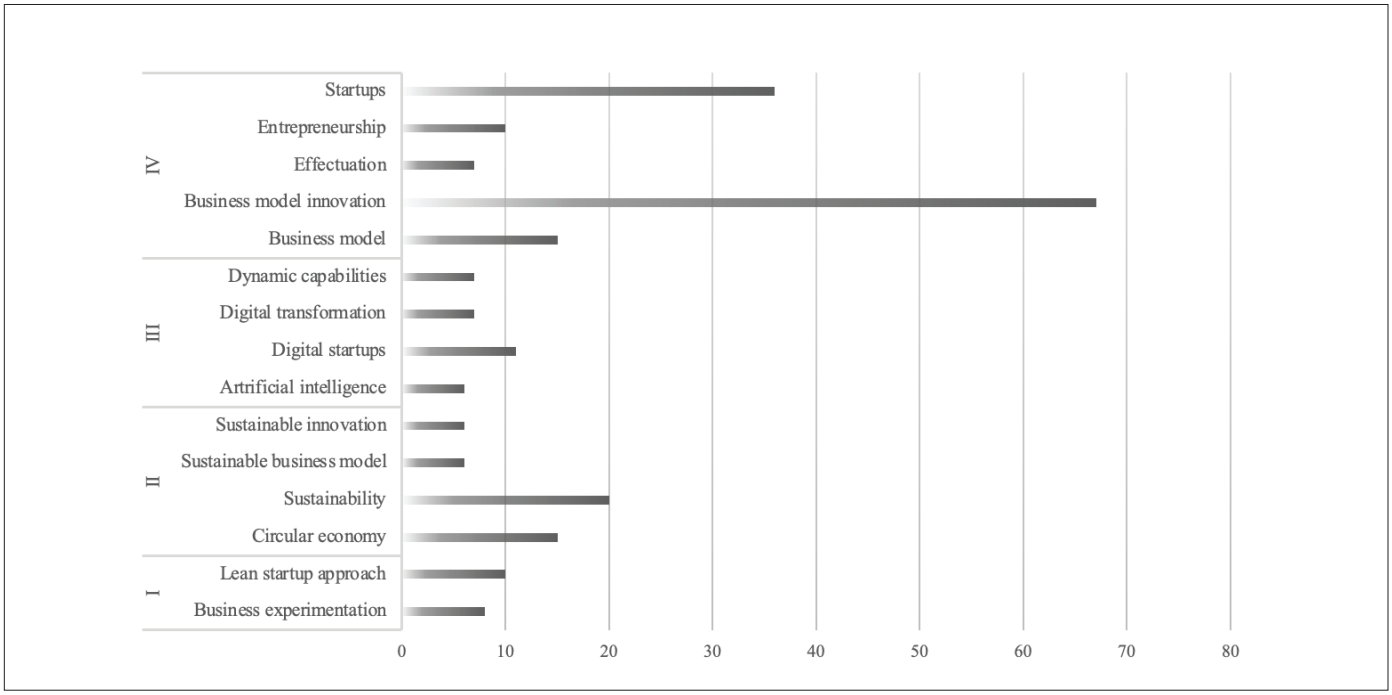


Figure 6 depicts the keyword co-occurrence network, which consists of 15 keywords and 84 connections. The recurrence frequency of each keyword was proportional to the size of the item in the network. The cluster determines the color of an item, the lines between items represent linkages, and the distance between two items indicates their similarities. The shorter the gap, the closer the relationship. Among the most frequent keywords were: "business model innovation" (67 occurrences); followed by "sustainability" (20 occurrences), "circular economy" (15 occurrences), "digital startups" (11 occurrences), "lean startup approach" (10 occurrences), and "artificial intelligence" (6 occurrences) (see Figure 7).

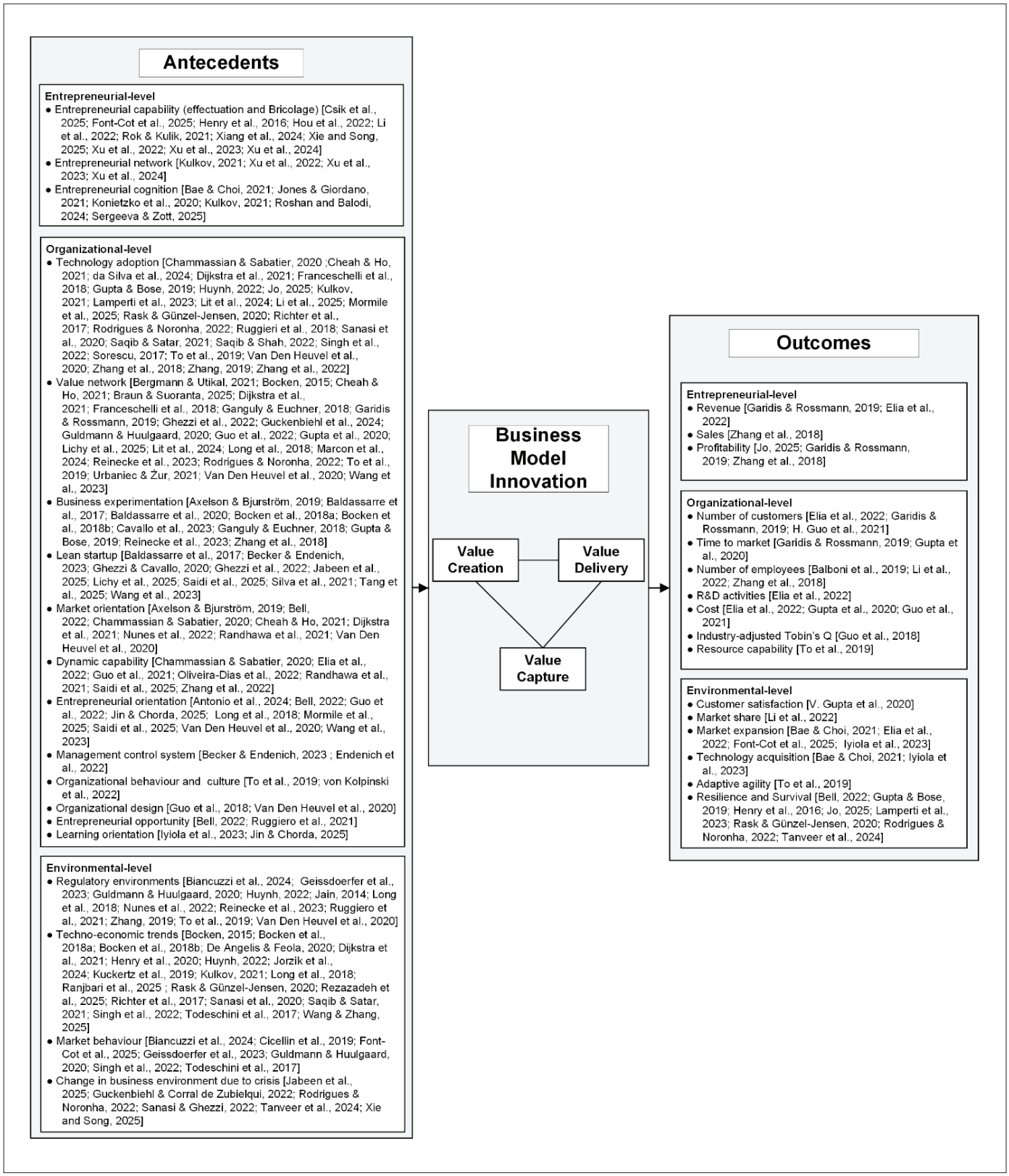
**Figure 7.** The most frequent keywords and keyword clusters




## 4. Discussion

The literature review reveals that researchers often combine multiple factors in their studies, suggesting dynamic interactions among factors across different contextual levels that influence the value creation, delivery, and capture of startups. The subsequent section presents the antecedents and outcomes identified at each level of startups' BMI (see Figure 8; the detailed 99 literature sources reviewed are in Appendix A).

**Figure 8.** Antecedents and outcomes of business model innovation in startups



### 4.1 Antecedents of value creation, delivery, and capture in startups' business model innovation

*Entrepreneurial level*

At the entrepreneurial level, studies examine the processes of creating, delivering, and capturing value, with a focus on entrepreneurs and employees at the forefront of developing and implementing innovative BM. First, Entrepreneurial capability is one of the most studied factors behind startups' BMI and is regarded as a crucial antecedent of BMI. It is defined as the unique set of skills, qualities, and competencies that entrepreneurs possess, allowing them to identify, assess, and exploit opportunities effectively (Baumol, 1993; Chen et al., 2002). It is inextricably linked to innovation (Garud et al., 2014), with entrepreneurs serving as a driving force. Multiple components of entrepreneurial capabilities, such as cognitive ability (Hou et al., 2022), founders' creativity (Li et al., 2022), leadership cohesion (Font-Cot et al., 2025), entrepreneurial learning (Xiang et al., 2024), and founder motivation (Rok & Kulik, 2021), are claimed to have a positive impact on startup BMI.

Simultaneously, effectuation and entrepreneurial bricolage are promoted as critical mediating variables in the success of BMI (Csik et al., 2025; Hou et al., 2022; Xie & Song, 2025; Xu et al., 2022, 2023). Effectuation is an effective method for converting network resources into BMI (Harms et al., 2021; R. Guo et al., 2016; Abdelgawad et al., 2013), particularly for startups operating in environments utilizing available resources, co-creating with stakeholders, embracing uncertainty, and iterating through constant experimentation (Cai et al., 2017; Radziwon et al., 2022; Read et al., 2009). Meanwhile, entrepreneurial bricolage is considered an essential factor in the BMI of startups seeking to overcome resource constraints (Baker & Nelson, 2005; Banerjee & Campbell, 2009), particularly in the early stages of BM development, by creatively using the existing resources (Massa et al., 2017).

Second, entrepreneurial cognition refers to the knowledge structures individuals use to assess, judge, and decide how to perceive, interpret, and respond to entrepreneurial opportunities and challenges (Mitchell et al., 2002). Entrepreneurial cognition is widely recognized as having a critical and dynamic influence on BMI (Jones & Giordano, 2021; Karami et al., 2022; Konietzko et al., 2020; Sergeeva & Zott, 2025). For instance, Kulkov (2021) revealed that Artificial Intelligence (AI) healthcare startups design their BMs by targeting specific problems based on their founders' backgrounds. This shows how entrepreneurial cognition affects entrepreneurs' BMI development, including sustainable initiative BMs (Roshan & Balodi, 2024). Entrepreneurial cognition focuses on how entrepreneurs think, make decisions, and process information to identify opportunities and formulate corresponding strategies, including how they create, capture, and deliver value (Teece, 2010) during new venture growth (George et al., 2016; Thomas et al., 2019).

Finally, according to the resource-based view (RBV) (Barney, 1991), entrepreneurial networks are treated as external organizational resources that help BMI overcome resource constraints (Micheli et al., 2020; Osterwalder & Pigneur, 2013; To et al., 2019; Watson, 2007). Entrepreneurial networks facilitate knowledge exchange, allow entrepreneurs to learn from experienced individuals, and open doors to potential partnerships and collaborations (Jost, 2022). The power of an entrepreneurial network lies in its ability to accelerate learning, validate ideas, and create a supportive environment for startup growth (Hansen, 1995; Ostgaard & Birley, 1996). Numerous studies have shown that entrepreneurial networks provide access to vital support and are critical external resources for advancing BMI in startups (Kulkov, 2021; Xu et al., 2024, 2022; Yu et al., 2021; H. Zhang et al., 2021).

*Organizational level*

The literature review identifies various antecedents of BMI at the organizational level, seeking to explain how organizational processes and strategies drive value creation, delivery, and capture as essential components of BMI.

First, the most frequently observed antecedent of startups' BMI is technology adoption, which involves integrating new technologies into a BM's processes, strategies, and value propositions to create innovative and competitive offerings. This involves leveraging technological advancements to transform how businesses operate, interact with customers, and deliver and capture value. Several studies emphasize mastery of technology, defined as a deep understanding, skillful application, and effective use, as a leading antecedent of BMI (Cheah & Ho, 2021; To et al., 2019; Van Den Heuvel et al., 2020a). Simultaneously, numerous studies have shown that the adoption of Information and Communication Technology (ICT) in startups offers a unique opportunity to reorganize value-creation processes (Saqib & Shah, 2022), especially for startups facing resource constraints (Franceschelli et al., 2018). Researchers have also highlighted specific ICT components that provide tools, capabilities, and opportunities for businesses to explore, experiment, and implement innovative BM. For instance, Sorescu (2017) revealed Big Data as a source of competitive advantage and a catalyst for successful BMs. It offers many opportunities to update BMs and create new BMs by leveraging external data through marketing research to identify unmet consumer needs. H. Zhang et al. (2018), Richter et al. (2017), and Saqib and Satar (2021) show how ICT and web technologies have enabled startups to create unique opportunities for value creation and delivery. Huynh (2022) also highlights the role of ICT in the fashion industry, which enables startups to improve the predictability of the innovation process and market trends and to change communication flows. Digitalization also has transformed the energy (Singh et al., 2022) and construction sectors (Li et al., 2025) through the adoption of new service BMs using a platform-based approach, allowing firms to create and operate a digital platform that connects different participants, enabling them to interact, and collaboratively exchange and create value. Artificial Intelligence (AI)-driven technologies play a central role in value creation (Da Silva et al., 2024), as evidenced by for example their transformative impact in healthcare (Kulkov, 2021). Simultaneously, Gupta & Bose (2019), Sanasi et al. (2020) and Zhang (2019) also highlighted digitalization as one of the main driving forces of transforming BMs to create and sustain a competitive advantage. Overall, the literature

analysis reveals the crucial role of technology adoption, including ICT, in driving transformative changes, fostering innovation, and enhancing startup competitiveness. ICT is an enabler that provides tools, platforms, and capabilities to support the development, implementation, and evolution of innovative BM. Proper and adequate technology adoption is an indispensable antecedent to effective and harmonious cross-functional innovation (To et al., 2019).

Second, studies have examined the crucial role of value networks as antecedents of startups' BMI. A value network refers to the interconnected relationships and collaborations among stakeholders, including customers, suppliers, partners, competitors, and other relevant actors, that contribute to creating, delivering, and exchanging value within a business ecosystem. A value network extends beyond a single company and encompasses a broader set of relationships that influence a business's operations and success. Wang et al. (2023) reveal that reconstructing value networks is an essential method for creating value in BMI, supporting a study by To et al. (2019) that identifies business eco-networks as contextual antecedents of BMI. Additionally, Long et al. (2018), Cheah & Ho (2021), Marcon et al., (2024), and Franceschelli et al. (2018) provide further evidence of the importance of value networks and the establishment of partnerships in the development and success of BM. Several studies have examined specific relationships and collaborations that contribute to BMI's success. These include collaborations among startups to develop open business models and engage in value co-creation (Ghezzi et al., 2022), as well as cooperative relationships between incumbents and startups, which have been shown to be important sources of innovation (Garidis & Rossmann, 2019; Urbaniec & Żur, 2021). In addition, prior research highlights the role of specific ecosystem participants in supporting BMI, such as freelancers, who positively impact development cost reductions, shorten time to market, and increase customer satisfaction (V. Gupta et al., 2020a). Other actors identified as influential include accelerators and incubators (Braun & Suoranta, 2025), mentors (Lichy et al., 2025), research actors such as universities and other higher institutes (Guckenbiehl et al., 2024), and a broader set of stakeholders, including clients/customers, government actors, and business partners, who function as external drivers of BMI (Van Den Heuvel et al., 2020b). These findings support the study by Reinecke et al. (2023), who identified three sets of value network activities that support a firm's continuous growth of its value proposition: value networks between businesses, the creation of political agendas, and the rallying of end users. In summary, the role of a value network in BMI is significant because it influences how businesses collaborate, create, deliver, and capture value within their ecosystem. These networks are pivotal in shaping and enabling successful BMI efforts in startups.

Third, business experimentation influences the process and outcomes of innovation in a BM by providing a systematic approach to testing, validating, and refining the assumptions and elements of a BM, followed by further actions such as additional experimentation, scale-up, or pivoting (Leatherbee & Katila, 2020; McDonald & Gao, 2019). Business experimentation inspired by the Lean Startup (LS) has grown in popularity as a framework for conducting effective business experimentation that emphasizes a systematic approach to testing assumptions and hypotheses while minimizing waste and maximizing learning (Blank, 2018; Ries, 2017, 2011). Experiments are used in LS to identify and understand customers by rapidly testing assumptions and enabling real-time corrections (Tang et al., 2025), thereby supporting incremental adaptation and strategic pivots, even during crises (Jabeen et al., 2025), through reactive iteration (Lichy et al., 2025). For instance, Bocken et al. (2018) found that experimentation creates internal and external engagement that helps test assumptions across every building block of the BM. Becker and Endenich (2023) also note that LS allows for scientific experimentation that transforms intuitive entrepreneurial processes into transactions. Furthermore, Silva et al. (2021) found that technology startups can address various constraints by leveraging LS tools and practices for BM validation in the pre-seed, seed, and early stages of development. Several studies also highlight the role of LS as an iterative learning process in testing BM (Baldassarre et al., 2017; Reinecke et al., 2023) through customer involvement (C. Wang et al., 2023) and feedback (BMI-supporting agility development) (Ghezzi & Cavallo, 2020), allowing businesses to respond to changing requirements and deliver value effectively (H. Zhang et al., 2018). Experimentation also encourages startups to pilot prototypes early by simultaneously considering desirability, sustainability, feasibility, and viability (Baldassarre et al., 2020). Another study by Cavallo et al. (2023) supports running BM experiments for startups that are engaging in BMI before committing to significant investments during the scaling phase. Overall, studies have shown the pivotal roles of business experimentation and LS in BMI by providing a systematic framework for startups to develop, test, and refine their business models dynamically and in a customer-centric manner.

Fourth, market orientation provides a strong foundation for BMI as an antecedent by sensing unmet customer needs (Yang et al., 2020). Market orientation is defined as understanding and satisfying customers and other relevant stakeholders (Day, 1994), putting customers' interests first, and developing a long-term, profitable enterprise (Deshpande et al., 1993). By understanding customer needs, a firm can identify customer value propositions and promote BMI (Zott & Amit, 2010). To create unique value propositions, businesses must scan, search, and explore customer needs to identify new opportunities (Teece, 2007). These capabilities refer to dynamic capabilities (DCs), defined as a firm's ability to integrate, build, and reconfigure internal and external competencies to address rapidly changing environments (Teece et al., 2023). This stream in the literature agrees that sensing, seizing, and transforming DCs are needed to achieve BMI (Mezger, 2014; Saidi et al., 2025; Teece, 2018) In a recent study, Yang et al. (2020) emphasized that firms should build DCs to leverage market orientation for BMI. Randhawa et al. (2021) found that startups align their deployment of DCs with market orientation to pursue BMI, where the key to startups' BMI in highly competitive environments lies in their ability to meet changing demands (Bell, 2022). Oliveira-Dias et al. (2022) also pointed out that DC is considered the internal driver that stimulates BMI, in which startups with the most disruptive BM are those with the best DCs. DCs enable organizations to sense, seize, and transform their BMs to revitalize their competitive advantage (Elia et al., 2022). In summary, firms should

engage in market orientation to identify unmet customer needs to promote BMI, and should build DCs to leverage market orientation for BMI (Yang et al., 2020).

Fifth, Wang et al. (2023) stressed that entrepreneurial orientation encourages BMI. Entrepreneurial orientation refers to the processes, practices, and decision-making activities that lead to new entries (Lumpkin & Dess, 1996), including value proposition innovation (Antonio et al., 2024). By introducing new products, services, technological innovations, markets, or BMs (Covin & Wales, 2019), entrepreneurial orientation enables startups to leverage unique resources and capabilities to address challenges (Mormile et al., 2025). Innovativeness and competitive aggressiveness as dimensions of entrepreneurial orientation (Kiyabo & Isaga, 2020; Lumpkin & Dess, 1996) are critical factors in the development of BMI (Bell, 2022; Long et al., 2018). Another study by Ruggiero et al. (2021) found that entrepreneurial opportunities are an external driver of BMI in Finnish technology startups. Entrepreneurial opportunities are defined as circumstances in which new products, services, resources, and organizational strategies are introduced to the market to provide value (Casson & Wadeson, 2007; Gonzalez-Alvarez & Solis-Rodriguez, 2011) and serve market demand that is not currently being met. Furthermore, Bell (2022) finds that openness to new opportunities is essential for businesses to develop and innovate their BMs in highly competitive markets. Meanwhile, other studies accentuate the role of management control systems that positively contribute to startups' innovativeness, focusing on BMI (Becker & Endenich, 2023; Endenich et al., 2022) and exploiting distinct antecedents of BMI, such as organizational behavior and culture (von Kolpinski et al., 2022), organizational design (B. Guo et al., 2018; Van Den Heuvel et al., 2020a), and learning orientation (Iyiola et al., 2023; Jin & Chorda, 2025).

*Environmental level*

Numerous studies distinguish the regulatory environment as a critical factor that can either drive or hinder the BMI of startups. To et al. (2019) identified rules and governance as contextual antecedents of BMI that regulate how organizations operate, interact with stakeholders, and make decisions within the entire business ecosystem. Rules and governance should be tested and reviewed regularly to ensure a successful BMI in the complex business ecology (Zott & Amit, 2007; Chesbrough, 2010; To et al., 2019). Other studies indicate that legislation, as an external driver, has either hindered or helped a startup's BMI (Ruggiero et al., 2021; Van Den Heuvel et al., 2020; Jain, 2014). For instance, Van Den Heuvel et al. (2020) demonstrate that slow regulatory recognition prevents firms from conducting business experimentation, whereas Jain (2014) illustrates how institutional voids in emerging economies have created opportunities for startups to innovate their BMs. However, most studies have listed regulatory and government involvement as the predominant barriers to sustainable and circular BMI studies (Biancuzzi et al., 2024; Geissdoerfer et al., 2023; Guldmann & Huulgaard, 2020; Huynh, 2022b; Lit et al., 2024; Long et al., 2018; Nunes et al., 2022). In summary, the regulatory environment comprises rules, governance, regulations, laws, standards, and guidelines established within business ecologies that significantly influence the development of startup BMI, either in a stimulating or obstructing way.

Second, techno-economic trends encompassing the intersection of technological advancements and economic shifts have created new opportunities for businesses to innovate their BMs. For instance, technological advancements have transformed startups' BMs in the healthcare and automotive sectors by fostering new technological capabilities and distinctive value propositions (Kulkov, 2021; Rask & Günzel-Jensen, 2020a). In sustainability-oriented contexts, technological developments have supported circular and sharing economy logics, thereby fostering sustainability-oriented BMI, particularly in the fashion industry (Todeschini et al., 2017). Huynh (2022) further shows that circular BMs are enabled by digital technologies that enhance market predictability, product traceability and transparency, consumer awareness, recyclability, and communication flows. Similar techno-economic influences have reshaped BMs in the food and beverage and energy sectors (Long et al., 2018; Singh et al., 2022). Moreover, the rise of the sharing economy has driven BMI in the mobility sector by leveraging ICT to enable the sharing of underutilized assets (Richter et al., 2017; Saqib & Satar, 2021). These techno-economic trends are closely intertwined with market behavior, in which technological advancements shape consumer preferences and usage patterns (Rangaswamy et al., 2022), while evolving market demands guide the direction of technological innovation (Cicellin et al., 2019; Singh et al., 2022; Todeschini et al., 2017).

Additionally, recent literature indicates that artificial intelligence (AI) represents an advanced stage of these techno-economic trends, expanding firms' analytical and predictive capabilities. Studies show that AI adoption supports BMI by enhancing value creation, delivery, and proposition design across sectors, including sustainability-oriented startups (Jorzik et al., 2024) and the circular agri-food sector, by leveraging predictive analytics, digital platforms, and biotechnology (Ranjbari et al., 2025). The rapid diffusion of Generative Artificial Intelligence (GenAI) since mid-2023 marks a further shift in techno-economic trends. GenAI enables BM reconfigurations that fundamentally alter startups' cost structures and scalability by automating routine tasks, reducing the marginal costs of experimentation and content generation, and allowing firms to scale innovation and market engagement with substantially lower capital intensity (Rezazadeh et al., 2025). Recent evidence indicates that GenAI adoption strengthens organizational learning in manufacturing startups, thereby driving sustainable BMI (S. Wang & Zhang, 2025). This emerging literature indicates that GenAI intensifies existing techno-economic trends by lowering experimentation costs, amplifying learning feedback loops, and reshaping entrepreneurial search processes, thereby enabling startups to adapt and achieve high innovation performance in evolving environments. (Donaldson et al., 2025). Overall, GenAI alters techno-economic trends by shifting the BMI from predominantly efficiency- and scale-driven digitalization toward rapid, low-cost experimentation, accelerated learning, and continuous reconfiguration of value creation, delivery, and capture.

Finally, in the wake of the COVID-19 pandemic, recent studies have analyzed how changes in the business environment caused by the crisis affect startups' BMI. Sanasi and Ghezzi (2022) developed a conceptual model of the three stages startups face in a crisis: reaction to

shock, response, and retrospection, leading to a long-term strategic reorientation. Startups respond to crises through BM changes, driven by crisis-induced opportunities and adversity, leading to specific startup archetypes (Tanveer et al., 2024; Guckenbiehl & Corral de Zubielqui, 2022). Rodrigues and Noronha (2022) found that the pandemic negatively affected startups, whereas digital BMI had a positive effect. These studies demonstrate how crises disrupt the status quo and require businesses to adapt their BMs to survive and thrive under challenging circumstances.

**4.2 Outcomes of value creation, delivery, and capture in startups' business model innovation**

BMI outcomes refer to organizational performance implications, including outcomes, effects, and impacts that result from value creation, delivery, and capture in BMI (cf. Foss & Saebi, 2017). The findings from the studies in this review indicated that BMI has a significant positive impact on business performance. For instance, H. Zhang et al. (2018) highlighted the importance of BMI as an effective way to promote startup growth driven by exploratory orientation. Simultaneously, Rask and Günzel-Jensen (2020) show that the 'innovation-imitation' balance between BM and value proposition affects the performance of startups in nascent markets. However, compared with studies on the antecedents of BMI, research on the outcomes of value creation, delivery, and capture in startups' BMI is relatively scarce. Nevertheless, these studies have significantly advanced an understanding of how innovation influences businesses. The scarcity of research in this area can be attributed to various constraints, including the considerable time lag between BMI implementation and its impact on organizational performance, as well as the intricate relationship between BMI and organizational performance (Foss & Saebi, 2017).

The analysis concentrates on the operationalization employed in the current literature to measure the outcomes of value creation, delivery, and capture in startups' BMI. By exploring the existing literature, this study systematically assesses these outcomes across three contextual levels: entrepreneurial, organizational, and environmental (cf. Bashir et al., 2020; cf. Huang & Ichikohji, 2023; Medina Molina et al., 2023). This evaluation aligns with the contextual perspectives acknowledged in prior studies, indicating that the antecedents of value creation, delivery, and capture in BMI operate across these levels (cf. Foss & Saebi, 2017; cf. Spieth et al., 2025b; cf. Teece, 2010).Entrepreneurial level

*Entrepreneurial level*

The outcomes of value creation, delivery, and capture in startups' BMI at the entrepreneurial level encompass tangible results, and performance indicators assess startups' ability to monetize created value by measuring financial metrics such as revenue, sales, and profitability. These financial metrics serve as indicators of value-capture innovation, assessing how effectively startups translate their value propositions into revenue and achieve profitability (Elia et al., 2022). As highlighted by H. Zhang et al (2018), the role of BMI is critical in driving the growth of new enterprises, as evidenced by financial performance metrics. However, recent evidence indicates that although BMI is a strong driver of long-term growth, its short-term financial impact is often negligible (Jo, 2025), particularly for startups that typically operate without immediate profitability in their early stages (Garidis & Rossmann, 2019). Therefore, complementary measurements are needed to comprehensively evaluate the outcomes of value creation, delivery, and capture in startups' BMI, providing a holistic assessment that encompasses diverse dimensions beyond financial criteria.

*Organizational level*

At the organizational level, the outcomes of value creation, delivery, and capture in startups' BMI are reflected in a range of key performance indicators that assess the effectiveness of the innovation process within the organization. These outcome measures use various non-financial metrics rooted in operational, innovation, and market perspectives, offering a more comprehensive view of organizational performance that extends beyond monetary considerations. Gilbert et al. (2006) introduced the growth rate of employees to measure the growth rate of new ventures, indicating the expansion of firm operations or changes in business strategy. Meanwhile, To et al. (2019) highlighted the significance of resource capabilities as an outcome metric, assessing a startup's ability to dynamically respond to emerging challenges by effectively utilizing business resources and actions. Other studies using market-based metrics, such as customer count and time-to-market, indicate a startup's ability to attract and retain its customer base and deliver value innovation (Garidis & Rossmann, 2019; V. Gupta et al., 2020b). Furthermore, including R&D activities as an outcome metric reflects a startup's commitment to creating value innovation, and cost metrics provide insights into operational efficiency. Notably, the introduction of Industry-adjusted Tobin's Q, as proposed by Guo et al. (2018), stands out as a distinct metric that gauges a firm's market value relative to its assets, indicating the efficiency of value generation in the BMI process.

*Environmental level*

At the environmental level, the outcomes of value creation, delivery, and capture in startups' BMI are assessed to measure a firm's potential to surpass competitors in generating and appropriating value (cf. Foss & Saebi, 2017; Peteraf & Barney, 2003). These metrics evaluate how startups gain a competitive advantage by creating and capturing value, focusing on a firm's competitive standing and strategic positioning in the market. Within the reviewed studies, several key performance indicators were utilized, such as market share and market expansion, reflecting the acceptance of the firm's value propositions in both existing and new or extended markets (cf. Gilbert et al., 2006). Another study introduced technology acquisition, indicating a startup's capacity to integrate and leverage cutting-edge technologies to create unique market value (Bae & Choi, 2021). Meanwhile, To et al. (2019) introduced adaptive agility to measure startups' ability to respond quickly and effectively to competitive pressures and market changes. Furthermore, several studies have observed the resilience and survivability of startups under certain circumstances, such as during crises or intense competition, showcasing their ability to withstand challenges, disruptions, and uncertainties, ensuring their continued existence and success in the competitive landscape (Rodrigues & Noronha, 2022; Tanveer et al., 2024).

The analysis indicates that most studies employ various indicators to measure the outcomes of startup BMI. For instance, Elia et al. (2022) utilized multiple indicators, such as revenue, number of customers, R&D activities, cost, and market expansion, to assess the outcomes of the BMI process in technology startups, encompassing startups' performance across entrepreneurial, organizational, and environmental levels. Another study by Gupta et al. (2020) used time-to-market, cost, and customer satisfaction as performance indicators to measure the value proposition innovation process of software startups. This demonstrates that assessing BMI outcomes involves multiple operationalizations across entrepreneurial, organizational, and environmental levels. However, the analysis revealed that various studies used subjective measures based on respondents' judgments (such as entrepreneurs or managers) to measure organizational performance. Although subjective measures provide insight into the phenomenon under study, they raise issues such as response bias, lack of objectivity, and response variability. Guo et al. (2021) acknowledge this limitation by revealing inconsistent results. In addition, the operationalization of the BMI construct and the performance indicators used vary significantly across studies, making comparisons of results less uniform (Foss & Saebi, 2018). The fundamental cause of this issue is the lack of clear dimensionalization of BMI, indicating the need for further work in developing BMI measurement instruments (Foss & Saebi, 2018; Huang & Ichikohji, 2023).

**4.3 Business model innovation in emerging economies**

Because the representation of emerging economies in the analyzed literature database is relatively low, and the above findings are mainly based on research publications from developed economies, this subsection focuses on findings distilled from the limited number of research articles on developing economies included in the dataset.

Evidence from emerging economies indicates that BMI is shaped by institutional voids, policy volatility, and resource scarcity, which require startups to actively create and legitimize markets in the early stages. In such contexts, startups frequently create value by acting as intermediaries that bridge weak institutional infrastructure with underserved customers and ecosystem partners (Jain, 2014). Evidence from sustainability-oriented startups in Brazil shows how regulatory uncertainty, weak incentives, and fragmented market infrastructure constrain scaling unless targeted public programs reduce institutional friction (Nunes et al., 2022). Scalable BMI here depends on business models that actively bridge the fragmented institutions and infrastructures.

Beyond institutional voids, emerging economies are characterized by institutional arrangements that actively shape viable BMI pathways. Evidence from China's digital economy, which made a transition from an emerging to a developed economy in many ways, but still also have some characteristics of its former position as emerging economy, shows that competitiveness depends on continuous business model iteration, experimentation, and tight customer feedback loops, while internationalization typically follows a staged trajectory that first leverages domestic scale before adapting business models to foreign markets (Bell, 2022). Importantly, BMI outcomes in this context are sequence-dependent: value proposition innovation oriented toward consumer demand acts as the primary trigger, with aligned value creation and value capture innovations translating this proposition into performance (H. Guo et al., 2022). Sectoral evidence further illustrates how institutional governance shapes monetization logics, as startups develop hybrid funding and platform-based revenue models under strong regulatory and platform constraints (S. I. Zhang, 2019).

Third, BMI in emerging economies is often a necessary response to structural constraints. Although lean experimentation and effectual logic are widely promoted, empirical evidence shows that regulatory approvals, bureaucratic procedures, and legal uncertainty frequently slow experimentation cycles and restrict rapid validation, requiring startups to combine agile learning with formal planning to secure legitimacy and access resources (Silva et al., 2021). Market creation further requires deep contextual adaptation, as business models transferred from developed economies may fail when they conflict with limitations in infrastructural, payment, and logistics systems, prompting iterative redesign and strategic refocusing (G. Gupta & Bose, 2019). These findings indicate that BMI trajectories in the emerging economies are shaped by constrained experimental environments.

**4.4 Consolidated Key Performance Indicator Framework for Business Model Innovation Outcomes**

The review in the preceding section reveals substantial heterogeneity in how BMI outcomes are operationalized, which limits comparability and cumulative theory-building. Although many studies have employed multiple outcome indicators, the absence of a shared measurement baseline has resulted in fragmented and weakly comparable empirical evidence. To address this limitation, we propose a consolidated set of key performance indicators (KPIs) to translate descriptive insights from the literature into prescriptive guidance for future research on BMI and to serve as a supporting tool for practitioners in the field. The proposed KPIs are derived from indicators that (1) recur consistently across studies, (2) align conceptually with value creation, delivery, and capture, and (3) remain applicable across different startup stages, while explicitly acknowledging that financial indicators often exhibit limited explanatory power in early-stage ventures. This framework reduces measurement dispersion by identifying a parsimonious and theoretically grounded baseline for empirical comparisons and practical work.

At the entrepreneurial level, outcome measurement in the literature primarily relies on financial indicators such as revenue growth, sales growth, and profitability, reflecting startups' ability to appropriate value. While these indicators remain necessary for assessing value capture feasibility, their interpretation requires caution in early-stage contexts, where financial performance frequently lags behind business model experimentation and market validation. At the organizational level, non-financial KPIs, including customer count, time-to-market, employee growth, R&D intensity, cost efficiency, and resource capability, provide more sensitive signals of BMI, capturing how startups reconfigure internal processes to create and deliver value under evolving business models. At the environmental level, indicators such as market share, market expansion, adaptive agility, technology acquisition, and resilience or survival reflect competitive positioning and long-term viability under external pressure.

Accordingly, BMI outcomes are best assessed through a multi-KPI logic that integrates complementary indicators aligned with the research objective and startup stage rather than privileging a single performance metric. Table 3 summarizes the consolidated KPI sets proposed in this study. While future studies may adapt this framework to specific contexts, adopting a shared core of outcome indicators would substantially enhance the comparability, replication, and cumulative theory development in startup BMI research.

**Table 3.** Consolidated Key Performance Indicators for BMI Outcomes in Startups

| Level | BMI Outcome Focus | Core KPIs |
|---|---|---|
| **Entrepreneurial** | Value capture feasibility and early growth | Revenue growth, sales growth, and profitability |
| **Organizational** | Effectiveness of value creation and delivery | Number of customers, time-to-market, R&D intensity, cost efficiency, employee growth, resource capability |
| **Environmental** | Competitive positioning and adaptability | Market share; market expansion; adaptive agility; technology acquisition; resilience/survival |

## 5. Limitations and future research

As with any other research, this study had certain limitations. First, this study only includes research published in leading journals using the criteria outlined in the methodology section. The inclusion criteria were limited to journals with Q1 or Q2 impact factors at the time of access, potentially overlooking relevant findings from journals not included but still pertinent to this study. Second, the results were based on studies available until December 2025. Given the rapid growth of research in this field, future studies can further enrich our understanding. Nonetheless, this research offers an up-to-date knowledge base and comprehensive insight into the antecedents influencing the value creation, delivery, and capture processes of startups' BMI and their outcomes.

## 6. Conclusion

This study presents a systematic literature review of the dynamics of value creation, delivery, and capture. It aims to assist researchers and practitioners in understanding the antecedents that influence the value creation, delivery, and capture processes of startups' BMI and outcomes. The key findings of this review can be summarized in four aspects. First, this study presents a model outlining the research structure in the literature on startup BMI, focusing on its antecedents and outcomes. This model paves the way for future researchers to develop and empirically test frameworks related to a cohesive understanding of the antecedents and outcomes of startups' BMI. Second, this review identifies a diverse set of antecedents that drive or constrain startups' BMI processes, highlighting how these factors operate across multiple levels and interact dynamically. Furthermore, the findings cautiously suggest that startups' BMI in emerging economies is shaped by institutional voids, policy volatility, resource constraints, and early-stage market-formation challenges. This contextual lens advances our understanding of how startups in emerging economies engage in BMI, not only to compete but also to bridge fragmented institutions, create market legitimacy, and adapt business models. Third, this review synthesizes the fragmented operationalization of BMI outcomes across entrepreneurial, organizational, and environmental levels into a consolidated set of key performance indicators, providing a coherent measurement baseline for assessing BMI effectiveness in startups and supporting both scholarly comparability and managerial evaluation of BMI implementation. Finally, this study suggests avenues for further research, including examining BMI across startup stages and contextual levels, understanding how startups adjust BMI for resilience during crises, and exploring the role of institutions in shaping regulatory environments across contexts.

## References

Abdelgawad, S. G., Zahra, S. A., Svejenova, S., & Sapienza, H. J. (2013). Strategic Leadership and Entrepreneurial Capability for Game Change. *Journal of Leadership & Organizational Studies*, *20*(4), 394–407. https://doi.org/10.1177/1548051813475484

Aldianto, L., Anggadwita, G., Permatasari, A., Mirzanti, I. R., & Williamson, I. O. (2021). Toward a Business Resilience Framework for Startups. *Sustainability*, *13*(6), 3132. https://doi.org/10.3390/su13063132

Antonio, J. L., Schmidt, A. L., Kanbach, D. K., & Meyer, N. (2024). Enacting disruption: How entrepreneurial ventures innovate value propositions to increase the attractiveness of their technologies. *International Journal of Entrepreneurial Behaviour and Research*, *30*(4), 885–915. Scopus. https://doi.org/10.1108/IJEBR-07-2023-0688

Aulet, W., & Murray, F. E. (2013). A Tale of Two Entrepreneurs: Understanding Differences in the Types of Entrepreneurship in the Economy. *SSRN Electronic Journal*. https://doi.org/10.2139/ssrn.2259740

Axelson, M., & Bjurström, E. (2019). The Role of Timing in the Business Model Evolution of Spinoffs: The Case of C3 Technologies. *Research Technology Management*, *62*(4), 19–26. https://doi.org/10.1080/08956308.2019.1613116

Bae, B., & Choi, S. (2021). The effect of learning orientation and business model innovation on entrepreneurial performance: Focused on South Korean start-up companies. *Journal of Open Innovation: Technology, Market, and Complexity*, *7*(4). Scopus. https://doi.org/10.3390/joitmc7040245

Baker, T., & Nelson, R. E. (2005). Creating Something from Nothing: Resource Construction through Entrepreneurial Bricolage. *Administrative Science Quarterly*, *50*(3), 329–366. https://doi.org/10.2189/asqu.2005.50.3.329

Balboni, B., & Bortoluzzi, G. (2015). Business Model Adaptation and the Success of New Ventures. *Journal of Entrepreneurship, Management and Innovation*, *11*(1), 119–140. https://doi.org/10.7341/20151117

Baldassarre, B., Calabretta, G., Bocken, N. M. P., & Jaskiewicz, T. (2017). Bridging sustainable business model innovation and user-driven innovation: A process for sustainable value proposition design. *Journal of Cleaner Production*, *147*, 175–186. Scopus. https://doi.org/10.1016/j.jclepro.2017.01.081

Baldassarre, B., Konietzko, J., Brown, P., Calabretta, G., Bocken, N., Karpen, I. O., & Hultink, E. J. (2020). Addressing the design-implementation gap of sustainable business models by prototyping: A tool for planning and executing small-scale pilots. *Journal of Cleaner Production*, *255*. https://doi.org/10.1016/j.jclepro.2020.120295

Banerjee, P. M., & Campbell, B. A. (2009). Inventor bricolage and firm technology research and development. *R&D Management*, *39*(5), 473–487. https://doi.org/10.1111/j.1467-9310.2009.00572.x

Barney, J. (1991). Firm Resources and Sustained Competitive Advantage. *Journal of Management*, *17*(1), 99–120. https://doi.org/10.1177/014920639101700108

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

Baumol, W. J. (1993). *Entrepreneurship, Management and the Structure of Payoffs*. MIT Press. https://scholar.google.com/scholar_lookup?title=Entrepreneurship%2C%20Management%20and%20the%20Structure%20of%20Payoffs&publication_year=1993&author=W.J.%20Baumol

Becker, S. D., & Endenich, C. (2023). Entrepreneurial Ecosystems as Amplifiers of the Lean Startup Philosophy: Management Control Practices in Earliest-Stage Startups*. *Contemporary Accounting Research*, *40*(1), 624–667. https://doi.org/10.1111/1911-3846.12806

Bell, R. (2022). Innovating to survive in competitive markets: Business model innovation of Chinese digital businesses. *International Journal of Innovation Science*. https://doi.org/10.1108/IJIS-09-2022-0189

Bergmann, T., & Utikal, H. (2021). How to support start-ups in developing a sustainable business model: The case of an european social impact accelerator. *Sustainability (Switzerland)*, *13*(6). https://doi.org/10.3390/su13063337

Biancuzzi, H., Massaro, M., & Bagnoli, C. (2024). Smart mobility in Venice: An ecosystem perspective. *Journal of Cleaner Production*, *434*. Scopus. https://doi.org/10.1016/j.jclepro.2023.140096

Blank, S. (2018). *Why the lean start-up changes everything*. Harvard Business Review.

Bocken, N. M. P. (2015). Sustainable venture capital—Catalyst for sustainable start-up success? *Journal of Cleaner Production*, *108*, 647–658. https://doi.org/10.1016/j.jclepro.2015.05.079

Bocken, N. M. P., Mugge, R., Bom, C. A., & Lemstra, H.-J. (2018). Pay-per-use business models as a driver for sustainable consumption: Evidence from the case of HOMIE. *Journal of Cleaner Production*, *198*, 498–510. https://doi.org/10.1016/j.jclepro.2018.07.043

Bocken, N. M. P., Schuit, C. S. C., & Kraaijenhagen, C. (2018). Experimenting with a circular business model: Lessons from eight cases. *Environmental Innovation and Societal Transitions*, *28*, 79–95. https://doi.org/10.1016/j.eist.2018.02.001

Bocken, N., & Snihur, Y. (2020). Lean Startup and the business model: Experimenting for novelty and impact. *Long Range Planning*, *53*(4), 101953. https://doi.org/10.1016/j.lrp.2019.101953

Braun, S., & Suoranta, M. (2025). Incubating innovation: The role of incubators in supporting business model innovation. *Journal of Research in Marketing and Entrepreneurship*, *27*(2), 255–276. Scopus. https://doi.org/10.1108/JRME-01-2024-0028

Cai, L., Guo, R., Fei, Y., & Liu, Z. (2017). Effectuation, Exploratory Learning and New Venture Performance: Evidence from China: Journal of Small Business Management. *Journal of Small Business Management*, *55*(3), 388–403. https://doi.org/10.1111/jsbm.12247

Calvino, F., Criscuolo, C., & Menon, C. (2015). *Cross-country evidence on start-up dynamics*. https://doi.org/10.1787/5jrxtkb9mxtb-en

Casson, M., & Wadeson, N. (2007). The Discovery of Opportunities: Extending the Economic Theory of the Entrepreneur. *Small Business Economics*, *28*(4), 285–300. JSTOR.

Cavallo, A., Cosenz, F., & Noto, G. (2023). Business model scaling and growth hacking in digital entrepreneurship. *Journal of Small Business Management*. https://doi.org/10.1080/00472778.2023.2195463

Chammassian, R. G., & Sabatier, V. (2020). The role of costs in business model design for early-stage technology startups. *Technological Forecasting and Social Change*, *157*. https://doi.org/10.1016/j.techfore.2020.120090

Cheah, S. L.-Y., & Ho, Y.-P. (2021). Effect of space creativity and social climate on business model innovation in Do-it-Yourself laboratories: The mediating role of opportunity discovery in the case of Singapore. *Technology Analysis and Strategic Management*, *33*(10), 1171–1185. https://doi.org/10.1080/09537325.2021.1976404

Chen, J., Carlson, B. E., & Del Genio, A. D. (2002). Evidence for Strengthening of the Tropical General Circulation in the 1990s. *Science*, *295*(5556), 838–841. https://doi.org/10.1126/science.1065835

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

Cicellin, M., Canonico, P., Consiglio, S., & Mercurio, L. (2019). Understanding the low cost business model in healthcare service provision: A comparative case study in Italy. *Social Science and Medicine*, *240*. https://doi.org/10.1016/j.socscimed.2019.112572

Covin, J. G., & Wales, W. J. (2019). Crafting High-Impact Entrepreneurial Orientation Research: Some Suggested Guidelines. *Entrepreneurship Theory and Practice*, *43*(1), 3–18. https://doi.org/10.1177/1042258718773181

Csik, M. B. L., Feldmann, P. R., & Salerno, M. S. (2025). What are the strategies for having success in an uncertain market in the new business creation? *Journal of International Entrepreneurship*. Scopus. https://doi.org/10.1007/s10843-025-00391-y

Da Silva, W. J., Araújo, G. D. C., Rehder, A., & Pedroso, M. C. (2024). Amaro's business model innovation: DNVB or platform? *Revista de Gestão*, *31*(4), 371–382. https://doi.org/10.1108/REGE-08-2022-0115

Day, G. S. (1994). The Capabilities of Market-Driven Organizations. *Journal of Marketing*, *58*(4), 37–52. https://doi.org/10.1177/002224299405800404

De Angelis, R., & Feola, R. (2020). Circular business models in biological cycles: The case of an Italian spin-off. *Journal of Cleaner Production*, *247*. https://doi.org/10.1016/j.jclepro.2019.119603

Demil, B., & Lecocq, X. (2010). Business Model Evolution: In Search of Dynamic Consistency. *Long Range Planning*, *43*(2–3), 227–246. https://doi.org/10.1016/j.lrp.2010.02.004

Deshpande, R., Farley, J. U., & Webster, F. E. (1993). Corporate Culture, Customer Orientation, and Innovativeness in Japanese Firms: A Quadrad Analysis. *Journal of Marketing*, *57*(1), 23. https://doi.org/10.2307/1252055

Dijkstra, H., van Beukering, P., & Brouwer, R. (2021). In the business of dirty oceans: Overview of startups and entrepreneurs managing marine plastic. *Marine Pollution Bulletin*, *162*. https://doi.org/10.1016/j.marpolbul.2020.111880

Donaldson, C., Linton, G., & Bendickson, J. (2025). Generative artificial intelligence use and configurational pathways to innovation performance in start-ups. *Journal of Small Business Management*, 1–58. https://doi.org/10.1080/00472778.2025.2492215

Dopfer, M. (2018). Why Business Model Innovation Matters to Startups. In N. Richter, P. Jackson, & T. Schildhauer (Eds.), *Entrepreneurial Innovation and Leadership: Preparing for a Digital Future* (pp. 77–85).

Springer International Publishing. https://doi.org/10.1007/978-3-319-71737-1_7

Elia, G., Lerro, A., & Schiuma, G. (2022). Leveraging knowledge management systems for business modelling in technology start-ups: An exploratory study. *Knowledge Management Research and Practice*, *20*(6), 913–924. Scopus. https://doi.org/10.1080/14778238.2022.2144511

Endenich, C., Lachmann, M., Schachel, H., & Zajkowska, J. (2022). The relationship between management control systems and innovativeness in start-ups: Evidence for product, business model, and ambidextrous innovation. *Journal of Accounting and Organizational Change*. https://doi.org/10.1108/JAOC-06-2022-0087

Farhana, M., & Swietlicki, D. (2020). Dynamic Capabilities Impact on Innovation: Niche Market and Startups. *Journal of Technology Management & Innovation*, *15*(3), 83–96. https://doi.org/10.4067/S0718-27242020000300083

Felin, T., Gambardella, A., Stern, S., & Zenger, T. (2020). Lean startup and the business model: Experimentation revisited. *Long Range Planning*, *53*(4), 101889. https://doi.org/10.1016/j.lrp.2019.06.002

Font-Cot, F., Lara-Navarra, P., Arnau, C. S., & Serradell-Lopez, E. (2025). Scaling Wheel Framework: A holistic approach to startup scalability, governance models, and AI-driven innovation ecosystem competitiveness. *Journal of Open Innovation: Technology, Market, and Complexity*, *11*(3). Scopus. https://doi.org/10.1016/j.joitmc.2025.100619

Foss, N. J., & Saebi, T. (2017). Fifteen Years of Research on Business Model Innovation: How Far Have We Come, and Where Should We Go? *Journal of Management*, *43*(1), 200–227. https://doi.org/10.1177/0149206316675927

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

Franceschelli, M. V., Santoro, G., & Candelo, E. (2018). Business model innovation for sustainability: A food start-up case study. *British Food Journal*, *120*(10), 2483–2494. https://doi.org/10.1108/BFJ-01-2018-0049

Ganguly, A., & Euchner, J. (2018). Conducting Business Experiments: Validating New Business ModelsWell-designed business experiments can help validate assumptions and reduce risk associated with new business models. *Research Technology Management*, *61*(2), 27–36. https://doi.org/10.1080/08956308.2018.1421381

Garidis, K., & Rossmann, A. (2019). A framework for cooperation behavior of start-ups: Developing a multi-item scale and its performance impacts. *Journal of Small Business and Enterprise Development*, *26*(6–7), 877–890. https://doi.org/10.1108/JSBED-04-2019-0125

Garud, R., Gehman, J., & Giuliani, A. P. (2014). Contextualizing entrepreneurial innovation: A narrative perspective. *Research Policy*, *43*(7), 1177–1188. https://doi.org/10.1016/j.respol.2014.04.015

Geissdoerfer, M., Santa-Maria, T., Kirchherr, J., & Pelzeter, C. (2023). Drivers and barriers for circular business model innovation. *Business Strategy and the Environment*, *32*(6), 3814–3832. Scopus. https://doi.org/10.1002/bse.3339

Ghezzi, A., & Cavallo, A. (2020). Agile Business Model Innovation in Digital Entrepreneurship: Lean Startup Approaches. *Journal of Business Research*, *110*, 519–537. https://doi.org/10.1016/j.jbusres.2018.06.013

Ghezzi, A., Cavallo, A., Sanasi, S., & Rangone, A. (2022). Opening up to startup collaborations: Open business models and value co-creation in SMEs. *Competitiveness Review*, *32*(7), 40–61. Scopus. https://doi.org/10.1108/CR-04-2020-0057

Gilbert, B. A., McDougall, P. P., & Audretsch, D. B. (2006). New Venture Growth: A Review and Extension. *Journal of Management*, *32*(6), 926–950. https://doi.org/10.1177/0149206306293860

Gonzalez-Alvarez, N., & Solis-Rodriguez, V. (2011). Discovery of entrepreneurial opportunities: A gender perspective. *Industrial Management & Data Systems*, *111*(5), 755–775. https://doi.org/10.1108/02635571111137296

Guckenbiehl, P., & Corral de Zubielqui, G. (2022). Start-ups' business model changes during the COVID-19 pandemic: Counteracting adversities and pursuing opportunities. *International Small Business Journal: Researching Entrepreneurship*, *40*(2), 150–177. Scopus. https://doi.org/10.1177/02662426211055447

Guckenbiehl, P., Corral de Zubielqui, G. C., & Lindsay, N. (2024). Navigating external knowledge sources: Impacts on business model innovation and competitive advantage in start-ups. *Knowledge Management Research and Practice*, *22*(6), 588–599. Scopus. https://doi.org/10.1080/14778238.2024.2346215

Guldmann, E., & Huulgaard, R. D. (2020). Barriers to circular business model innovation: A multiple-case study. *Journal of Cleaner Production*, *243*. Scopus. https://doi.org/10.1016/j.jclepro.2019.118160

Guo, B., Pang, X., & Li, W. (2018). The role of top management team diversity in shaping the performance of business model innovation: A threshold effect. *Technology Analysis and Strategic Management*, *30*(2), 241–253. https://doi.org/10.1080/09537325.2017.1300250

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

Guo, H., Yang, J., & Han, J. (2021). The Fit between Value Proposition Innovation and Technological Innovation in the Digital Environment: Implications for the Performance of Startups. *IEEE Transactions on Engineering Management*, *68*(3), 797–809. Scopus. https://doi.org/10.1109/TEM.2019.2918931

Guo, R., Cai, L., & Zhang, W. (2016). Effectuation and causation in new internet venture growth: The mediating effect of resource bundling strategy. *Internet Research*, *26*(2), 460–483. https://doi.org/10.1108/IntR-01-2015-0003

Gupta, G., & Bose, I. (2019). Strategic learning for digital market pioneering: Examining the transformation of Wishberry's crowdfunding model. *Technological Forecasting and Social Change*, *146*, 865–876. https://doi.org/10.1016/j.techfore.2018.06.020

Gupta, V., Fernandez-Crehuet, J., & Hanne, T. (2020a). Fostering Continuous Value Proposition Innovation through Freelancer Involvement in Software Startups: Insights from Multiple Case Studies. *SUSTAINABILITY*, *12*(21). https://doi.org/10.3390/su12218922

Gupta, V., Fernandez-Crehuet, J. M., & Hanne, T. (2020b). Fostering continuous value proposition innovation through freelancer involvement in software startups: Insights from multiple case studies. *Sustainability (Switzerland)*, *12*(21), 1–35. https://doi.org/10.3390/su12218922

Haddaway, N. R., Page, M. J., Pritchard, C. C., & McGuinness, L. A. (2022). *PRISMA2020*: An R package and Shiny app for producing PRISMA 2020-compliant flow diagrams, with interactivity for optimised digital transparency and Open Synthesis. *Campbell Systematic Reviews*, *18*(2). https://doi.org/10.1002/cl2.1230

Han, D., Konietzko, J., Dijk, M., & Bocken, N. (2023). How do circular start-ups achieve scale? *Sustainable Production and Consumption*, *40*, 363–375. https://doi.org/10.1016/j.spc.2023.06.007

Hansen, E. L. (1995). Entrepreneurial Networks and New Organization Growth. *Entrepreneurship Theory and Practice*, *19*(4), 7–19. https://doi.org/10.1177/104225879501900402

Harms, R., Alfert, C., Cheng, C.-F., & Kraus, S. (2021). Effectuation and causation configurations for business model innovation: Addressing COVID-19 in the gastronomy industry. *International Journal of Hospitality Management*, *95*, 102896. https://doi.org/10.1016/j.ijhm.2021.102896

Hausner, E., Waffenschmidt, S., Kaiser, T., & Simon, M. (2012). Routine development of objectively derived search strategies. *Systematic Reviews*, *1*(1), 19. https://doi.org/10.1186/2046-4053-1-19

Henry, C., Rushton, J., & Baillie, S. (2016). Exploring the sustainability of small rural veterinary enterprise. *Journal of Small Business and Enterprise Development*, *23*(1), 259–273. https://doi.org/10.1108/JSBED-10-2014-0166

Henry, M., Bauwens, T., Hekkert, M., & Kirchherr, J. (2020). A typology of circular start-ups: Analysis of 128 circular business models. *Journal of Cleaner Production*, *245*. https://doi.org/10.1016/j.jclepro.2019.118528

Hou, D., Xiong, A., & Lin, C. (2022). Executive cognitive ability and business model innovation in start-ups: The role of entrepreneurial bricolage and environmental dynamism. *Frontiers in Psychology*, *13*. https://doi.org/10.3389/fpsyg.2022.978543

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

Huynh, P. H. (2022a). "Enabling circular business models in the fashion industry: The role of digital innovation." *International Journal of Productivity and Performance Management*, *71*(3), 870–895. Scopus. https://doi.org/10.1108/IJPPM-12-2020-0683

Huynh, P. H. (2022b). Enabling circular business models in the fashion industry: The role of digital innovation. *International Journal of Productivity and Performance Management*, *71*(3), 870–895. https://doi.org/10.1108/IJPPM-12-2020-0683

Iyiola, K., Alzubi, A., & Dappa, K. (2023). The influence of learning orientation on entrepreneurial performance: The role of business model innovation and risk-taking propensity. *Journal of Open Innovation: Technology, Market, and Complexity*, *9*(3). Scopus. https://doi.org/10.1016/j.joitmc.2023.100133

Jain, R. (2014). Business model innovations for information and communications technology-based services for low-income segments in emerging economies. *Journal of Global Information Technology Management*, *17*(2), 74–90. Scopus. https://doi.org/10.1080/1097198X.2014.928561

Jin, T., & Chorda, I. M. (2025). The impact of green strategy hybrid orientation on startup performance in SMEs. *Journal of Business Research*, *201*, 115748. https://doi.org/10.1016/j.jbusres.2025.115748

Jo, H. (2025). Internal capabilities and business confirmation: Trajectories of emerging ventures. *Management Decision*. Scopus. https://doi.org/10.1108/MD-07-2024-1709

Jones, O., & Giordano, B. (2021). Family entrepreneurial teams: The role of learning in business model evolution. *Management Learning*, *52*(3), 267–293. https://doi.org/10.1177/1350507620934092

Jorzik, P., Antonio, J. L., Kanbach, D. K., Kallmuenzer, A., & Kraus, S. (2024). Sowing the seeds for sustainability: A business model innovation perspective on artificial intelligence in green technology startups. *Technological Forecasting and Social Change*, *208*. Scopus. https://doi.org/10.1016/j.techfore.2024.123653

Jost, P.-J. (2022). Friend or foe? Co-opetition and entrepreneurial networking. *Small Business Economics*, *59*(3), 1043–1059. https://doi.org/10.1007/s11187-021-00567-5

Karami, M., Baber, W. W., & Ojala, A. (2022). The effectual process of business model innovation for seizing opportunities in frontier markets. *Technovation*, *117*, 102595. https://doi.org/10.1016/j.technovation.2022.102595

Kézai, P. K., & Kurucz, A. (2023). Crisis Resilience of Startup Companies (The Case of Hungary among the Visegrad Countries with a Focus on the Pandemic). *Sustainability*, *15*(9), 7108. https://doi.org/10.3390/su15097108

Khodaei, H., & Ortt, R. (2019). Capturing Dynamics in Business Model Frameworks. *Journal of Open Innovation: Technology, Market, and Complexity*, *5*(1), 8. https://doi.org/10.3390/joitmc5010008

Kiyabo, K., & Isaga, N. (2020). Entrepreneurial orientation, competitive advantage, and SMEs' performance: Application of firm growth and personal wealth measures. *Journal of Innovation and Entrepreneurship*, *9*(1), 12. https://doi.org/10.1186/s13731-020-00123-7

Konietzko, J., Baldassarre, B., Brown, P., Bocken, N., & Hultink, E. J. (2020). Circular business model experimentation: Demystifying assumptions. *Journal of Cleaner Production*, *277*. Scopus. https://doi.org/10.1016/j.jclepro.2020.122596

Koning, R., Hasan, S., & Chatterji, A. (2019). Experimentation and Startup Performance: Evidence from A/B Testing. *SSRN Electronic Journal*. https://doi.org/10.2139/ssrn.3440291

Kuckertz, A., Berger, E. S. C., & Gaudig, A. (2019). Responding to the greatest challenges? Value creation in ecological startups. *Journal of Cleaner Production*, *230*, 1138–1147. https://doi.org/10.1016/j.jclepro.2019.05.149

Kulkov, I. (2021). Next-generation business models for artificial intelligence start-ups in the healthcare industry. *International Journal of Entrepreneurial Behaviour and Research*. https://doi.org/10.1108/IJEBR-04-2021-0304

Lamperti, S., Cavallo, A., & Sassanelli, C. (2023). Digital Servitization and Business Model Innovation in SMEs: A Model to Escape From Market Disruption. *IEEE Transactions on Engineering Management*, 1–15. https://doi.org/10.1109/TEM.2022.3233132

Leatherbee, M., & Katila, R. (2020). The lean startup method: Early-stage teams and hypothesis-based probing of business ideas. *Strategic Entrepreneurship Journal*, *14*(4), 570–593. https://doi.org/10.1002/sej.1373

Li, Y., Li, B., & Lu, T. (2022). Founders' Creativity, Business Model Innovation, and Business Growth. *Frontiers in Psychology*, *13*. Scopus. https://doi.org/10.3389/fpsyg.2022.892716

Li, Y., Maxwell, D. W., & Moehler, R. (2025). Facilitating platform-based business model innovation in construction start-ups: A dynamic capability perspective. *Construction Management and Economics*, *43*(10), 864–881. Scopus. https://doi.org/10.1080/01446193.2025.2528795

Lichy, J., Zhai, Y., & Ang'awa, W. (2025). Using business model tools in entrepreneurial start-ups: Insights and inconsistencies. *Journal of Small Business & Entrepreneurship*, *37*(3), 381–413. https://doi.org/10.1080/08276331.2024.2380554

Linnenluecke, M. K., Marrone, M., & Singh, A. K. (2020). Conducting systematic literature reviews and bibliometric analyses. *Australian Journal of Management*, *45*(2), 175–194. https://doi.org/10.1177/0312896219877678

Lit, F. C., Huijben, J. C. C. M., Cloodt, M. M. A. H., & Paredis, E. (2024). Business model innovation in circular start-ups: Overcoming barriers in the circular plastics economy. *International Small Business Journal: Researching Entrepreneurship*, *42*(4), 506–550. Scopus. https://doi.org/10.1177/02662426231217954

Long, T. B., Looijen, A., & Blok, V. (2018). Critical success factors for the transition to business models for sustainability in the food and beverage industry in the Netherlands. *Journal of Cleaner Production*, *175*, 82–95. https://doi.org/10.1016/j.jclepro.2017.11.067

Lumpkin, G. T., & Dess, G. G. (1996). Clarifying the Entrepreneurial Orientation Construct and Linking It to Performance. *The Academy of Management Review*, *21*(1), 135. https://doi.org/10.2307/258632

Marcon, A., Ribeiro, J. L. D., Olteanu, Y., & Fichter, K. (2024). How the interplay between innovation ecosystems and market contingency factors impacts startup innovation. *Technology in Society*, *76*, 102424. https://doi.org/10.1016/j.techsoc.2023.102424

Marques Kneipp, J., Cagica-Carvalho, L. M., Maffini-Gomes, C., Eccel-Pontelli, G., Cavalheiro-Zaluski, F., & Barroso-Simão, L. (2025). Driving Sustainability-Oriented Innovation: A Study of Portuguese Industrial Companies' Business Models. *Journal of Technology Management & Innovation*, *20*(3), 102–111. https://doi.org/10.4067/S0718-27242025000300102

Mary George, N., Parida, V., Lahti, T., & Wincent, J. (2016). A systematic literature review of entrepreneurial opportunity recognition: Insights on influencing factors. *International Entrepreneurship and Management Journal*, *12*(2), 309–350. https://doi.org/10.1007/s11365-014-0347-y

Massa, L., Tucci, C. L., & Afuah, A. (2017). A Critical Assessment of Business Model Research. *Academy of Management Annals*, *11*(1), 73–104. https://doi.org/10.5465/annals.2014.0072

McDonald, R., & Gao, C. (2019). Pivoting Isn't Enough? Managing Strategic Reorientation in New Ventures. *Organization Science*, *30*(6), 1289–1318. https://doi.org/10.1287/orsc.2019.1287

Medina Molina, C., Ribeiro Soriano, D., & Blanco González-Tejero, C. (2023). Multi-level corporate entrepreneurship in SMEs: An intra-metropolitan analysis. *Review of Managerial Science*, *17*(7), 2185–2213. https://doi.org/10.1007/s11846-022-00575-z

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

Micheli, M. R., Berchicci, L., & Jansen, J. J. P. (2020). Leveraging diverse knowledge sources through proactive behaviour: How companies can use inter-organizational networks for business model innovation. *Creativity and Innovation Management*, *29*(2), 198–208. https://doi.org/10.1111/caim.12359

Mitchell, R. K., Busenitz, L., Lant, T., McDougall, P. P., Morse, E. A., & Smith, J. B. (2002). Toward a Theory of Entrepreneurial Cognition: Rethinking the People Side of Entrepreneurship Research. *Entrepreneurship Theory and Practice*, *27*(2), 93–104. https://doi.org/10.1111/1540-8520.00001

Mormile, S., Piscopo, G., & Adinolfi, P. (2025). Leveraging unique resources and capabilities to address ESG challenges: A qualitative study of high-growth Italian start-ups. *Sustainability Accounting, Management and Policy Journal*. Scopus. https://doi.org/10.1108/SAMPJ-10-2023-0770

Nunes, A. K. S., Morioka, S. N., & Bolis, I. (2022). Challenges of business models for sustainability in startups. *RAUSP Management Journal*, *57*(4), 382–400. https://doi.org/10.1108/RAUSP-10-2021-0216

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

Osterwalder, A., & Pigneur, Y. (2013). *Business Model Generation: A Handbook for Visionaries, Game Changers, and Challengers*. Wiley. https://books.google.nl/books?id=L3TnC7ZAWAsC

Ostgaard, T. A., & Birley, S. (1996). New venture growth and personal networks. *Journal of Business Research*, *36*(1), 37–50. https://doi.org/10.1016/0148-2963(95)00161-1

Page, M. J., McKenzie, J. E., Bossuyt, P. M., Boutron, I., Hoffmann, T. C., Mulrow, C. D., Shamseer, L., Tetzlaff, J. M., Akl, E. A., Brennan, S. E., Chou, R., Glanville, J., Grimshaw, J. M., Hróbjartsson, A., Lalu, M. M., Li, T., Loder, E. W., Mayo-Wilson, E., McDonald, S., … Moher, D. (2021). The PRISMA 2020 statement: An updated guideline for reporting systematic reviews. *Systematic Reviews*, *10*(1), 89. https://doi.org/10.1186/s13643-021-01626-4

Peripolli Sanfelice, C., Marques Kneipp, J., & Eccel Pontelli, G. (2024). The Adoption of Product-Service System Business Models: A Multiple Case Study. *Journal of Technology Management & Innovation*, *19*(3), 3–14. https://doi.org/10.4067/S0718-27242024000300003

Peteraf, M. A., & Barney, J. B. (2003). Unraveling the resource-based tangle. *Managerial and Decision Economics*, *24*(4), 309–323. https://doi.org/10.1002/mde.1126

Radziwon, A., Bogers, M. L. A. M., Chesbrough, H., & Minssen, T. (2022). Ecosystem effectuation: Creating new value through open innovation during a pandemic. *R&D Management*, *52*(2), 376–390. https://doi.org/10.1111/radm.12512

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

Rangaswamy, E., Nawaz, N., & Changzhuang, Z. (2022). The impact of digital technology on changing consumer behaviours with special reference to the home furnishing sector in Singapore. *Humanities and Social Sciences Communications*, *9*(1), 83. https://doi.org/10.1057/s41599-022-01102-x

Ranjbari, M., Kuděj, M., Kubálek, J., & Ferraris, A. (2025). A Typology of Circular Economy Startups in Agri-Food Supply Chains: An Analysis of 79 Innovative Startups. *Business Strategy and the Environment*, *34*(7), 9301–9320. Scopus. https://doi.org/10.1002/bse.70062

Rask, M., & Günzel-Jensen, F. (2020a). Business model design and performance in nascent markets. *Management Decision*, *58*(5), 927–947. https://doi.org/10.1108/MD-10-2017-0924

Rask, M., & Günzel-Jensen, F. (2020b). Business model design and performance in nascent markets. *Management Decision*, *58*(5), 927–947. Scopus. https://doi.org/10.1108/MD-10-2017-0924

Read, S., Song, M., & Smit, W. (2009). A meta-analytic review of effectuation and venture performance. *Journal of Business Venturing*, *24*(6), 573–587. https://doi.org/10.1016/j.jbusvent.2008.02.005

Reinecke, P. C., Küberling-Jost, J. A., Wrona, T., & Zapf, A. K. (2023). Towards a dynamic value network perspective of sustainable business models: The example of RECUP. *Journal of Business Economics*, *93*(4), 635–665. https://doi.org/10.1007/s11573-023-01155-7

Rezazadeh, A., Kohns, M., Bohnsack, R., António, N., & Rita, P. (2025). Generative AI for growth hacking: How startups use generative AI in their growth strategies. *Journal of Business Research*, *192*, 115320. https://doi.org/10.1016/j.jbusres.2025.115320

Richter, C., Kraus, S., Brem, A., Durst, S., & Giselbrecht, C. (2017). Digital entrepreneurship: Innovative business models for the sharing economy. *Creativity and Innovation Management*, *26*(3), 300–310. https://doi.org/10.1111/caim.12227

Ries, E. (2011). *The lean startup: How today's entrepreneurs use continuous innovation to create radically successful businesses*. Currency.
Ries, E. (2017). *The startup way: Making entrepreneurship a fundamental discipline of every enterprise*. Crown.

Rodrigues, C. D., & Noronha, M. E. S. (2022). What companies can learn from unicorn startups to overcome the COVID-19 crisis. *Innovation and Management Review*. Scopus. https://doi.org/10.1108/INMR-01-2021-0011

Rok, B., & Kulik, M. (2021). Circular start-up development: The case of positive impact entrepreneurship in Poland. *Corporate Governance (Bingley)*, *21*(2), 339–358. https://doi.org/10.1108/CG-01-2020-0043

Roshan, R., & Balodi, K. (2024). Sustainable business model innovation of an emerging country startup: An imprinting theory perspective. *Journal of Cleaner Production*, *475*. Scopus. https://doi.org/10.1016/j.jclepro.2024.143687

Ruggieri, R., Savastano, M., Scalingi, A., Bala, D., & D'Ascenzo, F. (2018). The impact of Digital Platforms on Business Models: An empirical investigation on innovative start-ups. *Management and Marketing*, *13*(4), 1210–1225. https://doi.org/10.2478/mmcks-2018-0032

Ruggiero, S., Kangas, H.-L., Annala, S., & Lazarevic, D. (2021). Business model innovation in demand response firms: Beyond the niche-regime dichotomy. *Environmental Innovation and Societal Transitions*, *39*, 1–17. Scopus. https://doi.org/10.1016/j.eist.2021.02.002

Sahebalzamani, S., Jørgensen, E. J. B., Bertella, G., & Nilsen, E. R. (2023). A Dynamic Capabilities Approach to Business Model Innovation in Times of Crisis. *Tourism Planning & Development*, *20*(2), 138–161. https://doi.org/10.1080/21568316.2022.2107560

Saidi, S., Grama-Vigouroux, S., Sellami, M., Ghamgui, N., & Rezaei, M. (2025). How Double-Loop Learning Powers Business Model Innovation in Digital Startups: Mapping Enablers Across Core Dimensions. *Strategic Change*. Scopus. https://doi.org/10.1002/jsc.2677

Sanasi, S., & Ghezzi, A. (2022). Pivots as strategic responses to crises: Evidence from Italian companies navigating Covid-19. *Strategic Organization*. https://doi.org/10.1177/14761270221122933

Sanasi, S., Ghezzi, A., Cavallo, A., & Rangone, A. (2020a). Making sense of the sharing economy: A business model innovation perspective. *Technology Analysis and Strategic Management*, *32*(8), 895–909. https://doi.org/10.1080/09537325.2020.1719058

Sanasi, S., Ghezzi, A., Cavallo, A., & Rangone, A. (2020b). Making sense of the sharing economy: A business model innovation perspective. *Technology Analysis and Strategic Management*, *32*(8), 895–909. Scopus. https://doi.org/10.1080/09537325.2020.1719058

Saqib, N., & Satar, M. S. (2021). Exploring business model innovation for competitive advantage: A lesson from an emerging market. *International Journal of Innovation Science*, *13*(4), 477–491. https://doi.org/10.1108/IJIS-05-2020-0072

Sarkis-Onofre, R., Catalá-López, F., Aromataris, E., & Lockwood, C. (2021). How to properly use the PRISMA Statement. *Systematic Reviews*, *10*(1), 117, s13643-021-01671-z. https://doi.org/10.1186/s13643-021-01671-z

Sergeeva, A., & Zott, C. (2025). How founders' values enable business model innovation in new ventures: The case of Magnum Photos. *Strategic Management Journal*, *46*(10), 2492–2534. Scopus. https://doi.org/10.1002/smj.3727

Silva, D. S., Ghezzi, A., Aguiar, R. B., Cortimiglia, M. N., & ten Caten, C. S. (2021). Lean startup for opportunity exploitation: Adoption constraints and strategies in technology new ventures. *International Journal of Entrepreneurial Behaviour and Research*, *27*(4), 944–969. Scopus. https://doi.org/10.1108/IJEBR-01-2020-0030

Singh, M., Jiao, J., Klobasa, M., & Frietsch, R. (2022). Servitization of Energy Sector: Emerging Service Business Models and Startup's Participation. *Energies*, *15*(7). https://doi.org/10.3390/en15072705

Snihur, Y., & Markman, G. (2023). Business Model Research: Past, Present, and Future. *Journal of Management Studies*, joms.12928. https://doi.org/10.1111/joms.12928

Sorescu, A. (2017). Data-Driven Business Model Innovation. *Journal of Product Innovation Management*, *34*(5), 691–696. https://doi.org/10.1111/jpim.12398

Spieth, P., Breitenmoser, P., & Röth, T. (2025a). Business model innovation: Integrative review, framework, and agenda for future innovation management research. *Journal of Product Innovation Management*, *42*(1), 166–193. https://doi.org/10.1111/jpim.12704

Spieth, P., Breitenmoser, P., & Röth, T. (2025b). Business model innovation: Integrative review, framework, and agenda for future innovation management research. *Journal of Product Innovation Management*, *42*(1), 166–193. https://doi.org/10.1111/jpim.12704

Sreenivasan, A., & Suresh, M. (2023). Agility adaptability and alignment in start-ups. *Journal of Science and Technology Policy Management*. https://doi.org/10.1108/JSTPM-05-2022-0083

Tanveer, A., Torres de Oliveira, R., & Rizvi, S. (2024). How sector fluidity (knowledge-intensiveness and innovation) shapes startups' resilience during crises. *Journal of Business Venturing Insights*, *22*. Scopus. https://doi.org/10.1016/j.jbvi.2024.e00500

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

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

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

Teece, D. J., Pisano, G., & Shuen, A. (2023). *Dynamic Capabilities and Strategic Management*.

Thomas, N., Randolph, A., & Marin, A. (2019). A network view of entrepreneurial cognition in corporate entrepreneurship contexts: A socially situated approach. *Management Decision*, *58*(7), 1331–1354. https://doi.org/10.1108/MD-11-2017-1195

To, C. K. M., Au, J. S. C., & Kan, C. W. (2019). Uncovering business model innovation contexts: A comparative analysis by fsQCA methods. *Journal of Business Research*, *101*, 783–796. Scopus. https://doi.org/10.1016/j.jbusres.2018.12.042

Todeschini, B. V., Cortimiglia, M. N., Callegaro-de-Menezes, D., & Ghezzi, A. (2017). Innovative and sustainable business models in the fashion industry: Entrepreneurial drivers, opportunities, and challenges. *Business Horizons*, *60*(6), 759–770. https://doi.org/10.1016/j.bushor.2017.07.003

Tranfield, D., Denyer, D., & Smart, P. (2003). Towards a Methodology for Developing Evidence-Informed Management Knowledge by Means of Systematic Review. *British Journal of Management*, *14*(3), 207–222. https://doi.org/10.1111/1467-8551.00375

Urbaniec, M., & Żur, A. (2021). Business model innovation in corporate entrepreneurship: Exploratory insights from corporate accelerators. *International Entrepreneurship and Management Journal*, *17*(2), 865–888. Scopus. https://doi.org/10.1007/s11365-020-00646-1

Van Den Heuvel, C., Kao, P.-J., & Matyas, M. (2020a). Factors driving and hindering business model innovations for mobility sector start-ups. *Research in Transportation Business and Management*, *37*. https://doi.org/10.1016/j.rtbm.2020.100568

Van Den Heuvel, C., Kao, P.-J., & Matyas, M. (2020b). Factors driving and hindering business model innovations for mobility sector start-ups. *Research in Transportation Business and Management*, *37*. Scopus. https://doi.org/10.1016/j.rtbm.2020.100568

Van Opstal, W., & Borms, L. (2023). Startups and circular economy strategies: Profile differences, barriers and enablers. *Journal of Cleaner Production*, *396*, 136510. https://doi.org/10.1016/j.jclepro.2023.136510

Van Tonder, C., Bossink, B., Schachtebeck, C., & Nieuwenhuizen, C. (2023). The effect of digitally-driven business model innovation on business performance. *Journal of Small Business & Entrepreneurship*, 1–34. https://doi.org/10.1080/08276331.2023.2239039

Van Tonder, C., Bossink, B., Schachtebeck, C., & Nieuwenhuizen, C. (2024). Key Dimensions That Measure the Digital Maturity Levels of Small and Medium-Sized Enterprises (SMEs). *Journal of Technology Management & Innovation*, *19*(1), 110–130. https://doi.org/10.4067/S0718-27242024000100110

von Kolpinski, C., Yazan, D. M., & Fraccascia, L. (2022). The impact of internal company dynamics on sustainable circular business development: Insights from circular startups. *Business Strategy and the Environment*. https://doi.org/10.1002/bse.3228

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

Wang, S., & Zhang, H. (2025). Leveraging generative artificial intelligence for sustainable business model innovation in production systems. *International Journal of Production Research*, *63*(18), 6732–6757. https://doi.org/10.1080/00207543.2025.2485318

Watson, J. (2007). Modeling the relationship between networking and firm performance. *Journal of Business Venturing*, *22*(6), 852–874. https://doi.org/10.1016/j.jbusvent.2006.08.001

Wirtz, B. W., Pistoia, A., Ullrich, S., & Göttel, V. (2016). Business Models: Origin, Development and Future Research Perspectives. *Long Range Planning*, *49*(1), 36–54. https://doi.org/10.1016/j.lrp.2015.04.001

Xiang, G., Peng, M., Tang, F., & Liu, Y. (2024). Unpacking the impact of entrepreneurial learning on business model innovation in internet startups: Mediating roles of digital capabilities. *Technology in Society*, *77*. Scopus. https://doi.org/10.1016/j.techsoc.2024.102578

Xie, Y., & Song, J. (2025). The value of cognitive bias: Exploring the role of overconfidence and illusion of control in driving business model innovation. *Chinese Management Studies*, 1–25. Scopus. https://doi.org/10.1108/CMS-08-2023-0398

Xu, S., He, J., Morrison, A. M., de Domenici, M., & Wang, Y. (2022). Entrepreneurial networks, effectuation and business model innovation of startups: The moderating role of environmental dynamism. *Creativity and Innovation Management*, *31*(3), 460–478. https://doi.org/10.1111/caim.12514

Xu, S., He, J., Morrison, A. M., Su, X., & Zhu, R. (2023). The role of bricolage in countering resource constraints and uncertainty in start-up business model innovation. *European Journal of Innovation Management*. https://doi.org/10.1108/EJIM-11-2022-0632

Xu, S., Wu, X., He, J., Zhu, R., Morrison, A. M., & Xie, C. (2024). Turning entrepreneurial networks into business model innovation for start-ups. *Management Decision*, *62*(4), 1395–1423. Scopus. https://doi.org/10.1108/MD-04-2023-0558

Yang, D., Wei, Z., Shi, H., & Zhao, J. (2020). Market orientation, strategic flexibility and business model innovation. *Journal of Business & Industrial Marketing*, *35*(4), 771–784. https://doi.org/10.1108/JBIM-12-2018-0372

Yu, W., Choi, M., & Zheng, J. (2021). How Do Different Types of Entrepreneurial Networks and Decision-Making Influence the Identification of Entrepreneurial Opportunities? *Frontiers in Psychology*, *12*, 683285. https://doi.org/10.3389/fpsyg.2021.683285

Zhang, H., Sun, X., & Lyu, C. (2018). Exploratory orientation, business model innovation and new venture growth. *Sustainability (Switzerland)*, *10*(1). https://doi.org/10.3390/su10010056

Zhang, H., Xiao, H., Wang, Y., Shareef, M. A., Akram, M. S., & Goraya, M. A. S. (2021). An integration of antecedents and outcomes of business model innovation: A meta-analytic review. *Journal of Business Research*, *131*, 803–814. https://doi.org/10.1016/j.jbusres.2020.10.045

Zhang, K., Feng, L., Wang, J., Qin, G., & Li, H. (2022). Start-Up's Road to Disruptive Innovation in the Digital Era: The Interplay Between Dynamic Capabilities and Business Model Innovation. *Frontiers in Psychology*, *13*. https://doi.org/10.3389/fpsyg.2022.925277

Zhang, S. I. (2019). The Business Model of Journalism Start-Ups in China. *Digital Journalism*, *7*(5), 614–634. Scopus. https://doi.org/10.1080/21670811.2018.1496025

Zhao, X., Yi, C., Zhan, Y., & Guo, M. (2022). Business environment distance and innovation performance of EMNEs: The mediating effect of R&D internationalization. *Journal of Innovation & Knowledge*, *7*(4), 100241. https://doi.org/10.1016/j.jik.2022.100241

Zott, C., & Amit, R. (2007). Business Model Design and the Performance of Entrepreneurial Firms. *Organization Science*, *18*(2), 181–199. https://doi.org/10.1287/orsc.1060.0232

Zott, C., & Amit, R. (2010). Business Model Design: An Activity System Perspective. *Long Range Planning*, *43*(2–3), 216–226. https://doi.org/10.1016/j.lrp.2009.07.004

ISSN: 0718-2724 - **Journal of Technology Management & Innovation** - **www.jotmi.org**