

Management and Innovation: A Study on the Potential of Design Thinking in Micro, Small, and Medium-Sized Food Companies

Gestão e Inovação: Um Estudo sobre o potencial do Design Thinking nas Micro, Pequenas e Médias Empresas Alimentícias

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Abstract: Innovation is an essential factor for organizational development, competitiveness, and management, especially in the food industry. This study aimed to review the literature on the challenges faced by Brazilian micro, small, and medium-sized enterprises (SMEs) in the food sector and to analyze the contributions of Design Thinking as an approach to innovation management. This qualitative study is based on a literature review of national and international publications indexed in the SciELO, ScienceDirect, and Google Scholar databases, published between 1982 and 2026. The results indicate that SMEs in the food industry face resource constraints, a focus on operational demands, a lack of structured innovation processes, difficulties in accessing credit, and inadequate public policies. The analysis showed that Design Thinking can support innovation management by promoting a user-centered approach, collaboration among teams, and the identification of opportunities for improving products, processes, and services.

Keywords: Innovation, Design Thinking. Food Industry. Management.

Resumo: A inovação é um fator essencial para o desenvolvimento, a competitividade e a gestão das organizações, especialmente na indústria alimentícia. Este estudo teve como objetivo revisar a literatura sobre os desafios enfrentados por micro, pequenas e médias empresas (PMEs) brasileiras do setor alimentício e analisar as contribuições do Design Thinking como abordagem para a gestão da inovação. Trata-se de uma pesquisa qualitativa, baseada em revisão bibliográfica de publicações nacionais e internacionais indexadas nas bases SciELO, ScienceDirect e Google Scholar, publicadas entre 1982 e 2026. Os resultados indicam que as PMEs da indústria alimentícia enfrentam limitações de recursos, foco em demandas operacionais, ausência de processos estruturados de inovação, dificuldades de acesso a crédito e inadequação de políticas públicas. A análise evidenciou que o Design Thinking pode apoiar a gestão da inovação ao promover foco no usuário, colaboração entre equipes e identificação de oportunidades de melhoria em produtos, processos e serviços.

Palavras-chave: Inovação. Design Thinking. Indústria Alimentícia.

Introduction

Innovation is one of the main driving forces of development and a key incentive for the growth and success of organizations. Etymologically, the word “innovation” derives from the Latin *innovatio*, meaning the act or effect of innovating. According to the Oslo Manual, innovation,

“is a new or improved product or process (or a combination thereof) that differs significantly from the unit’s previous products or processes and that has been made available to potential users (product) or brought into use by the unit (process).” (OECD/Eurostat, 2018, p. 22)

The concept of innovation was disseminated in the 20th century by the economist Joseph Schumpeter, who linked innovation to economic development, emphasizing that innovative ideas can generate competitive advantages and new business models (BENAVIDES; GUACHAVEZ; CÓRDOBA-CELY, 2020). Schumpeter (1982) uses the term “creative destruction” to describe the dynamic process in which new technologies emerge and replace older ones, highlighting innovation as a disruptive process driven by such creative destruction. Therefore, within this context, innovation occurs when new ideas or technologies disrupt established patterns, creating entirely new opportunities and challenges. This may lead to a reconfiguration of the competitive landscape and profound changes in the economy and society.

The concept of innovation has evolved over time and is currently understood as a continuous and multifaceted process (KELLEY; LITTMAN, 2007). For Kotler and Keller (2012), innovation plays a strategic role in organizational success, encompassing not only the development of new products but also the creation of marketing strategies, business models, and forms of customer relationship management.

Innovation is a continuous process that encompasses multiple dimensions and cannot be viewed as an isolated event (LAPPE; POLI; MAZZIONI, 2017). It must be managed comprehensively, with governance structures that enable the involvement of multiple areas of knowledge, fostering innovative capacity, process organization, and integration with technology and the market. In this regard, it is important to note that innovation efforts can be classified into two categories: (1) incremental and (2) radical, differing according to their impact. Incremental innovations seek small improvements in existing products and processes, typically generating short-term benefits with lower risk. Radical innovations, on the other hand, deliver significant performance and/or cost improvements, impacting existing markets or creating new ones. Both forms of innovation can contribute to enhanced quality, performance, market share acquisition, and increased profitability. Innovating in established products may involve factors such as design, customization, quality, and competitive pricing (FERREIRA; GIRALDELI, 2018).

Innovation across various global sectors has undergone a significant transformation process, with increased investment in technology, as noted by Sidonio et al. (2013). Innovation encompasses the search for and development of new products, new processes, and improvements in organizational management, involving multiple economic and social agents. The ability to innovate continuously is considered essential to ensuring companies’ future viability, and prioritizing innovation is fundamental to avoiding stagnation, fostering growth, ensuring survival in a competitive environment, and achieving long-term prosperity. It is therefore evident that companies must adopt an intelligent approach to managing the innovation process (LAPPE; POLI; MAZZIONI, 2017).

In this context, given the relevance of innovation across different economic sectors, this study focuses on the food industry. The food and beverage industry is of great importance to Brazil, and according to data presented by the Brazilian Food Industry Association (ABIA), the country processes 62% of all that is produced in the agricultural sector. In 2025, the industry’s physical production reached 288 million tons of food, demonstrating continuous growth and reaffirming the sector’s role in food security and population supply (ABIA, 2026).

The business structure of the Brazilian food industry highlights the predominance of small and medium-sized enterprises. According to the Brazilian Food Industry Association, the sector comprises approximately 42,000 companies, of which around 93% are micro, small, and medium-sized enterprises,

underscoring the importance of these businesses for the country's productive and economic dynamics (ABIA, 2026). Industry data show that Brazil generated R\$ 1.388 trillion in revenue in 2025, representing 10.9% of the national Gross Domestic Product (GDP), maintaining its economic and social relevance. Furthermore, the sector strengthened its presence in the international market, exporting to more than 190 countries and territories, even in a challenging global scenario (ABIA, 2026).

According to data from the Brazilian Micro and Small Business Support Service (SEBRAE), 30% of Brazil's GDP is generated by Individual Microentrepreneurs (MEIs) and Micro and Small Enterprises (MSEs), which directly or indirectly impact half of the Brazilian population (SEBRAE, 2023).

Demographic growth, urbanization, and increasing food demand present opportunities for Brazil to position itself as a major global supplier, especially through investment in processing and industrialization, adding value and enabling exports to distant regions (SIDONIO et al., 2013; DONADON; SANTOS, 2020). Although the global scenario signals significant opportunities for the sector, micro and small and medium-sized enterprises face obstacles and challenges, including a high tax burden—around 24% on processed foods—and the need for deregulation (ABIA, 2024). From an innovation perspective, limited resources for research and development (R&D), lack of an innovation-oriented culture, and resistance to change are key factors that hinder experimentation and the implementation of new ideas (TAVARES; BERNARDES; FRANCINI, 2018). Thus, creating an environment that fosters creativity and the emergence of new ideas becomes essential.

In this context, Design Thinking emerges as a promising methodological approach to support innovation management in food-sector MSEs. It is a structured, human-centered methodology focused on problem-solving and the development of innovative solutions (BROWN, 2010), involving an iterative process that includes stages such as empathy, problem definition, ideation, prototyping, and testing. This approach enables organizations to develop products and services aligned with user needs and market demands, and it has been adopted as a strategy for management and innovation across various organizational contexts.

As a collaborative and intuitive tool, it promotes team engagement and motivation, as all participants feel part of the innovation process (KELLEY; LITTMAN, 2007). Based on the premise of valuing idea generation, it has proven highly adaptable and effective across different sectors (MAURÍCIO et al., 2012), including the food industry, as discussed in this study.

This article aims to conduct a literature review on the challenges faced by micro, small, and medium-sized enterprises in the food sector, as well as to conceptually analyze the contributions of Design Thinking as a management and innovation approach within the business context.

Methodology

This study is characterized as a qualitative literature review, based on the analysis of secondary data, focusing on the themes of Design Thinking, innovation, and innovation management within the context of the food industry. The bibliographic research aimed to identify and analyze concepts, approaches, and challenges related to innovation management in micro, small, and medium-sized enterprises (SMEs) in the food sector.

Data collection was conducted through consultations of academic databases such as SciELO, ScienceDirect, and Google Scholar. Combinations of keywords in Portuguese and English were used, including: "Design Thinking," "innovation," "innovation management," "small businesses," and "food industry." Regarding the time frame, publications from the last two decades were prioritized, with an emphasis on recent studies, without excluding classical works and conceptual references relevant to understanding the evolution of innovation and Design Thinking concepts.

Both national and international scientific articles, book chapters, and academic works relevant to the investigated topic were considered, provided they demonstrated alignment with the object of study and scientific rigor. As inclusion criteria, publications directly addressing innovation, innovation management, and Design Thinking in organizations—especially SMEs and within the food sector—were

selected. Duplicate works, non-scientific publications, and studies not directly related to the research objectives were excluded.

The analysis of the selected materials followed the principles of qualitative content analysis, enabling the identification, categorization, and interpretation of the main concepts, trends, and challenges related to innovation and the use of Design Thinking as a management approach. This procedure allowed for the systematic organization of information and supported the development of the results and discussions presented in this study.

Results and Discussion

Challenges and Opportunities in Small and Medium-Sized Food Enterprises

Within the specific context of the food industry, innovation presents particular characteristics that distinguish it from other sectors. Sidonio et al. (2013) emphasize that innovating in this segment requires not only the development of new products, but also the rethinking of production processes, business models, integration strategies with suppliers and consumers, as well as continuous compliance with quality and food safety standards.

According to Sidonio et al. (2013), Brazil's relatively low level of innovation culture reflects the instability of the macroeconomic environment, which can make it risky for companies to invest in innovation. This is compounded by the lack of entrepreneurs and business leaders who recognize the importance of innovation in the economic process and are willing to assume risks and actively pursue it, given that investing in technology for innovation requires financial resources. In this regard, it is important to understand that SMEs tend to have fewer financial resources available for investment compared to large companies. Consequently, due to limited financial capacity, they invest less internally in Research and Development (R&D) (TAVARES; BERNARDES; FRANCINI, 2018). This reality is not limited to SMEs but is also observed in microenterprises due to their leaner structure (BARBOZA; FONSECA; RAMALHEIRO, 2017). Despite these limitations, it is essential to highlight that such firms can adopt innovative strategies to optimize their resources and drive innovation within their sectors.

The global food sector has undergone a process of valorization and diversification, driven by socioeconomic changes that have created demand for products better aligned with evolving consumer profiles and habits (DONADON; SANTOS, 2020). In Brazil, Law No. 87/1996, known as the Kandir Law, influences the food industry by favoring the export of raw materials over processed goods, as it allows the export of primary products with minimal or zero tax incidence. This exemption encourages producers and companies to focus on exporting unprocessed or minimally processed goods rather than investing in industrialization (DOS SANTOS; ABRITA; GONZALES, 2015; AMARAL; GUIMARÃES, 2017).

The composition of Brazilian exports demonstrates the country's strong specialization in supplying inputs for further processing. In 2023, approximately 56% of agri-food exports consisted of primary products, while 22% were classified as processed foods for industrial use, indicating a predominance of goods with lower levels of transformation. In contrast, the structure of imports shows a higher concentration of value-added goods, with 40% consisting of processed products for final consumption and 26% of processed goods for industrial use. These data reinforce Brazil's role as a major global supplier of commodities and highlight the importance of industrialization and value addition as strategies to increase competitiveness and sustainability in the productive sector (OECD, 2025).

In addition to the relevance of exports, the business structure—characterized by the predominance of SMEs, which account for approximately 93% of organizations in the Brazilian food sector—makes it essential to strengthen management and innovation practices capable of enhancing competitiveness and sustainability (ABIA, 2026).

This dynamic may lead many food industries to refrain from investing in Research and Development (R&D) to create innovative products, production processes, or high-value raw materials, as exporting primary products becomes more advantageous from a tax perspective. As a result, this may lead

to reduced product diversification, lower levels of innovation, and ultimately a loss of competitiveness in the global market, as noted by Amaral and Guimarães (2017).

Innovation management in the food industry is also challenging due to the need to coordinate multiple actors throughout the production chain, ranging from farmers to final consumers (RAFFI; GALVÃO; OLIVEIRA, 2022). Lima and Silva (2019) point out that, compared to large corporations, SMEs have significant innovation potential due to their greater flexibility and adaptability. Despite this potential, SMEs face structural and resource-related challenges that constrain their competitiveness. These challenges include both internal and external factors, such as resource scarcity, limitations in research and development, difficulties in organizational adaptation, time constraints, lack of technological innovation, and limited market knowledge, as highlighted by Raffi, Galvão, and Oliveira (2022).

According to SEBRAE studies, the main difficulties faced by micro and small enterprises are related to financial management, strategic planning, access to credit, managerial training, and adaptation to market changes. These factors directly impact the capacity for innovation and business sustainability, especially in industrial sectors that require continuous technological and organizational updates (SEBRAE, 2023).

Lima and Silva (2019) emphasize that in small enterprises, managerial characteristics and decisions directly influence organizational culture and, consequently, innovation capacity. In this context, building an organizational culture that fosters innovation becomes essential, enabling the generation and incorporation of new knowledge. In line with this perspective, Campelo (2017) argues that innovation requires accepting challenges, and achieving success depends on fostering a culture of innovation, primarily led by top management. Such a culture should create an environment conducive to continuous knowledge development, integrating innovation into daily business practices and identifying opportunities and strategies to continuously improve products, processes, and methods. Additionally, intellectual capital has been identified as a key factor in innovation processes, influencing competitiveness, sustainability, and organizational performance, as demonstrated by Jordão et al. (2017).

Regarding external factors, the lack of effective public policies is highlighted as a barrier, as such policies are essential tools for creating favorable conditions for innovation in micro and small enterprises (BARBOZA; FONSECA; RAMALHEIRO, 2017). Lima and Silva (2019) further note that market uncertainties related to the development of innovative products, difficulties in obtaining credit, and competition in markets dominated by monopolies or oligopolies of large corporations negatively affect the innovation process. A degree of risk aversion is therefore observable, which is understandable given market uncertainties and intense competition from large firms.

Although many SMEs have secured a significant market share and maintain financial stability with their current customer base, they are often not recognized as innovative companies. In this context, it is crucial to stimulate creativity and provide support for innovation. Public policies can play a fundamental role by promoting the development and dissemination of technologies and strengthening companies' capacity to absorb and adapt to new technologies through research funding and subsidies, as highlighted by Cabral (2007). However, many of these policies remain distant from the reality of SMEs, such as technological parks and research funding programs from Finep and CNPq, as noted by Barboza, Fonseca, and Ramalheiro (2017).

Law No. 13,243 of January 11, 2016, known as the Legal Framework for Science, Technology, and Innovation (BRAZIL, 2016), represents a significant advancement by establishing guidelines and incentives to promote innovation at all business levels, including SMEs. Among its benefits are tax incentives, allowing the deduction of expenses related to research, development, and innovation (R&D&I) from Corporate Income Tax (IRPJ) and the Social Contribution on Net Profit (CSLL). However, it is important to consider the complexity of the processes required to submit R&D&I projects, which often demand detailed documentation and project management expertise.

In this context, investment in innovation and technological modernization has been identified as a key factor for the competitiveness of Brazilian companies. Reports from the National Confederation of Industry (CNI) indicate that organizations investing in innovation, digitalization, and process improvement achieve higher productivity and greater adaptability to market changes. For SMEs in the food industry, such

investments represent a strategic opportunity to improve operational efficiency, develop new products, and strengthen their competitive position (CNI, 2023).

Brazil is widely recognized as an entrepreneurial country. However, entrepreneurship in the country remains a significant challenge. According to SEBRAE data, 21.6% of microenterprises and 17% of small enterprises fail within the first five years. The study highlights internal factors such as lack of preparedness among entrepreneurs, insufficient planning, and poor business management, as well as external factors such as the COVID-19 pandemic, as major causes of business closures in recent years. The survey also indicates that the highest closure rates occurred in the commerce sector (30.2%), followed by the manufacturing industry (27.3%) (SEBRAE, 2023). In light of this scenario, it is crucial to emphasize that more robust decision-making processes, detailed planning, and the integration of innovative elements can significantly increase the likelihood of success for micro and SMEs. However, these companies face challenges in implementing consistent strategic planning due to a lack of continuity in organizational objectives and insufficient alignment between actions and business purposes.

Organizational and strategic planning is fundamental to the innovation process in these companies. However, it is often reduced to a bureaucratic routine of form-filling, without addressing fundamental questions such as the “why” behind each action. Therefore, there is a need for a new approach to strategic planning that goes beyond “what to do” and focuses on “why to do it,” as discussed by Fernandes et al. (2009).

Despite the broad concept of innovation, many still associate it solely with the development and launch of new products. In a world where nearly everything already exists, what constitutes an innovative product? What does innovation truly mean in the food industry? And what does it mean to innovate within SMEs? By exploring these questions from a new perspective, it becomes clear that innovation in the food sector requires rethinking. Customer integration is identified as one of the key paths to corporate success, according to Tomas et al. (2014). The same study indicates that SMEs tend to engage less with customers, resulting in lower levels of integration compared to large companies. Given the challenging scenario faced by micro, small, and medium-sized enterprises in Brazil—evidenced by business closure rates and, especially, difficulties in strategic planning—it is important to consider innovative approaches to drive the success of these organizations.

Design Thinking: Transforming Challenges into Opportunities

Design is described through various definitions, including project, plan, sketch, drawing, draft, construction, configuration, and model (OXFORD, 2024). Design can be understood as the idea, project, or plan to solve a specific problem. It involves the materialization of this idea, using appropriate means to convey it to others (LÖBACH, 2001). Design goes beyond the engineering of artifacts and encompasses the creation of experiences for consumers, services, and spaces. This approach includes designing the processes and systems that underpin these experiences, ensuring economic and technical feasibility. User-centered design has gained prominence, integrating users into the design process (FREIRE, 2009).

The term Design Thinking was popularized worldwide by David Kelley, co-founder of IDEO—a globally recognized design and innovation firm—in the mid-1990s. Consequently, design was introduced into the more strategic side of business, gaining space and robustness within organizational and creative processes and strategies, as noted by Bonini and Sbragia (2011).

Design Thinking is an approach focused on exploring and resolving problems, as described by Felder et al. (2023). Kelley and Littman (2007) define Design Thinking as a strategic and practical approach to solving complex problems and developing innovative solutions; in agreement, Mauricio et al. (2012) add that it is a human-centered approach. Both authors emphasize the importance of understanding user needs and perspectives as a starting point. Design Thinking is characterized by cycles of activities involving problem definition, ideation, prototyping, and iterative testing. It is also a creative and collaborative process in which multidisciplinary teams work together to find innovative solutions.

According to Liedtka and Kaplan (2019), Design Thinking offers a problem-solving approach based on empathy, possibilities, and interaction. By utilizing tools such as interviews, ethnographic observations, and customer journey mapping, it enables the identification of deep insights and the creation of differentiated value propositions. It is an iterative and non-linear process; according to Kelley and Littman (2007), it can be divided into five stages. These five stages are shown in **Figure 1**.

Figure 1. Representation of the Design Thinking Stages



Source: Based on Kelley and Littman (2007)

The first stage of Design Thinking involves cycles of deep user understanding (empathize); the second defines the problem to be solved (define); the third involves generating creative ideas for problem resolution (ideate); the fourth stage moves to the development of tangible prototypes and rapid experimentation (prototype); and the fifth tests these prototypes with users to receive feedback (test). Each cycle helps refine and improve solutions until the best answer to the problem at hand is found. Furthermore, in the context of corporate strategies, the integration of Design Thinking can drive both incremental innovation and radical or disruptive innovation.

Design Thinking has attracted interest across various fields due to the method's broad applicability in promoting innovation. For Chasanidou, Gasparini, and Lee (2015), because it is structured around three spaces—business viability, user desirability, and technological feasibility—Design Thinking addresses complex problems and is considered promising in the business environment by providing tools to manage opportunities, scale changes, and transform business models. The authors further complement that Design Thinking also encourages and fosters co-creation and collaboration to explore and discover new opportunities.

Thinking, collaboration, and multidisciplinary are significant factors for the growth of innovation, and their potential is maximized when all three perspectives are considered. Design Thinking involves creative methods such as user empathy, prototyping, and abductive reasoning, and is considered a supportive approach for business challenges, being particularly effective in the early stages of innovation, as agreed by Chasanidou, Gasparini, and Lee (2015). Liedtka and Kaplan (2019) point out that when looking at the development of corporate business strategy, Design Thinking emerges as a possibility to add value both incrementally, by protecting and enhancing the current business model, and radically, by contributing to the reduction of disruption threats.

Design Thinking can offer useful tools that empower organizations to better manage key pillars of organizational strategic development. The authors point out five pillars that can benefit from the use of Design Thinking: 1) exploring and identifying opportunities; 2) learning in action; 3) managing a portfolio of initiatives/projects; 4) scaling changes; and 5) transforming business models. Thus, it emerges as a strategic partner, enabling more effective and innovative management.

As mentioned by Liedtka and Kaplan (2019), Design Thinking involves a deep immersion into the user's universe. It seeks to understand their motivations, desires, journeys, and pain points, contributing to organizations identifying emerging market opportunities. This occurs because it involves understanding current phenomena and aims for proactive adaptation. Regarding SMEs (Small and Medium Enterprises), we can initially explore and identify opportunities through brainstorming with multidisciplinary teams to generate innovative ideas. These ideas can turn into strategic opportunities when properly explored and developed.

By mapping the customer journey through interviews, active observation, and empathy techniques, organizations can capture valuable insights that transform into strategic opportunities. Design Thinking calls us to step out of our comfort zones and actively observe our users to understand their emotions, for we only "build these bridges of insight through empathy, the effort to see the world through the eyes of others, to understand the world through their experiences, and to feel the world through their emotions" (BROWN, 2010). By adopting a user-centered approach, promoting collaboration between teams, and stimulating creativity, companies can open space not only to identify new opportunities but also to transform them into meaningful innovations that drive strategic development and long-term success.

"The only way to know them is to seek them out where they live, work, and play. Likewise, almost every project we undertake involves an intense period of observation. We watch what people do (and do not do) and listen to what they say (and do not say). This takes some practice." (BROWN, 2010, p. 41)

In the vast majority of these organizations, many ideas reside in unexplored spaces, and through Design Thinking, room is made for a more diverse range of perspectives in the strategic conversation. In agreement, Liedtka and Kaplan (2019) state that Design Thinking encourages this search for new ideas in unexpected places, using tools such as co-creation to increase the chances of success.

When discussing learning in action, we look at the practical spectrum of the Design Thinking process, which advances from problem definition and idea generation through prototyping to testing and implementation—where each stage concludes through brainstorming activities, observations, presentations, and listening exercises. This encompasses sketching and modeling practices aimed at exploring and evaluating responses in an iterative and empathetic manner, as noted by Felder et al. (2023). In short, Design Thinking can contribute to the organizational learning process of micro, small, and medium-sized food enterprises, not only by promoting the identification and exploration of emerging opportunities but primarily by enabling collaboration between teams, fostering creativity, and adopting a proactive stance in understanding customer needs and desires. By seeking valuable insights where users live, work, and play—and in practice, by using Design Thinking tools and establishing a co-creation environment—it broadens perspectives in the strategic conversation and stimulates the search for ideas. It is observed that by adopting iterative and empathetic practices throughout the definition, ideation, prototyping, and testing process, companies can benefit from the transformative potential of Design Thinking to achieve long-term success.

Within development and innovation processes, one of the major common challenges is managing a portfolio of projects and initiatives. This action is crucial for transforming insights into innovative opportunities; however, this task becomes complex due to the growing demand for innovation both inside and outside organizations. Design Thinking offers an approach that can help company leadership identify and select key projects, establishing clear objectives for both external innovations and internal improvements, as it aims to identify and satisfy stakeholder needs (FELDER et al., 2023).

The authors further add that Design Thinking can resolve complex problems through specific principles and stages. By applying these principles, teams move closer to customers, better understanding their needs and finding more suitable solutions. This promotes greater collaboration among team members, resulting in advantages both for employees—who identify previously unnoticed issues—and for customers. The result is the development of a portfolio of innovative projects driven by the commitment of everyone involved Azevedo (2019).

If portfolio management creates a great need for understanding and resolution, scaling and managing change involves flexibility and adaptability. In these moments, it becomes fundamental to answer questions such as "Who are we?" and "What do we want?", while challenging ourselves with "What if?". Using Design Thinking as an approach, these questions can be explored more deeply and holistically. By immersing themselves in the stakeholders' universe and understanding their needs, desires, and aspirations, organizations can define their identity and vision more clearly and aligned. Thus, by deeply understanding the people and groups who are affected by or affect the organization's operations and

decisions, the entity can develop a more precise understanding of its own identity and what it aspires to achieve Freeman and Liedtka (1997).

Design Thinking stimulates collaboration and creativity, allowing multidisciplinary teams or stakeholders to explore different perspectives and identify opportunities for innovation and transformation. This ensures that strategies and initiatives are truly aligned with the needs and expectations of all stakeholders (LIEDTKA; KAPLAN, 2019; CHASANIDOU; GASPARINI; LEE, 2015). Speaking of change requires all stakeholders to "buy into" the idea. In this context, it is necessary to engage and create an emotional connection with the new strategy; within SMEs, generating connection and engagement is paramount for success.

For this connection to occur, we must find the best way to communicate, and within this area, Storytelling becomes an effective Design Thinking tool capable of assisting the change management process. For Kelley and Littman (2007), Storytelling allows for an emotional connection with the audience, making information more understandable and relevant, and helps contextualize abstract or complex ideas. This facilitates the adoption of new concepts within the organization. Thus, Storytelling proves to be a powerful strategic tool that can transform how ideas are shared, understood, and adopted, promoting a culture of innovation. Telling stories plays a fundamental role in establishing a connection network and is vital in disseminating concepts and transforming them into tangible reality—especially by making complex concepts palpable and convincing, thus allowing strategic intent to align with day-to-day operations (LIEDTKA; KAPLAN, 2019).

A Business Model is a plan that determines how a strategy will be implemented through organizational structures, processes, and systems—all designed and executed in specific environments (DOROW et al., 2016). As an approach that works through a multi-phase, non-linear process allowing for constant interaction and learning through iterative idea generation and rapid prototyping, Design Thinking can nimbly assist companies in innovating their products in a way that is adapted to the market. Additionally, the focus on user experience drives the creation of products that are not only flavorful but also provide a complete and satisfying consumption journey.

Sustainability also becomes a central concern, with Design Thinking aiding in the creation of more environmentally conscious solutions. Through multidisciplinary collaboration, companies can integrate different perspectives to develop more innovative and effective products. In short, Design Thinking empowers the food industry to reinvent its business models, placing the user at the center of the innovation process and creating products and services aligned with their needs. As noted by Liedtka (2014), beyond being an innovation process, Design Thinking has also proven to be a potent problem-solver because it stimulates strategic conversation. As a business tool, demonstrating this potential to SME management may be the first step in "selling" Design Thinking and its transformative capacity (WARD; RUNCIE; MORRIS, 2009).

In this way, Design Thinking—by adopting a user-centered approach, promoting collaboration, and especially stimulating creativity—empowers these organizations to identify and explore emerging opportunities agilely. It emerges as an essential tool to drive growth and innovation in SMEs. Through iterative and empathetic practices, companies can learn in action, manage a portfolio of projects, and develop strategies aligned with customer expectations. By adopting a proactive stance in understanding market demands, they can stand out in competitive environments, reinventing their business models and creating products that add value. Thus, Design Thinking not only broadens perspectives in the strategic conversation but also drives the long-term success of SMEs, allowing them to reach their full potential for innovation and growth.

Application of Design Thinking in the Food Industry

The application of Design Thinking in the context of the food industry has been explored in various studies, highlighting its potential as a methodological approach for innovation in products, processes, and services. Despite this potential, its use in the sector is still considered limited, often concentrated in peripheral activities such as packaging development and visual communication (LEONHARDT; COSTA,

2022). However, there has been a gradual increase in research examining the application of this approach in organizational environments related to food production and commercialization.

Within the food industry, Design Thinking has been recognized as an approach capable of fostering innovation and improving organizational processes, particularly by incorporating the user's perspective into strategic and operational decision-making. This methodology supports the collaborative construction of solutions, contributing to employee engagement and enabling the adaptation of management practices to the real needs of organizations, supporting changes in areas such as quality management, training, and the implementation of standards (LEONHARDT, 2023).

A practical example of Design Thinking application in the food sector was presented in a study conducted in small egg-processing units in Brazil, in which the methodology was used to develop a checklist aimed at maintaining facilities and equipment and implementing Self-Control Programs (SCP). The study adopted a participatory and user-centered approach, involving multidisciplinary teams and rural producers in the solution development process. Through stages of immersion, ideation, and prototyping, tools such as conceptual mapping, brainstorming, and prototype validation were applied, enabling the creation of a quality management instrument adapted to the operational reality of small agro-industries. The results demonstrated that the use of Design Thinking facilitated the identification of non-conformities, the planning of corrective actions, and the strengthening of food safety culture, highlighting its potential as an innovation strategy applied to quality management in the food sector (SCHIAVONE et al., 2023).

Another relevant example refers to a study on co-creation practices in the development of a new plant-based food product conducted in Portugal. The research followed the classical stages of Design Thinking—empathy, problem definition, ideation, prototyping, and testing—while involving consumers and stakeholders in the product development process, aiming to generate innovative solutions aligned with market needs. The findings showed that this approach contributed to the creation of a product more closely aligned with consumer expectations and strengthened the innovation process within the food sector, demonstrating the potential of Design Thinking as a strategic tool for new product development (RAPOSO, 2023).

Thus, the literature indicates that Design Thinking represents a promising tool to support innovation management in the food industry, applicable to both large corporations and micro, small, and medium-sized enterprises. Its use is particularly relevant in contexts that require creative solutions, process improvement, and the development of products centered on consumer needs, reinforcing its potential as a methodological approach to promote innovation in the food sector.

Conclusions

This study aimed to conduct a literature review on the challenges faced by micro, small, and medium-sized enterprises in the food sector, as well as to conceptually analyze the contributions of Design Thinking as a management and innovation approach within the business context. The analysis showed that these companies face significant challenges in defining and implementing organizational and innovation strategies, especially in contexts marked by limited resources, a focus on immediate operational demands, and the absence of structured innovation processes—factors that directly impact their ability to adapt to market changes and sustain long-term growth.

The results demonstrated that Design Thinking has strong potential as a methodological approach to support innovation management in these organizations, contributing to the development of an organizational culture oriented toward innovation, systematic problem-solving, and decision-making aligned with market and consumer needs. In this context, the importance of actively seeking information and development opportunities through available resources in the Brazilian institutional ecosystem is highlighted, including sectoral reports, training programs, and support networks aimed at SMEs.

As a limitation, it is important to note the predominantly theoretical and exploratory nature of this research, based on a literature review, which underscores the need for empirical investigations analyzing the practical application of Design Thinking in different organizational contexts within the food

sector. Therefore, future studies are recommended to evaluate the impact of this approach on innovation indicators and organizational performance, contributing to the advancement of scientific knowledge and the strengthening of innovation management practices in the sector.

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