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Design-Driven product diversification for emerging markets opportunities

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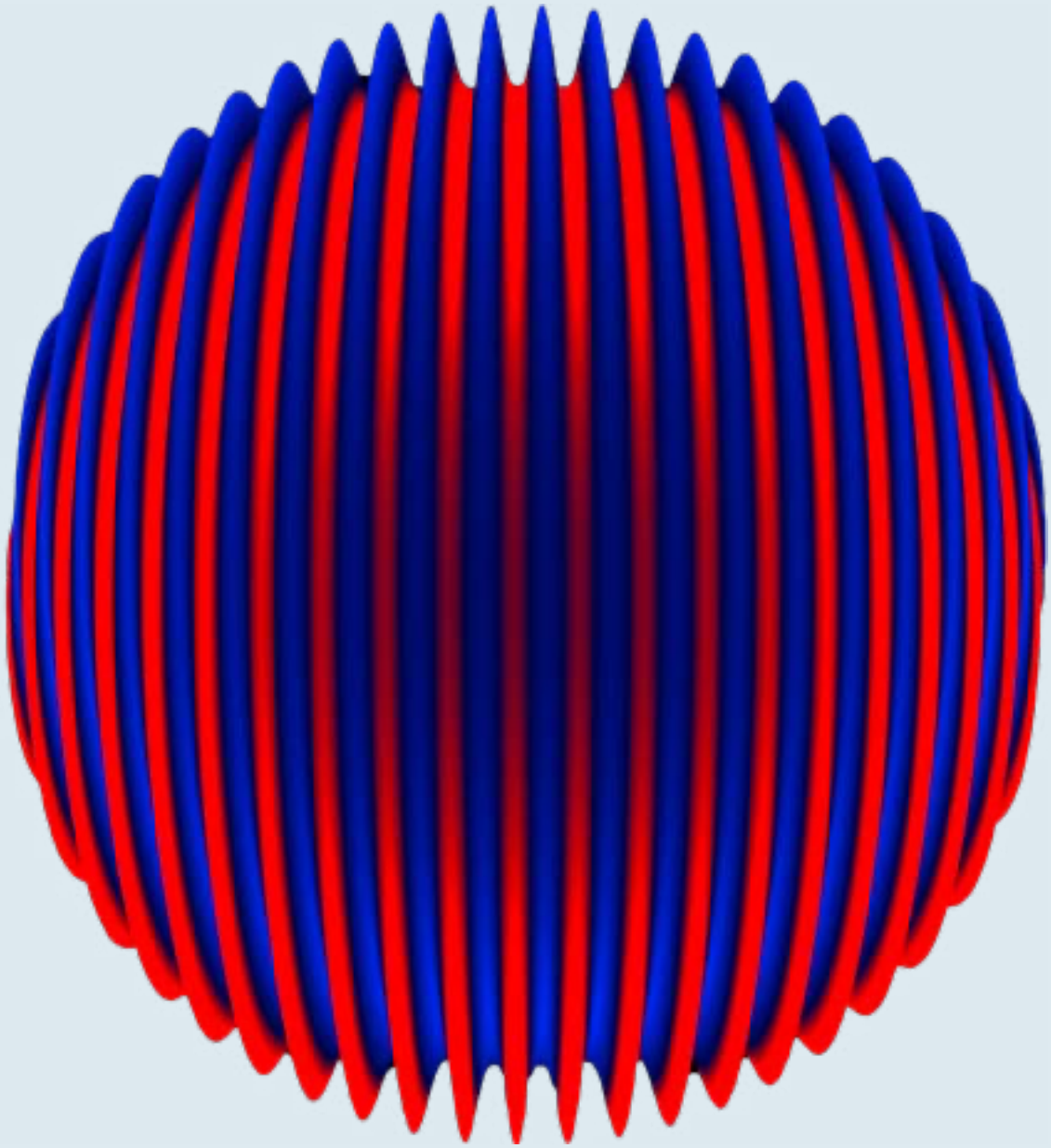
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Design-Driven product diversification for emerging markets opportunities

Eva Vanessa Bruno[1] and Beatrice Lerma[1]

Abstract

Over the last twenty years, Europe's manufacturing sector has faced deep economic uncertainty, shaped by rising market volatility, changing consumer behaviour, and global pressures linked to the climate crisis. These dynamics risk weakening companies' established markets and worsening organisational instability when appropriate tools for understanding and governing change are lacking. Within this challenging context, the discipline and the practice of Design can play a crucial role by helping organisations manage complexity, detect early signals of change, and foresee emerging market directions. While academic research has increasingly explored the strategic relevance of Design within organisations, its contribution to business model transformation remains underdeveloped. This study seeks to fill this gap by proposing a support framework for companies, named Design in Progress: a structured, guided approach aimed at reconfiguring niche markets and transitioning toward less competitive B2C environments, where Design is pivotal in generating meaning and value.

Keywords

Product Diversification, Action-Based Research, Strategic Design, Business Model Innovation

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Introduction

European manufacturing companies, particularly small and medium-sized enterprises (SMEs), have experienced long-term uncertainty since the 2008 financial crisis. Critical challenges include changes in consumer behaviour and market dynamics that cause demand volatility; rapid technological advancements that require continuous investment and adaptation of business models to remain competitive; and a growing interest in sustainability, often reflected in new regulatory frameworks and shifting consumer preferences. In such a complex and unstable context, manufacturing companies increasingly require approaches that not only respond to change but also anticipate and strategically shape it to their advantage. Within this panorama, how can the discipline and practice of Design, specifically Strategic Design, supported by Design Thinking, provide concrete, structured support for managerial decision-making?

Traditionally, the role of Design in companies has been primarily associated with product ideation and development, the enrichment of local production cultures (Germak, 2008), the mediation of needs among multiple stakeholders (Celaschi, 2011), the management of complexity (Jones & Kijima, 2018), the generation of innovation through new meanings (Verganti, 2009), support for circular economy models (MacArthur, 2013), and, more recently, the facilitation of sustainable transitions (Ceschin & Gaziulusoy, 2016). However, more recent literature further highlights Design as a source of competitive advantage (Calabretta, 2016), a bridge between technology and markets (Brown, 2009), a tool for organisational integration (Best, 2015), and a contributor to corporate strategy formulation (Borja de Mozota, 2003).

Within this body of research, Design Thinking has been explored as a human-centred, iterative, and practical approach, particularly effective at addressing complex and unstructured problems (Brown, 2008). However, its potential as a strategic device for guiding business model

transformations, especially in traditional manufacturing contexts, remains less explored. Business model changes can be supported by various strategies: the following research specifically analyses Product Diversification, a way to expand the product portfolio without affecting the main core business. Product Diversification is widely discussed in management studies as a growth strategy and a risk-mitigation mechanism. However, it is rarely framed as a domain of Design intervention. Existing studies approach Product Diversification mostly from economic, financial, or technological perspectives, overlooking the role that design-led exploratory practices can play in identifying, interpreting, and translating new market opportunities.

The study is developed through a practice-based design exploration named *Design in Progress*. This approach integrates tools from Strategic Design, Design Thinking, and Innovation Management into a structured process that guides firms from analysing internal and external contexts to ideating new products and services for new market niches. The process includes operational, tactical, and strategic plans driven by a new Vision across short-, medium-, and long-term horizons, based on the investment capabilities. *Design in Progress* thus functions not only as a design method but also as a decision-support device for business transformation strategies.

The outcomes of the experimentation consist of the identification of new products and services that are: (i) robust, as they are grounded in the companies' existing know-how and distinctive capabilities; (ii) relevant, as they are aligned with megatrends and emerging market dynamics; and (iii) meaningful, as they address latent or emerging consumer needs. These results allow the study to identify two additional value contributions generated by Design within Product Diversification processes: the creation of cultural value, understood as the redefinition of corporate identity and meaning, and the strengthening of corporate positioning in new market niches.

1. Research context: Design and Business Model Innovation

Industrial design, by nature and origin, is closely connected to production systems and industrial processes. Consequently, research in this field requires explicit recognition of the contribution that design can make to firms and, more broadly, to the economic system. Over time, Design has progressively incorporated knowledge and methods from heterogeneous domains, including biology (Biodesign), social sciences (Social Design), and materials science (Material Design), consolidating its strongly interdisciplinary orientation. Within this evolution, an increasing number of designers have shifted their professional practice toward management-related domains, particularly Innovation Management, assuming roles that extend well beyond traditional technical specialisations.

Design Management has thus emerged as a subdomain of Industrial Design, concerned with the application of design within organisations to generate value in terms of performance, innovation, and competitiveness (Borja de Mozota, 2003). The relationship between Design and Management is inherently synergistic and can be understood as the integration of two complementary dimensions. On the one hand, Design Management addresses the organisational, strategic, and decision-making aspects of design activities (Jaberi, 2019); on the other hand, it contributes to improving design practice and the development processes themselves (Cantó et al., 2021). From this convergence derives the concept of *Designence*, defined as an integrated model that combines Design and Management within organisational contexts (Borja de Mozota, 2003).

More than two decades ago, Buchanan argued that, to remain relevant, design would need to incorporate an understanding of key managerial domains such as accounting, finance, human relations, and strategic planning. Without such integration, the discipline risked progressive marginalisation within organisations (Buchanan, 2004). In line with this perspective, recent research streams have increasingly recognised Design as a lever for entrepreneurship, innovation management, and business model development. In particular, Design can contribute to the formulation of competitive strategies by integrating three core competencies: identity, product, and environment.

An expanding body of research in Design, Design Management, and Innovation Management highlights Design as a driver for broadening the scope of innovation within firms. This potential stems from Design's ability to act on the symbolic and emotional dimensions of products (Norman, 2004), while simultaneously engaging with social (Manzini, 2015), cultural, and technological change. From this perspective, Design supports business model innovation by introducing and integrating new materials, technologies, and production processes, while maintaining a balance between functionality, inspiration, innovation, and contextual adaptation.

Within this framework, designers can support ambidextrous strategies (Stoimenova & de Lille, 2017) that balance the exploration of new markets (exploration) with the exploitation of existing capabilities (exploitation). Acting as explorers, designers identify new meanings, innovative production processes, and previously unaddressed markets (Lerma et al., 2015), starting from an in-depth understanding of organisational resources and know-how. When technological innovation intersects with market exploration,

designers occupy a privileged position to support firms' discovery-oriented activities, benefiting from a high degree of creative freedom. This role is particularly strategic for SMEs, which are often characterised by risk-averse decision-making approaches (Baker et al., 2018) that can constrain innovation processes. Through experimentation and rapid prototyping practices, design enables firms to address uncertainty while limiting initial investment. Iterative cycles of ideation, prototyping, evaluation, and re-prototyping, typical of methodologies such as Design Thinking and Design Sprint, support incremental learning and facilitate the management of organisational ambidexterity.

Effectively integrating Design into organisations requires developing distributed design capabilities to manage tensions among design, engineering, and managerial practices. Despite its emerging relevance, the contribution of designers to business model innovation remains insufficiently explored and is often under-recognised, even by designers themselves. This highlights the need to strengthen and integrate design culture as a strategic organisational resource, particularly within manufacturing firms that have not yet fully leveraged its competitive potential.

2. Research methodology

The research was structured to maintain a balance between theoretical investigation and practical application, adopting both deductive and inductive approaches to support the development of conclusions. Establishing a strong connection between academic research and business practice was considered essential to reduce potential discrepancies between design intentions and implementation feasibility. For this reason, the research process followed a non-linear and iterative progression, characterised by alternating phases of analysis and action (Fig. 1).

The first phase consisted of a systematic review and analysis of product diversification case studies in Italy in which Design played a role in business model change. For each case, the local production context was examined, with particular attention to the presence of industrial districts. This perspective enabled the assessment of whether company-level strategies could be scaled or replicated at the district level, especially in contexts characterised by industrial decline, where firm closures have been recorded over time in national statistical data. In total, 14 case studies were analysed and initially organised into a dataset composed of 12 variables. The dataset was examined through qualitative analysis, relating key independent variables, such as types of process innovation, types of product innovation, innovation drivers, and approaches to capability management, to the role played by Design in each transformation process.

Following the desk-based analysis, five in-depth field interviews were conducted to generate more nuanced and original insights. The interviews aimed to investigate the motivations underlying business model change, as well as the efforts required to acquire new competencies and knowledge to support strategic transformation.

The subsequent phase was preparatory to the field application involving two local manufacturing companies. Ten international innovation management frameworks, methodologies, procedures, and toolkits were reviewed (Tab. 1) to identify their possible limitations and, at the same time, to extract core procedural steps relevant to the development of a new framework.

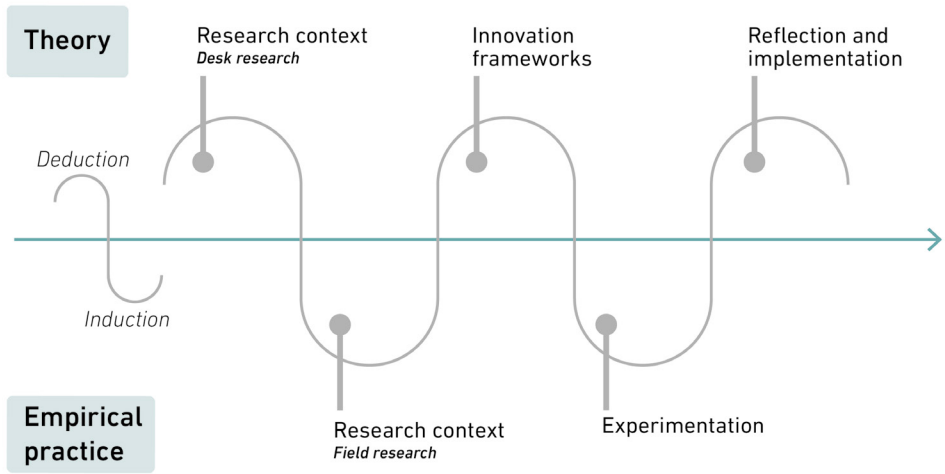


Fig. 1. Research methodology. Graphic by the Authors

Innovation Framework	Goal	Comment
Framework for Innovation – Design Council	Support to transform the way of developing and delivering services	Well-known to universities and designers
IBM iX® / Garage - IBM	Experiences, products and services to reinvent the relationships with customers and employees	Pay per use tool without a preview
Reframing Method – Reframing Studio	Develop sustainable strategies to navigate from the present into a desired future	There is a preview of the full-service consulting tool
The Field Guide to Human-Centered Design – IDEO	Spread human- centered design	Self-managed tool, without a facilitator
Design Kit Travel Pack - IDEO	Spark creativity and collaboration	For sale cheap, easy- to-use tool
DIY - Development Impact & You - Nesta	Design, build and test solutions that have a positive social impact	Tool instruction and canvas model booklet
Google Design Sprint - Google	Learn about or run Design Sprints for designing, prototyping, and testing ideas	Flexible tools according to objective and to the target
Design Thinking Questionnaire – dt4b	Collect data consulting projects based on Design Thinking	One-off activities with lectures and papers as a dissemination tool
Card Deck BAD - Business Aware Design - Sefirot	Adopt BAD approach to design holistically products, services and companies	Holistic design, easy to use. Integrated manual
Design Thinking - IDEO and d.school	Develop creative solutions in a structured, iterative process.	Well-known, but lack of clear metricsw

Table 1. Analyzed Innovation frameworks

This analysis informed the design of a novel framework, referred to as *Design in Progress*, conceived as a set of methods and tools to support Product Diversification processes while facilitating organisational engagement with design practices. The primary difference compared to the analysed frameworks is that Design in Progress views design not just as a tool, but also as a method and an outcome of the process. Additionally, *Design in Progress* adopts a holistic approach, which involves examining the past, observing the present, and designing for the future.

Design in Progress was then applied within two Italian manufacturing firms: one operating in plastic processing for the automotive supply chain, and one producing technical textiles for office and contract applications. The research concluded with the implementation and subsequent refinement of the framework, based on the outcomes of the experimentation and feedback from participating companies.

3. Design in Progress applied to two Italian manufacturing companies

3.1. The structure of *Design in Progress*

The *Design in Progress* project targets manufacturing SMEs that produce semi-finished products or components, particularly in the textile, wood, paper, rubber and plastics, non-metallic mineral processing, metallurgy, and metal product manufacturing sectors. The project aims to offer a customised design approach for these SMEs by analysing existing skills and production processes. This allows for the development of tailored business model changes for new products and services, potentially producing numerous positive effects, such as identifying new and promising market opportunities by leveraging current trends to develop innovative design-related products and services. As a result, the company achieves a new positioning in a B2C market dedicated to Made in Italy design and production, differentiating itself from competitors.

The entire *Design in Progress* process consists of five main phases: Meet, Analyse, Explore, Design, and Evaluate. Each phase involves specific tools, as shown in the following graph (Fig. 2).

The first phase, *Meet*, aims to gain as comprehensive a knowledge as possible of the company's activities and organisation through on-site visits and interviews with management and workers. The tool used is the company profile, a corporate identity card containing not only demographic information but also information regarding the company's history and tradition, areas of expertise, core business, product portfolio, technical expertise, unique features, level of

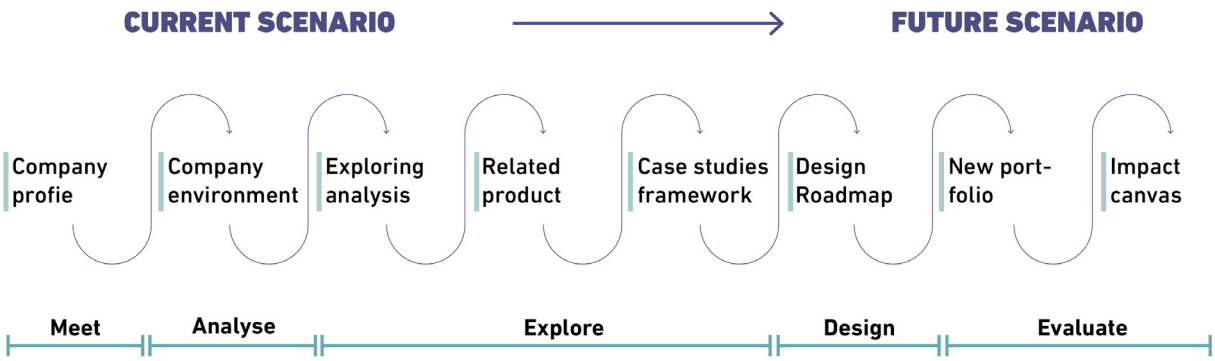


Fig. 2. *Design in Progress* procedure. Graphic by the Authors

innovation, design aptitude, and strengths and weaknesses. The second phase, the *Analysis* of the company's external and internal environment, enables understanding the production context to address controllable (internal) variables, manage uncontrollable (external) variables, and define the project's boundaries. The external environment consists of the reference production scenario, the history and material culture of the production cluster, consumer and market trends, political, economic, social, and technological factors, and, finally, competitive forces. Internal environment analysis provides in-depth insight into the company's current strategy, such as values and vision, competencies and weaknesses, competitive advantages, and processes. The third phase, *Exploration*, is the longest and most challenging of the project, containing three crucial steps: an exploration of new project areas through the analysis of current trends, an analysis of related products to identify new products that can be developed using similar know-how, and finally, a collection of case studies of companies in the same sector that have adopted Product Diversification strategies in the past to understand the resources employed and any difficulties encountered. The main output of these initial phases is a *gigamap* (Sevaldson, 2022) containing all the information systematised and graphed.

In the *Design* phase, all the information collected in the *gigamap* is used to define the Product Diversification strategy through a *Design Roadmap* (Simonse, 2017), a tool that allows the company to achieve a new and declared corporate vision by following three different time horizons (short, medium, and long), depending on available resources and investment possibilities (i.e. Value level, Technology Level, Trends Level, ... in Fig. 3).

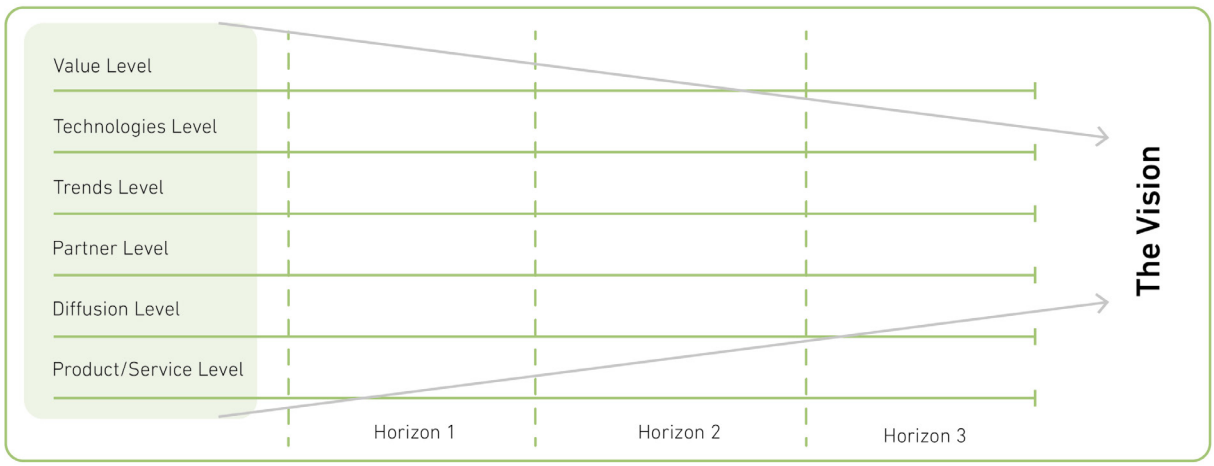


Fig. 3. The structure of the Design Roadmap

3.2. The results of *Design in Progress*

As mentioned above, the Design in Progress programme was piloted with two Italian manufacturing companies, selected from a database of 17 using a multicriteria model. Working with these companies took approximately six months, from the initial meeting to project delivery. The two main results delivered to the companies were a *gigamap* that systematised all scenario information and a *Design Roadmap* containing the identified strategic directions. The following is a summary of the results obtained with the companies.

Company No. 1 is a medium-sized, historical textile company located in a famous industrial district with traditions of specific fabric colours (a blue derived from local plants) and baroque patterns. The industrial district emerged in the 19th century thanks to nearby water sources that enabled the use of machinery. It currently comprises seven historical companies (established before 1940) and approximately 100 more recent companies (established after 2000). This suggests that active companies have gradually taken over larger historical companies, and that SMEs tend to be more innovative. Company No. 1 currently produces technical textiles for the office and contract sectors and is expanding into the automotive sector.

Company No. 2 is a small plastic and rubber processing company established in the 1980s. It is part of the local automotive supply chain and specialises in security systems. The local supply chain comprises many other companies, creating a highly competitive environment. While there are only a few medium- to large-sized historical companies in the industrial district, most industries are SMEs. The company currently has female leadership interested in innovation and the territorial circular economy.

Having analysed the internal and external environments of both companies using tools such as trend forecasting, PEST, and SWOT analyses of the manufacturing process and its technologies, among others, new company visions emerged, reachable in different time horizons. The vision for Company No. 1 is entitled "*Weaving the future: textiles to connect with nature*". The strategy focuses on reducing the company's environmental impact, adopting greener production methods and communicating this to customers. In a world where physical and mental well-being are increasingly important issues, this vision aims to harmonise modern life with the natural world. The new products consist of smart fabrics and fabrics made from a combination of natural and specific recycled materials.

The Vision of the Company No. 2 is called "*Linking Creativity to Business Performance: Rubber for Comfort Zone Products*". The products derived from this vision have specific targets. The short-term vision focuses on improving the working conditions of women, particularly female truck drivers. In the following time horizon, the focus shifts to home and work comfort, broadening the target audience while maintaining the current commitment to safety.

Both strategies include targeted actions and identify different stakeholders based on the time horizon pursued (short-term, medium-term, or long-term). The strategies consider the company's history, skills and know-how, while also projecting into hypothetical future market niches with new products. The strategies were evaluated using a theoretical framework that considers various factors, including potential impacts, target groups, outcomes (e.g., the updated product portfolio), and their respective KPIs. Although the strategies are tailored to the companies, the research suggests that some of the identified strategic directions may be suitable for other companies in the same production sector, particularly within the same industrial district, where companies share a common local production context.

Discussion and conclusion

The research presented aimed to formalise and define a new tool for design-led product diversification called "Design in Progress". This tool can facilitate dialogue between corporate decision-makers and strategic designers to innovate the business model, identify new market niches with low competition, and develop new products based on the company's manufacturing knowledge and skills. The original contribution of this research unfolds across three main dimensions. First, it offers a theoretical contribution by repositioning Design as a strategic enabler of Product Diversification processes within manufacturing firms, thereby extending the scope of Strategic Design and Design Thinking. Second, the study makes a methodological contribution by demonstrating how Design Thinking approaches can be systematised and employed beyond structured practices of strategic exploration, capable of connecting weak signals, megatrends, firm-specific capabilities, and emerging market scenarios. Third, the research provides an empirical contribution by applying this approach to two case studies of manufacturing companies in Italy, addressing the scarcity of empirical evidence in this specific industrial and geographical context.

Design in Progress was successfully tested with two local manufacturing companies willing to design new production scenarios together; however, they did not reach the prototyping stage of new products. The limited research time and the inability to fund the change led to this restriction. Failure to reach this stage is the main limitation of the research, but also the goal for the next programme edition. Future research aims to involve more manufacturing companies through structured collaboration with local

authorities and funding calls to facilitate the success of the outlined new business strategy.

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