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Case Studies of Design-Driven Regenerative Strategies for Business Change
New Opportunities in Emerging Markets

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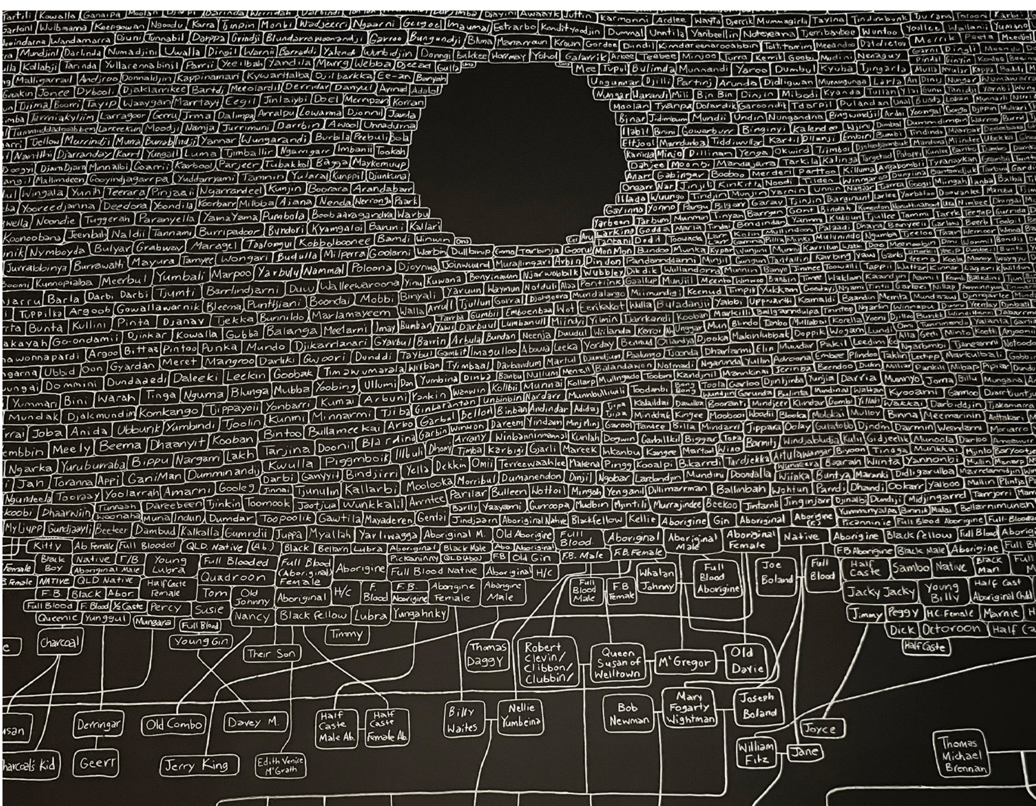

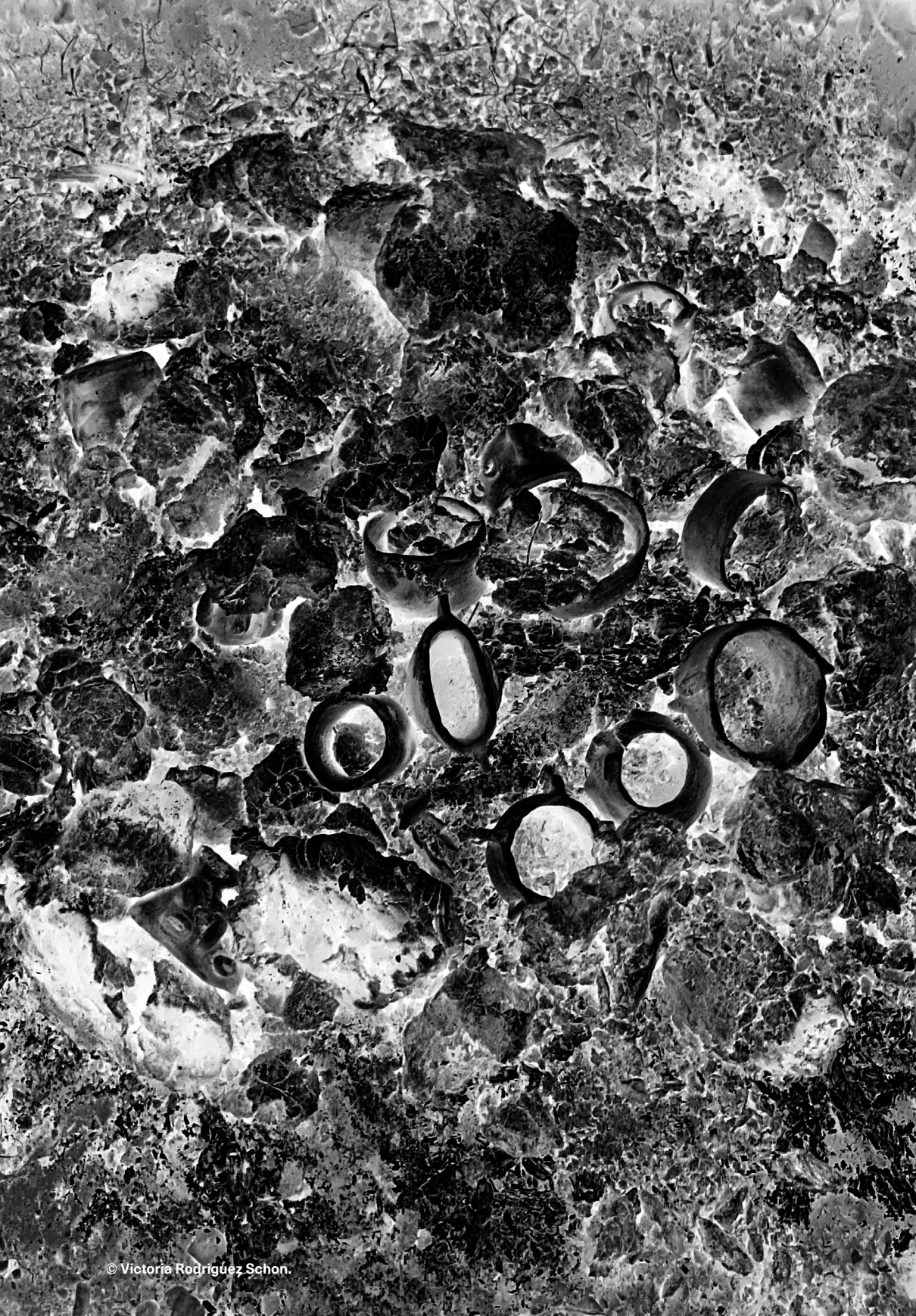
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Editorial

In this issue of diid Journal, we delve into a theme that is both provocative and essential: the relationship between Design and Unknowns. Design, traditionally celebrated as a forward-looking discipline, is often tasked with envisioning and crafting 'better' futures. Yet, this aspiration rests on an uncomfortable truth: the future is uncertain, unpredictable, and fundamentally unknown. This issue's Open Debate section challenges us to confront how design can not only navigate but also embrace the unknown as a fertile ground for innovation and reflection. The choice of this theme reflects our commitment to pushing the boundaries of design research and practice. In an era marked by rapid technological advancements, ecological crises and a revolution of social paradigms, the unknown is no longer a peripheral concern, it becomes central to our collective experience. Design's unique relationship with uncertainty lies in its ability to explore what does not yet exist. This issue is an invitation not just for designers but for educators, researchers, and practitioners across disciplines to reflect on their relationship with uncertainty. The unknown shapes every aspect of our lives, from personal decisions to global challenges. By engaging with it thoughtfully and creatively, design can help us navigate these complexities with resilience and imagination.

Flaviano Celaschi
Editor-in-chief

Designrama

The Designrama section is open to international debate and is not characterized by any specific theme. It is conceived as a space for the scientific community to give evidence of where research is heading worldwide.

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New Opportunities in Emerging Markets

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Abstract
Corporate resilience is becoming crucial for European businesses which must adapt and thrive amidst disruptions. While business management is essential, the Design field also plays a critical role in fostering resilience. This research explores how design-driven strategies can support business transformation, integrating Design to address business fragility. The study focuses on Industrial Conversion (IC) and Product Diversification (PD) as strategic approaches, positioning Design as a tool for Strategic Innovation capable of identifying emerging trends and translating them into new products and services. Using qualitative case-based reasoning, the research analyzes 95 case studies of Italian companies, highlighting design-driven strategies through a multilevel Dataset Visualization. This approach reveals patterns and insights — such as common schemas related to technology maturity, competitive markets, and product-process innovations — offering valuable guidelines for implementing effective, design-led business transformations. These guidelines include actions on skill and knowledge development, market entry strategies, vertical integration, and design maturity assessment, benefiting both the design community and manufacturing companies.

Keywords
Industrial conversion
Future studies
Advanced design
Design exploration

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Introduction

> Corporate resilience has become a critical focus for businesses operating in Europe, where companies are increasingly exposed to a range of destabilizing forces. Economic uncertainty, geopolitical tensions, and the growing challenges of climate change and digital transformation all threaten the stability and continuity of firms across various sectors. In this volatile environment, the ability of companies to adapt, recover, and thrive in the face of disruptions is essential for long-term success. In this context, rapidly shifting consumer habits and evolving needs further complicate the landscape, exerting a direct impact on the demand for consumer products (Do et al., 2022).

While acknowledging the importance of hard disciplines such as business management, Design—both as a field and a practice—also plays a pivotal role in fostering business resilience through business model innovation (Bryant et al., 2020; Simonse, 2014). In particular, Design Management contributes to this process by integrating design principles into organizations, emphasizing value creation and strategic transformation (Best, 2015; Borja de Mozota & Wolff, 2019). Rooted in the idea that design can enhance organizational performance, Design Management drives innovation and strengthens competitiveness, making it a crucial factor in sustainable business growth.

Based on these premises, the research aims to answer the following research question: What design-driven strategies can companies adopt to facilitate business transformation enabling companies to expand their product portfolios and successfully enter more profitable market niches?

This research integrates knowledge and methodologies from Design and Innovation Management to offer solutions that address the fragile conditions many businesses face today, both empirically and theoretically. The concept of Industrial Conversion (IC) and Product Diversification (PD) are the strategies identified to this scope. Here, Design is positioned as a tool for Strategic Innovation, capable of detecting weak signals and emerging trends, and translating these into novel products and services. Despite its potential, the literature often overlooks IC and PD as strategies in which Design can play a pivotal role, instead focusing more on Innovation Management (De Goey et al., 2019). The study uses qualitative case-based reasoning as a research method to extrapolate meta-knowledge following a specific protocol (Yin, 2018) with 95 case studies. The case studies, as a "basis for understanding a wide range of issues" (Buchanan 2001, 18), collected design-driven business strategies and analysed the state of the art of selected Italian companies. The case studies were initially documented in a spreadsheet using specific parameters and later restructured into a multilevel Dataset Visualization. This Dataset Visualization clearly and explicitly highlights the connections, trends, and common patterns across the case studies, offering deeper insights and a more organized view of the data.

This research offers valuable insights to the Design research community, decision makers in manufacturing companies, and strategic designers by providing guidelines for implementing efficient, design-driven business transformations.

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Regenerative Strategies of Industrial Conversion and Production Diversification

Among the various business model transformations, two key changes are particularly relevant to this research: industrial conversion and product diversification. These two strategies play a crucial role in ensuring long-term business competitiveness, without overlooking corporate sustainability (understood as economic, social and environmental) which makes them central to this study.

Industrial Conversion is a process of transformation of part of the industrial setting that accompanies structural changes in production. Such changes may result from technological development, a transition from states of exceptional need (e.g. states of war or disasters) to regular production cycles, the divestment of specific production sectors due to qualitative changes in demand, and the relocation of production (Treccani, 2012). The term is associated with various contexts and situations, making it a complex topic requiring a meticulous selection of relevant literature for the doctoral research study. This study found that the term 'Industrial Conversion' is not commonly used in academia to refer to this transformative process, not because it is not a frequent phenomenon but because there are many synonyms.

Product Diversification is a strategy used by companies to increase revenue and reduce risk by updating or expanding their product portfolio while maintaining their core business. By diversifying, companies can strategically determine which products to launch, improve, or phase out based on product life cycle stages and market trends. In the mid-twentieth century, Russian-American business theorist Igor Ansoff introduced a product-market matrix that outlined four main strategies for business growth: market penetration, market development, product development, and diversification (Ansoff, 1957). He further identified three types of diversification. Horizontal diversification refers to new production that aligns with the company's existing expertise. Vertical diversification involves introducing new production that brings more stages of the production process under the company's control. Lateral diversification, on the other hand, encompasses new production that lies outside the company's traditional industry boundaries. Diversification can be categorized into two other types: related diversification, which involves developing new products or entering markets connected to the existing business, leveraging synergies, and unrelated diversification, which introduces new products or enters markets that are unrelated to current operations.

> Companies pursuing PD must carefully assess which products to develop, improve, or discontinue, considering both market opportunities and the product life cycle. Diversification, particularly into new markets with new products, is akin to the "Blue Ocean" strategy, which focuses on creating untapped market space and reducing competition (Agnihotri, 2016). This approach is increasingly popular among companies in mature or declining sectors, with a wealth of literature supporting its use (Lüthge, 2020).

These strategies are undoubtedly influenced by new digital tools, such as Big Data Analytics—used for large-scale data analysis to identify market trends and consumer preferences—Social Media & Sentiment Analysis, which monitors customer feedback, brand perception, and emerging trends, and Digital Twins & Simulation Models, which allow for virtual modeling of new products before launch to predict market response. However, this research aims to explore the role of Design both as a discipline and as a practice within these processes, using a case study analysis to examine its impact and effectiveness.

1
The ATECO Code consists of an alpha numeric combination that identifies the economic activity carried out by the enterprise.

Analyzing Design-Driven Regenerative Strategies

This research focuses on identifying design-driven case studies of IC and PD to uncover common patterns and strategies that can inform effective guidelines for business transformation. Finding case studies explicitly categorized as IC or PD proved challenging, prompting a mixed-methods approach of both field and desk research. Approximately 100 case studies were collected, supported by five interviews, and visualized graphically to highlight shared patterns.

Case studies serve as the central research method, helping to explore emerging design-driven strategies. Rather than generalizing, the study seeks to understand each case in its specific context, including its complexity and economic and territorial factors. This deeper understanding aims to create meta-knowledge that can inform future consultancy services for companies. The case study protocol is founded on Ebneyamini and Sadeghi Moghadam's (2018) framework, which synthesizes Yin's case study methodology. The framework they developed involves subdividing the research into steps and issues according to the primary purpose of the case study research (i), reason to use case study research (ii), types of case study research (iii), methodologies of gathering data (iv), and data analysis in case study research (v). According to this framework, the research is practice-oriented (i), using case studies to structure hypotheses for real-world testing (ii). The study is grounded in multiple case studies (iii) to ensure reliability and adopts an interpretive approach, seeking to answer how and why Industrial Conversion or Product Diversification occurs. Data collection involved extensive desk research, utilizing sources such as research reports, national newspaper articles, and territorial studies. This was supplemented by field research, including five semi-structured interviews to gather more nuanced insights (iv). Data was analyzed through a specifically designed Dataset Visualization that enabled pattern identification and pattern matching (v).

The latest version of the database includes 95 case studies, restricted by time (from the post-war period onwards) and activity (specific ATECO[1] codes) (Creswell, 2014), of Italian companies that have applied IC/PD, and among them, design-driven (Verganti, 2009) and design-oriented ones (Calabretta et al., 2008). The geographic focus on Italy was chosen to derive context-specific insights and strategies applicable to future activities. Each case study captures detailed information, including the company's history, size, and the materials and production processes used before and after the strategy implementation.

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The information collected for each case study is the following Tab. I:

Level		Information gathered
Company profile	Administrative information	Location (municipality and province) Foundation and year of strategy implementation Size Sector (before and after) ATECO (before and after)
	Information on production	Product scale Production focus Manufacturing process Material family Material
Qualitative analysis		Variables
Business information	Market competitiveness	Red ocean/Blue ocean (Agnihotri, 2016)
	Market Strategy	B2B/B2C
Typology of innovation	Direction	Product/Process Innovation (i.e horizontal, vertical, lateral, related, unrelated)
	Drivers of innovation	Demand-pull/Technology push (Hötte, 2023) /Design driven (Verganti, 2009)
	Firm's knowledge and technology	Maturity level of the mastered technology (introduction, growth, maturity)
	Impact on competence	Competence-enhancing vs competence destroying (Anderson & Tushman, 1990)
	Strategy	Industrial Conversion/Product Diversification
Design Value	Contemporary Design phenomenon	Design orientation (i.e. absent, potential, overt, Germak, 2001) Outputs of Design Culture (i.e. form, function, value, meaning, Celaschi, 2008).
	Strategic use of Design in companies	Value levels of design approaches (i.e. strategy, product, styling, Celaschi et al., 2011) The Four Powers of Design (i.e. differentiator, integrator, transformer, good business, Borja de Mozota (2010)

Tab. I
Analysis variables.

Dataset Visualization of Case Studies Collection

To facilitate the interpretation and analysis of case study findings, a comprehensive Dataset Visualization was developed. This visualization aims to uncover connections, trends, and patterns that may have been overlooked during the initial spreadsheet-based data collection. The visualization is designed to enhance the understanding of key factors driving IC and PD.

The dataset visualization is structured on two levels:

First Level: Overview Visualization

This level offers a broad view of the case studies, organized by specific parameters into a foundational “base” structure Fig. 1. It is divided into three macro areas:

1. Pre-Transformation: Represents the company’s state before implementing any strategy.

2a. Post-Product Diversification: Captures the company’s condition after adopting Product Diversification.

2b. Post- Industrial Conversion: Illustrates the company’s state after Industrial Conversion.

These areas reflect the technology’s life cycle—introduction, growth, and maturity—depicted by an S-curve. The vertical axis of the graph shows whether changes were limited to the product itself or involved a complete overhaulw of the production process. Companies are represented by circles, colored to indicate market concentration: red for highly concentrated markets (Red Ocean) and blue for less concentrated markets (Blue Ocean). This level provides an overview of company actions based on criteria such as geographic location, manufacturing ATECO code, and time period.

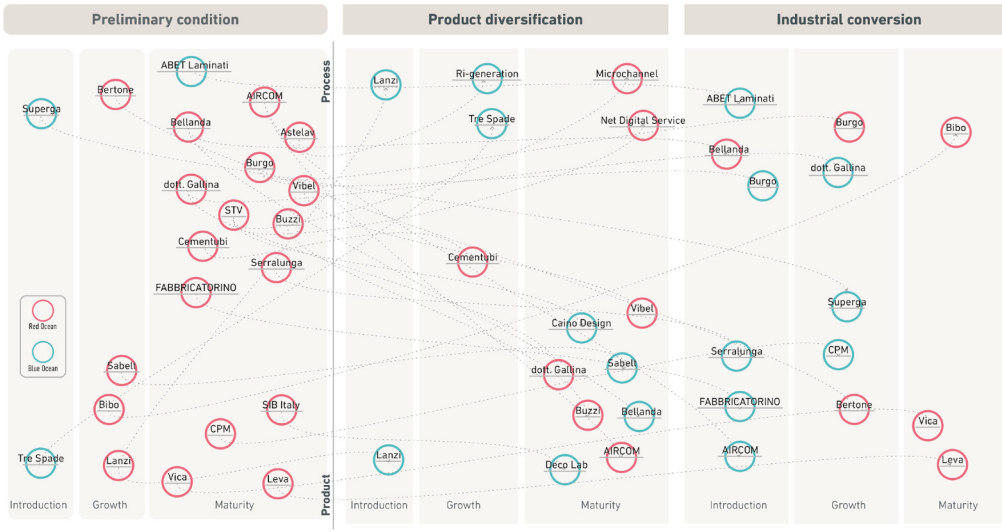

Fig. 1
First layer: Case Studies from the Piedmont region.
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Second Level: Detailed Company Visualization

This level provides a more specific description of each company through a graphic representation Fig. 2. Each company's name, year of foundation, diversification or conversion year, original sector, and new sector are displayed around the graph. The concentric circles indicate the product's scale, ranging from modules or components to services (Morelli, 2002). A radar chart further breaks down manufacturing processes into four categories: forming, cutting, joining, and finishing (Thompson, 2007). Each radar branch represents a manufacturing technology, with a family of products indicated by dots. Colours denote the materials used. A tree-like representation shows the path of diversification, illustrating how companies integrate new materials and processes.

Additionally, the visualization highlights the design orientation of each company, crucial for understanding how design-driven strategies contribute to IC and PD. This comprehensive visualization provides a clearer and more nuanced analysis of company strategies, emphasizing the role of design in business transformation.

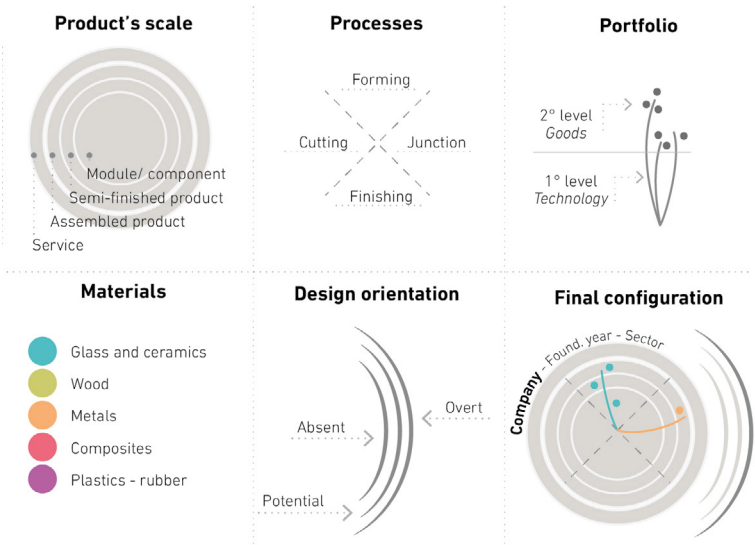

Fig. 2
Second layer: company visualization. © Graphics by authors.

Analysis IC and PD of two industries according to the framework

Two of the database cases and the analysis of their strategy are presented below. Both case studies originate from the automotive sector, making them particularly relevant in light of the industry's current challenges. The first company underwent an Industrial Conversion, transitioning into eyewear production, while the second pursued Product Diversification, expanding into the interior design market.

Founded in the 1920s, FABBRICATORINO initially produced industrial objects made of Bakelite, mainly supplying the automotive industry in Piedmont, and in particular the car manufacturer Diatto. In the 1930s, the company shifted its focus through an industrial conversion, experimenting with new materials such as acetate, which

significantly changed its production line. Leveraging its expertise in plastic material processing, FABBRICATORINO diversified into eyewear, initially producing technical products such as sports glasses for pilots and protective glasses for workshops. As the company evolved, it expanded its focus to creating sunglasses and eyeglasses for everyday use, successfully transitioning from automotive components to eyewear manufacturing, marking a pivotal moment in its history of Product Diversification and industrial adaptation Fig. 3.

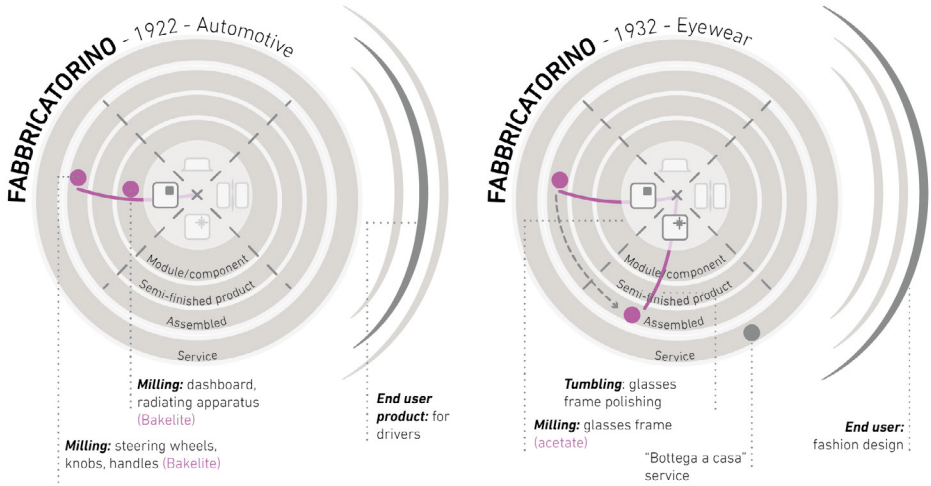

Fig. 3
The IC strategy of FABBRICATORINO. © Graphics by authors.

STV Italia, established in 1967, initially produced screen printing frames for the automotive industry. The company expanded its technological capabilities over time, adopting innovations such as chemical photo-cutting, laser micro-cutting, and electro-forming. These advancements enabled STV to diversify its product offerings beyond the automotive sector. To maintain its Italian production line amidst offshoring, STV launched Caino Design in 2011, focusing on high-end decorative luxury objects for interior design. With its combined creativity and expertise, Caino Design introduced a line of steel screens with stylish motifs, suitable for use as space dividers, curtains, wall decorations, and privacy screens. This move allowed STV Italia to explore new markets and produce exclusive, innovative products for the luxury sector Fig. 4.

Results

The first level of the Dataset Visualization provides a broad overview of the corporate landscape, focusing on the technological maturity and market concentration that companies can potentially 'acquire' or 'abandon' through IC or PD strategies. Although the limited number of cases prevents a robust statistical analysis or sweeping generalizations, it serves as a useful tool for identifying correlations, building meta-knowledge, and uncovering compelling evidence to support the research.

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Fig. 4
The Aurora lamp emerged from STV's product diversification through its spin-off, Caino Design. © Photo by Caino Design.

Initial conclusions from the graph show expected trends: companies undergoing IC or PD typically leave industries with mature technologies (represented in the right-hand box of the 'preliminary condition,' where the S-curve is ending) and saturated, high-competition markets (shown by red circles in the graph, indicating 'red-ocean' markets). Notably, most companies transition from the 'process' quadrant to the 'product' quadrant in the preliminary condition section, highlighting a shift in strategic focus.

As anticipated from the literature review, IC and PD follow distinct trends. Companies pursuing diversification often move into mature technologies, sometimes through acquisitions or spin-offs, and enter markets that are a mix of concentrated and unconcentrated. On the other hand, firms engaging in IC tend to pioneer emerging or growing technologies, avoiding entry into already saturated markets where competition is high. These findings align with existing research and provide valuable insights for design-focused investigations. Additionally, the flexibility of this tool makes it a useful resource for future analyses, as it can help tailor investigations to specific sectors.

The second level of the dataset visualization delves deeper into the production processes, technologies, and materials used by the companies. It also allows for the comparison and evaluation of each company's design orientation and how it evolves over time. This level offers actionable insights and best practices that can inform future consultancy services.

The paper provides results at the knowledge level, providing design-driven/design-oriented guidelines for IC or PD. These guidelines respond to the RQ: "What design-driven strategies can companies adopt to facilitate business transformation enabling companies to expand their product portfolios and successfully enter more profitable market niches?", and are addressed to strategic designers and consequently to manufacturing companies. The following guidelines are derived from case studies through the lens of a literature review.

1 Keep up with an economy of speed: first mover strategies enable design-driven and design oriented IC/PD by introducing new technologies and being the first to reach those production values that guarantee benefits in terms of learning economies through new products/services. Guideline derived from level 1 of the Dataset Visualization.
2 Search for Blue Ocean markets: converting and diversifying from mature technologies makes it possible to enter a market that to date is unknown, where there is therefore no competition, and where it is possible to have greater opportunities for growth. Guideline derived from level 1 of the Dataset Visualization.
3 Adopt appropriate marketing strategies: sensing changes in consumption (fashion and trends, limitations and prohibitions from regulations).
4 Make the most of companies' knowledge and skills: leverage skills and know-how to produce products that are difficult to replicate by other companies at lower costs. Guideline derived from level 2 of the Dataset Visualization.
5 Reuse production assets: experiment with new materials using the same technologies already used by the company or find new ways to take advantage of the same technology.
6 Complete the manufacturing process: achieve a higher level than that of the semi-finished product or component, and equal to that of the assembled item.
7 Reach high specialization: using design (understood in its meaning as form-giving) strategies such as: parametric design, off-scale, special surface finishes.
8 Establish a design-orientation: formalizing a strategy of achieving the desired design maturity that integrates Design Management into the process.

Discussion and conclusion

This study aimed to evaluate the role of the Design discipline and practice in fostering business resilience. Through the analysis of 95 case studies, the research uncovered valuable meta-knowledge using case-based reasoning methods. Consistent with the literature, these real-world examples provided a rich and detailed understanding of the complex phenomena of IC and PD, enabling an exploration of causal relationships and underlying mechanisms. By examining individual cases, insights were gained into the social, economic, cultural factors influencing strategic decisions, and the role of Design in this process. When considered collectively, these cases facilitated theory building in the field of Design Management, while also offering practical insights for design practitioners, companies, and policymakers.

This finding broadly supports the work of other studies in the area of Design Management linking Design practice with Business Transformation.

The findings not only identified best practices and lessons learned that can be applied in other industrial contexts but also offered valuable contributions for developing consulting programs

for designers and innovation managers. Furthermore, the research suggests the potential to create new tools and resources that support the implementation of design-oriented strategies for IC and PD. Additionally, it highlights opportunities for new models of collaboration between Design and manufacturing sectors, promoting a more integrated approach to innovation. Results reflect those of many authors (Calabretta et al., 2016; Magistretti et al., 2020; Verganti 2009; Borja de Mozota, 2003) who previously found that strategic designers can effectively contribute to managing business model innovation. This research adds design-led IC or PD to the discussion.

The limitation of the adopted case-studies approach is the number of case studies. For more robust statistical insights, future research should expand the dataset and categorize it into 10-year time ranges to assess long-term trends. A follow-up study is currently underway to enhance the guidelines through statistical analysis and further strengthen the research findings.

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A fundamental challenge for contemporary societies lies not in dispelling the unknown but in reorienting our relationship to it, recognizing uncertainty not as a void to be filled, but as a generative space of epistemic and material possibility. With its entanglements in speculation, anticipation, and world-making, design operates not simply as an instrument of resolution, but as a sophisticated approach for negotiating indeterminacy. This Open Debate section explores the theme of Design and the Unknown, interrogating how design might engage with uncertainty beyond the extractive logics of control, prediction, and optimization. By foregrounding problematization over prescription, hesitation over closure, and contingency over linear progression, the contributions in this issue critically reframe design's encounter with the unknown. Spanning diverse disciplinary intersections, from translation to technology and foresight to education, speculation and critical theory, these perspectives invite us to rethink the epistemic conditions under which design both encounters and constitutes the unknown, unsettling its supposed boundaries while rendering its latent potential thinkable.

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