Digital transformation in traditional financial institutions: the value of design thinking

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Master Thesis Digital transformation in traditional financial institutions: the value of design thinking

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Executive Summary

In the historically resilient and change-resistant banking industry, the unprecedented era of Digital Transformation (DT) asks for a re-evaluation of traditional business models, processes, and customer interactions. This graduation project, conducted in collaboration with Innovation Boosters (IB), addressed these challenges by developing a strategic design tool to support traditional financial institutions in their DT.

The research, grounded in the Dynamic Capability (DC) theory for DT and the design thinking creative problem-solving method, investigates the interplay between DT, dynamic capabilities, and design thinking (Magistretti et al., 2021; Teece, 2007; Warner & Wäger, 2019). It posits that leveraging a design thinking approach can enhance the effectiveness of DT initiatives within an organization, as evidenced by relationships in the literature (Cankurtaran & Beverland, 2020). The research methodology employed included a literature review and semi-structured interviews with 14 participants. Seven IB consultants and seven DT professionals from the Dutch financial sector were involved, aiming to empirically investigate the effectiveness of design thinking in strengthening DT processes. Findings from the research highlighted the multidimensional nature of DT, emphasizing the alignment of strategy with organizational culture and operations. The importance of design thinking in effectively executing DT strategies, managing uncertainties, and fostering user-centric innovation was also underscored.

Based on these insights, the subsequent design process aimed at defining the design problem, setting the design direction, design goals, and a list of ten design criteria. Afterwards, a co-creation workshop with students was organized to develop personas for the change manager role, the identified figure for DT's successful implementation. The ten design criteria were later categorized based on the two key dimensions derived from the research: innovation leadership and transformation management. The design output is a Change Management Process (CMP) tailored for managers dealing with DT in their organizations. It aims to bridge top-down strategies with bottom-up insights, guiding managers from minimal DT impact to advanced integration and sustained transformation. The three steps related to innovation leadership focus on fostering a collaborative environment, learning from failures to fuel growth, and cultivating a strong sense of ownership among team members. The three steps related to transformation management emphasize building capabilities, enhancing operational excellence, and empowering team autonomy to effectively implement DT. The CMP is supported by two canvases, each featuring four questions that encourage DT managers to critically reflect on their role, thereby enhancing their engagement with the CMP and improving their impact on DT initiatives.

This process was subsequently tested and evaluated by IB consultants, identifying four areas for further reflection, and an action checklist was developed to support the consultants in their work. IB also conducted an assessment confirming the feasibility, viability, and desirability of the developed CMP, indicating its practical applicability and potential effectiveness in real-world settings. The CMP serves as an actionable tool that IB can further test and implement with their clients, facilitating meaningful dialogues and identifying key areas for organizational transformation within traditional financial institutions.

The project underscored the importance of investigating the intersection of strategic management, design, and DT, advocating for further cross-disciplinary research to explore how design thinking can support DT and enhance organizational innovation capability. By implementing this approach, financial organizations can reinforce their organizational resilience and agility, equipping themselves to thrive and adapt strategically in a rapidly evolving digital landscape.

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Chapter 1

INTRODUCTION

1.1. Background

The banking industry, historically characterized by resilience and resistance to change, faces an unprecedented era of Digital Transformation (DT). As technological advancements reshape the landscape, traditional financial institutions must confront many challenges to remain competitive and relevant in the modern era. The emergence of digital technologies is establishing a new paradigm, requiring organizations to rethink their business models, processes, and customer interactions (Niemand et al., 2021). However, the implications of DT extend beyond mere technological adoption; they encompass fundamental shifts in organizational design, communication, and behaviour. In this dynamic environment, understanding the intricate interplay between technology and organizational dynamics becomes imperative for ensuring sustainable growth and success.

1.2. Assignment

Against this backdrop, the assignment for this project is to craft a comprehensive strategic design tool that sheds light on the internal shifts within traditional financial institutions brought about by DT. This tool aims to provide clarity and insight into the organizational changes necessitated by digitalization, facilitating better alignment and execution of digital initiatives. Furthermore, the design outcome is envisioned to serve as a valuable tool for the client company, Innovation Boosters (IB), enabling them to engage in meaningful dialogues with clients and identify key areas for organizational transformation. By completing this assignment, the project aims to offer actionable strategies for navigating the complexities of DT in the financial services industry.

This project's overarching goal is twofold: first, to conduct a research phase to develop a future-proof design framework that accurately captures the organizational dynamics of DT within traditional financial institutions; second, to equip IB with a practical tool for facilitating organizational change. The project aspires to contribute to the advancement of knowledge and practice in the field of DT, offering tangible solutions for enhancing organizational resilience and agility in an increasingly digital world.

1.3. Introduction

The enduring and scalable banking business model, which has withstood the test of time, is facing new challenges in light of the rapid advancements in digital technology (Brandl & Hornuf, 2020). What is clear is the bank has become intrinsically linked with technology. The Internet is changing the nature of mediation, as it is facilitating digital money and the online transmission of financial assets. The banks of tomorrow, both incumbents and challengers,

must confront challenges related to liquidity management, data utilization, building trust, market competition, and the transition towards digital financial services (Broby, 2021). Banks and FinTech firms operate with distinct business models, where banks engage in a range of activities such as loan provision and deposit-taking (Freixas & Rochet, 2008). In contrast, FinTech firms specialize in one or a few activities traditionally performed by banks (Navaretti et al., 2018). FinTech companies involved in lending activities typically function as intermediaries, connecting lenders and borrowers directly without assuming the credit risk associated with the loans they originate, instead transferring it to investors (Thakor & Merton, 2018). Deregulation, liberalization, and advancements in Information and Communication Technologies (ICT) are driving the transformation of the financial sector, alongside novel solutions for transactions, saving and cybersecurity. DT is one of these changes, and it has emerged as a strategic priority on leadership agendas (Fitzgerald et al., 2014; Hess et al., 2016; Singh & Hess, 2020). DT is defined as "**a process that aims to improve an entity by triggering significant changes to its properties through combinations of information, computing, communication, and connectivity technologies**" (Vial, 2019).

DT initiatives, such as implementing a new embedded analytics Enterprise Resource Planning (ERP) system or introducing an Interactive Whiteboard System for brainstorming without being in the same location, have a failure rate of about 90% (Ramesh & Delen, 2021). Scholars observed that organizations fail at DT because they prioritize technological advancements over crafting comprehensive plans and coherent strategies (Bresciani et al., 2021). In the context of DT, the connections and interdependencies between innovation processes and their outcomes grow increasingly intricate and dynamic, as emerging technologies shape how individuals engage in the innovation process (Nambisan et al., 2019). There appears to be a complex relationship between DT and the topic of organizational change (Poole & van de Ven, 2004). Despite external pressures, organizational change is considered a precondition and has the potential to hamper DT if not effectively tailored and adapted to the context (Teichert, 2019). Organisational change is defined as a "**difference in form, quality, or state over time in an organizational entity**" (van de Ven & Poole, 1995).

However, the existing organisational processes are a critical backdrop of innovation comprising business strategies, cultures, and ways of doing things that can have a significant impact on DT. This organizational backdrop can shape and be shaped by innovation initiatives. Incumbent organizations confront challenges in managing the utilization of their current capacities while simultaneously fostering new digital abilities that align with the path dependencies established in the past (Svahn et al., 2017). The dynamic capabilities framework by Teece (2007) has emerged as one of the most active areas of study in the strategic

management literature, as it elucidates how firms react to technological and market shifts (Di Stefano et al., 2014; Eisenhardt & Martin, 2000; Helfat et al., 2009; Teece et al., 1997). Dynamic capabilities explain an organization's ability to achieve novel and innovative forms of competitive advantage within the context of path dependencies and market positions (Teece et al., 1997). Teece (2007) defines dynamic capabilities as "**the firm's capacity to integrate, build, and reconfigure internal and external competencies to address rapidly changing environments**". Due to the disruptive nature of digitalization, Warner and Wäger suggested that the dynamic capabilities framework offers a suitable perspective for analysing how incumbent firms in conventional sectors undergo DT (2019).

Due to the considerable uncertainty and ambiguity inherent in Artificial Intelligence (AI) and big data technologies (Nambisan et al., 2017), companies embarking on the DT journey often struggle to grasp how to develop solutions capable of sensing, seizing, and transforming digital challenges while maintaining a user-focus centredness (Magistretti et al., 2020; Verganti & Öberg, 2013). Sensing refers to the ability to interpret the business environment, seizing is the capacity to capture opportunities, and transforming is the skill to maintain competitiveness. Design thinking, described as a "**social technology**" by Jeanne Liedtka (2020), focuses on user-centeredness, where decisions are driven by user needs and meaningfulness, making it a suitable approach to navigating these complexities. Consequently, innovation approaches that centre on human needs (Beckman & Barry, 2007; Brown & Katz, 2011) could prove to be pivotal in this regard, as evidenced by the increasing interest among both scholars and practitioners (Micheli et al., 2019; Verganti, 2017). Kohli and Melville claim that design capabilities are intimately related to other digital business innovation capabilities (2019).

In this regard, design thinking is thriving, particularly in industries where DT demands fresh competencies and capabilities to create impactful customer experiences or guide transformation efforts (Dell'Era et al., 2020). Design thinking is recognized as a formal creative problem-solving method fostering innovation (Brown & Katz, 2011; Liedtka et al., 2013; Martin, 2009). It is defined as a paradigm, as it is one of the numerous approaches to practising design (Verganti et al., 2021). It is distinguished by a collection of beliefs, values, and methods that converge around three key principles: focusing on the user, generating ideas, and continuous prototyping (Liedtka, 2015; Micheli et al., 2019; Verganti et al., 2020). Currently, the design thinking paradigm is transitioning from problem-solving for products or services to tackling organizational change (Magistretti et al., 2021). Many individuals are grappling with how to apply design principles to leadership, organizational redesign, and driving transformation. Consultancies are increasingly employing design in this capacity, utilizing it for transformative initiatives (Verganti et al., 2020).

The business-to-business (B2B) landscape in which consulting firms operate presents an intriguing context for examining the dynamic capability of design thinking in DT. This is attributed to the role consultants play in mediating innovation projects (Strike & Rerup, 2016), thereby boosting the ability and capacity of firms. As shown by the research conducted by Magistretti et al. (2021), the consulting environment can illustrate how design thinking dynamic capabilities are enablers for DT. Moreover, the researchers suggested new areas of investigation by combining design thinking, digital technologies, and dynamic capabilities research streams, paving the way for future studies to explore the interconnections between these evolving fields.

Therefore, this research aims to empirically investigate if and how design thinking, an innovation practice capable of enacting dynamic capabilities, could strengthen the effectiveness of DT processes within traditional financial institutions (Liedtka, 2020). By leveraging and expanding upon existing dynamic capabilities theories, this study aims to show the connection between dynamic capabilities, design thinking, and DT processes. Theoretical contributions of this research include enhancing the current understanding and providing new insights into the mechanism through which dynamic capabilities are related to the design thinking practice, with a focus on exploring the mediating role of consultancies in DT projects. Eventually, this study addresses the following research questions:

- Research Question 1 (RQ1): **What is the internal impact of the DT process on the organizational structure of traditional financial institutions?**
- Research Question 2 (RQ2): **What is the role and value that design thinking brings to the DT process in traditional financial institutions?**

The research questions will be answered through an empirical study by conducting and analysing 14 interviews with innovation consultants and DT experts working in the traditional financial sector.

By answering the research questions, this research enhances the dynamic capabilities theory within the design thinking practice, connecting it to the DT literature in the following ways. First, the aim is to provide a new understanding of how DT reshapes organizations, addressing the neglected aspect of how firms are digitally transformed. By integrating the available literature about dynamic capabilities by Teece (2007) with empirical research, this study seeks to enlighten how DT impacts internal processes and organization design. Second, the research findings contribute to expanding the current theories by examining how design thinking dynamic capabilities are derived and foster DT. By investigating organizations' application of design thinking frameworks, the

objective is to enhance the existing theory on design thinking dynamic capabilities, uncovering the pivotal role of design practice in shaping DT strategies (Brown, 2008; Liedtka et al., 2013; Magistretti et al., 2021). Third, the mediator role of consulting firms in innovation projects for DT will be addressed, seeking to explain how external actors reinforce the firm's capabilities. As design thinking is currently extending to encompass organizational change and transformations, the findings of this research answer the pressing need to understand its role in shaping leadership, organizational design, and overall transformation efforts (Verganti et al., 2021).

1.4. Project approach

The Double Diamond design approach is used to carry out this graduation project (see *Figure 1*).

This approach is characterized by the alternation of divergent phases aimed at exploring possible alternatives, and convergent phases aimed at identifying the dominant alternative (Dell'Era et al., 2020). First, in the research stage, information has been collected, relevant to DT, innovation practices and management in the traditional financial industry. A combination of primary research (e.g., 14 semi-structured interviews with relevant experts in the

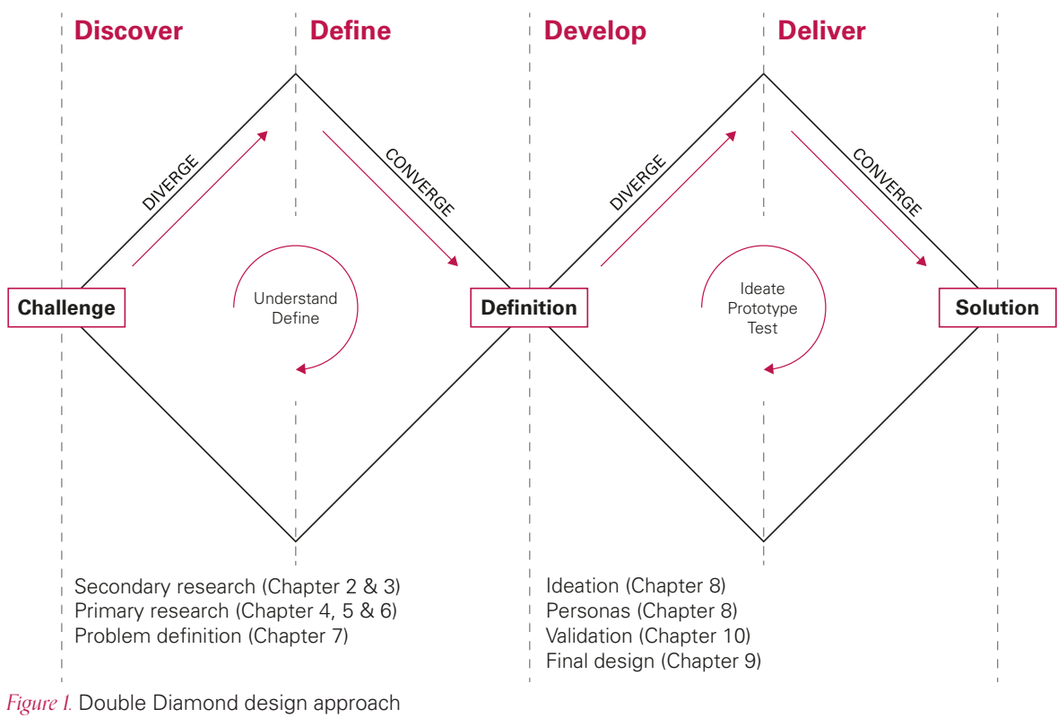

Figure 1. Double Diamond design approach

Figure 2. Innovation Boosters office in Amsterdam

DT domain) and secondary research (e.g., literature review, IB methodology and consulting tools analysis) has been conducted. Second, the collected data have been analysed and synthesised using the thematic content analysis method (Braun & Clarke, 2006). The process involved making sense of information, framing and understanding factors and needs, which then became inputs for identifying the value of design thinking in DT. Third, a design problem was defined, and preliminary concepts were created by following the formulated value, leading to the development of initial versions of the design tool. Lastly, in the validation stage, the design tool was validated and evaluated, and subsequent iterations were implemented. Based on that, an additional strategic design tool was provided to the client for a later, larger implementation stage.

1.5. Innovation Boosters

1.5.1. Company overview

This graduation project is carried out in collaboration with Innovation Boosters (see *Figure 2*).

Innovation Boosters (IB) is an innovation and transformation management consultancy firm that collaborates with traditional financial institutions. It was established in 2012 in Amsterdam, The Netherlands. Rooted in a philosophy of proactive engagement and decisive action, IB distinguishes itself as a dynamic force in organizational transformation and business innovation. IB specializes in facilitating strategic shifts for clients within the contemporary business landscape. Emphasizing the cultivation of entrepreneurial potential within teams, IB leverages its expertise to not only identify areas ripe for change but to meticulously craft and execute tailored initiatives. By utilizing data-driven insights

and a deep understanding of market dynamics, IB empowers decision-makers to navigate the complexities of modern business environments with agility and foresight. Integral to IB's approach is the fusion of product and process innovation to drive organizational cultures, ensuring holistic and sustainable transformations. IB embraces a comprehensive approach to innovation consultancy, focused to catalyse impactful change for its clients on a global scale.

1.5.2. The IB Execute Framework

IB developed the Execute Framework (see *Figure 3*) to enhance innovation execution, providing all necessary elements for high-performance teams. It supports the alignment of strategy and execution for tangible outcomes, and it establishes structures that promote ongoing learning, improvement, and innovation. The framework enables teams to move from isolated innovation efforts to a self-sustaining culture that proactively seeks innovative solutions.

The Execute Framework consists of four enablers: Direction & Purpose, Safety & Interaction, Empowerment & Support, and Quantification & Decisiveness.

The "Direction & Purpose" component involves aligning an organization's purpose, ambitions, priorities, and objectives. It starts by understanding the current state, which helps define the target audience, their needs, and potential opportunities. From there, the organization crafts a future strategy using foresight tools to navigate anticipated changes. Lastly, it develops an iterative process focused on measurable outcomes, supported by tools such as dashboards to ensure decisions are fact-based and objective.

The "Safety & Interaction" aspect focuses on establishing clear governance, interaction schedules, and communication within an organization. Regular social meetings, which set predefined interactions, provide a sense of organization and predictability, allowing for team interactions during milestones. Additionally, fostering diversity through external interaction points enriches the organization with varied knowledge and perspectives.

The "Empowerment & Support" segment emphasizes empowering employees through clear tasks, responsibilities, and compensation structures. First, selecting the right people is crucial for the innovation process; these individuals should be adaptable, creative, and flexible. It's also vital that team members understand their roles within the organization and how these intersect with the roles of their colleagues. Lastly, ensuring long-term performance involves providing employees with personal and career development plans to maintain their effectiveness in their roles.

The "Quantification & Decisiveness" aspect of the framework

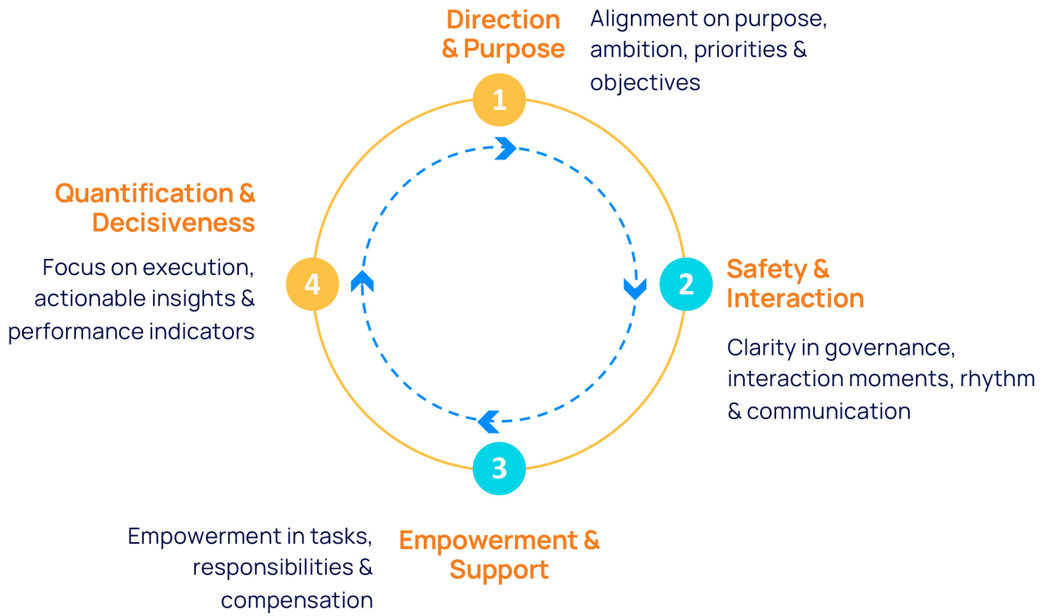

Figure 3. Execute Framework by Innovation Boosters

emphasizes the importance of execution, actionable insights, and performance indicators to drive innovation. It is necessary for organizations to deeply understand their market, clients, internal operations, and relevant technologies to effectively execute their strategies. The use of dashboards to create measurable results is at the core, enabling the tracking of targets, KPIs, and metrics that validate the efficacy of actions taken and assess their outcomes.

IB has identified the "Quantification & Decisiveness" step of the Execute Framework as the foundational element for the ideation of a new strategic tool. This decision is based on the analysis that highlights a gap in the existing framework, particularly in the aspects of governance and management necessary for effective client support in this final phase. Projects that progress to this stage often encounter complexities in managing the transition to execution, underscoring the need for a governance structure. The objective of the new strategic model is to enrich the "Quantification & Decisiveness" step by developing an approach that establishes the appropriate governance approach.

Chapter 2

LITERATURE REVIEW

2.1. Financial Sector

The banking industry has undergone significant transformations since the inception of Banca Monte dei Paschi di Siena in 1472 (see *Figure 4*). Over the years, financial institutions have been a good example of "**resistance to change**", being able to uphold their fundamental role as information brokers and intermediaries (Murinde et al., 2022). The scalable and leveraged banking business model, which has stood the test of time, will not change in the future but is now encountering new challenges due to the rapid advancements in digital technology (Brandl & Hornuf, 2020). The FinTech revolution is currently underway, reshaping the banking sector through technological and regulatory transformations (Vives, 2019). Trends such as blockchain, AI, Machine Learning (ML), Robotic Process Automation (RPA), biometric security systems, digital currencies, the Internet of Things (IoT), and contactless payments further promote a customer-centric approach to financial services (Buchak et al., 2018).

The competition faced by banks and other financial institutions is from FinTech challengers who are revolutionizing the financial services sector through innovative use of technology (Villeroy de Galhau, 2016). The distinction between traditional investments in financial technologies and newer approaches to technology integration in finance lies in the focus: older technology implementations aimed at creating more cost-effective operations and achieving efficiencies through automation, whereas "new" FinTech is oriented toward reimagining entire business processes and introducing novel business models in finance (Murinde et al., 2022). Anagnostopoulos (2018) suggested that the innovative efforts demonstrated by FinTech companies indicate that many services currently provided by banks could transition to FinTech startups. Although banks and FinTech firms are competing for the same market share, they are not governed by identical regulatory frameworks (Elsaid, 2023). Knight (2017) noted that traditional banks face stricter regulation compared to FinTech companies. However, stringent regulation can also constrain banks' capacity to innovate or generate profits in the face of fierce competition (Murinde et al., 2022). This is because financial regulation typically aims to address conflicting agendas. On the one hand, regulators must prioritize consumer protection and market stability, while on the other hand, they must also uphold competition (Appaya & Gradstein, 2020). Therefore, regulators are committed to keeping pace with the complexity of the sector, especially in light of recent technological advancements (Ehrentraud et al., 2020).

As the competition in the banking sector intensifies and customer retention emerges as a critical necessity, the imperative for innovation and continual development has been highlighted (Niemand et al., 2021). The pace at which banks adopt new technologies will be determined by how quickly their customers

Figure 4. La via del Monte sacratissimo della pietà (Del Monte, 1494)

and competitors embrace these advancements (Camera et al., 2016). Whatever the future, trust will remain at the core of banking (Broby, 2021). Banks of the future must be "**digitally ambidextrous**", capable of balancing innovation and change (Gupta et al., 2023). In response, incumbent banks are actively engaged in redefining their strategies and operations.

2.2. Digital transformation and Organizational Change

DT is a core driver of innovation for firms (Papa et al., 2018; Santoro et al., 2018; Scuotto et al., 2017). With the advent of digital technologies in the corporate landscape, companies have to pursue digital innovation and transformation (Ghezzi & Cavallo, 2020). While DT has risen to a strategic priority on corporates' agendas, there remains a scarcity of conceptual or empirical research investigating how organizations undergo DT (Fitzgerald et al., 2014; Hess et al., 2016; Singh & Hess, 2020). This perspective makes it possible to potentially explain the phenomenon of DT and its management in business practice by leveraging the knowledge of organizational change and innovation (Poole & van de Ven, 2004). DT holds the potential to influence various stages of the innovation process due to the extensive range of enabling technologies and the multiple ways in which they can enhance

product and service performance (Barrett et al., 2015; Hui, 2014; Iansiti & Lakhani, 2014).

Extant research indicates that when companies encounter uncertain and unique challenges, they stand to benefit from adopting an entrepreneurial approach (Ferreira et al., 2019; Kraus et al., 2012). Within established organizations, such an entrepreneurial response is likely to stem from the entrepreneurial orientation of a firm, characterized by its inclination and strategic stance toward innovation, proactiveness, and risk-taking (Covin et al., 2020; Covin & Lumpkin, 2011). Consequently, the extent to which digital technologies sustain or alter the fundamentals of organizational learning, absorptive capacity, combinative capabilities, dynamic capabilities, or influence open innovation and technological complementarities, remains largely unexplored (Appio et al., 2021). While the profound impact of DT is extensively debated in the media, the precise way it affects the internal processes of firms, leading to output creation and ultimately shaping their organizational design, remains unclear (Kretschmer & Khashabi, 2020). Although there is emerging research on the implications of DT for tasks, employees, companies, and competitive landscapes, Kretschmer & Khashabi (2020) still see a necessity or a comprehensive perspective to form a cohesive understanding of how digitization impacts organization design. Eventually, recent observations indicate that DT diverges from past organizational changes. First, the involved technologies differ significantly from earlier Information Technologies (IT) changes (Bharadwaj et al., 2013) displaying novel properties: they are viewed as generative, adaptable, and combinatory (Kallinikos et al., 2013). Second, the overarching digital infrastructures emerging are open, flexible, and accessible to anyone, not solely companies (Tilson et al., 2010). Third, the consequences of DT appear to extend beyond those of previous phases of IT-enabled change (Orlikowski, 2000). Instead, DT appears to possess a more intricate and comprehensive relationship with organizational change, necessitating a broader exploration of the link between organizational change and innovation (Poole & van de Ven, 2004).

2.3. Dynamic Capabilities for DT

Within established organizations, transformation requires breaking traditional modes of thinking (Teece et al., 2016). Hanelt et al. (2021) identified two primary mechanisms used by organizations to initiate and implement DT: innovation and integration (Daniel & Wilson, 2003; Henfridsson & Yoo, 2014). Innovation mechanisms entail the deployment of resources, processes, and capabilities that are novel to the organization, while integration involves aligning these with existing resources, processes, and capabilities (Ranganathan et al., 2003). A significant challenge faced by incumbents is the need to find a balance between leveraging

existing capabilities and cultivating new digital capabilities that are congruent with past path dependencies (Svahn et al., 2017). In this context, the dynamic capabilities framework has emerged as the appropriate stream of research in the strategic management literature to explain how firms respond to rapid technological and market change (Di Stefano et al., 2014; Eisenhardt & Martin, 2000; Helfat et al., 2009; Teece, 2007; Teece et al., 1997). Dynamic capabilities refer to "**firms' ability to integrate, build, and reconfigure internal and external competencies to address rapidly changing environments**" (Teece et al., 1997). In line with Velu (2017), Warner and Wäger found that incumbents must establish a system of dynamic capabilities for DT (2019). In contrast to nondigital-based strategic change, the pervasive nature of new digital technologies is altering the essence and objective of dynamic capabilities and there is limited research available that illustrates the process through which firms undergo DT (Autio et al., 2018). For dynamic capabilities to be effective, they must be deeply ingrained in an organization's culture, as shared values govern risk-taking, experimentation, learning, and tolerance for failure (Schoemaker et al., 2018).

Teece (2007) argues that dynamic capabilities encompass three main clusters: sensing opportunities, seizing opportunities, and transforming the organization's business model and broader resource base. Considering the disruptive nature of digitalization, Warner and Wäger (2019) proposed that the dynamic capabilities framework serves as a potent tool for analysing the DT of established firms in traditional industries (see *Figure 5*). The scope of each DT hinges on the strategic renewal of an organization's business model, collaborative approach, and eventually, its culture. The framework proposed by Warner and Wäger (2019) is structured as follows. In the domain of DT, sensing involves monitoring digital trends, engaging in scenario planning, and cultivating a digital mindset. Digital sensing capabilities contribute to advancing existing research on dynamic capabilities because evidence suggests that incumbents utilize disruptive technologies to interpret previously obscured big data. Seizing encompasses strategic agility, rapid prototyping, and maintaining a well-rounded digital portfolio. Incumbents are exploring entrepreneurial methodologies to cultivate digital seizing capabilities, enhancing strategic agility for swift responses to unforeseen opportunities and threats. Transforming focuses on navigating innovation ecosystems, restructuring internally, and augmenting digital maturity. The primary goal of digital transforming capabilities for incumbents is to manage various tensions, including balancing internal and external collaboration, redesigning adaptable and effective governance structures, and enhancing the digital maturity of both externally recruited and internally promoted talent.

Sensing, seizing, and transforming are crucial for ensuring the longevity of a firm in the face of evolving customers, competitors,

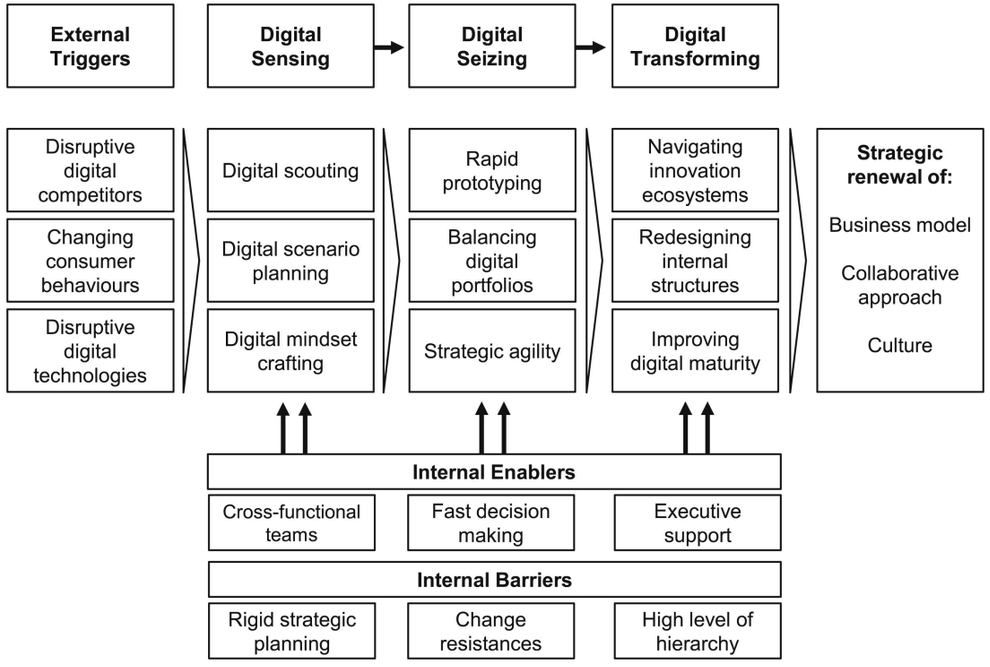

Figure 5. Building dynamic capabilities for DT: A process model (Warner & Wäger, 2019)

and technologies (Teece, 2007). Dynamic capabilities are challenging to cultivate and implement, making them difficult for competitors to replicate once successfully established (Schoemaker et al., 2018). They are, to a degree, embedded in distinct organizational processes that arise from each firm's signature history, investments, culture, experience, and problem-solving methodologies (Gratton & Ghoshal, 2005). This reliance on past paths influences how forthcoming opportunities and threats are managed.

2.4. Design Thinking and Dynamic Capabilities

As the focus shifts from firm strategy to the value delivered to users, an expanding body of research in innovation literature has shed light on design thinking as an innovation approach centred on human needs (Beckman & Barry, 2007; Brown, 2008; Carlgren et al., 2016). Design thinking is acknowledged as a formal method for creative problem-solving that nurtures innovation (Brown, 2008; Liedtka et al., 2013; Martin, 2009). Tim Brown (2008) has characterized design thinking as "**applying designers' principles, approaches, methods, and tools to problem-solving**." This alignment around the characteristics of the design process provides a theoretical framework for describing the design-thinking process advocated in contemporary business: it is a hypothesis-driven

approach that prioritizes both problem definition and solution development. While scholars recognize the value that design, particularly design thinking, can bring to innovation (Beckman & Barry, 2007; Brown, 2008; Cankurtaran & Beverland, 2020), it has also been demonstrated that design thinking serves as an approach able to enact dynamic capabilities for managing creativity and bias in innovation projects (Liedtka, 2020). Concerning the advancement of DT and, consequently, the adoption of digital technologies, these dynamic capabilities may intersect with the capabilities outlined in approaches to new product development and processes related to digital technologies (Teece, 2012). Magistretti et al. (2021) have broadened the application of dynamic capabilities by proposing a framework of design thinking dynamic capabilities. This framework not only underscores the significance of dynamic capabilities in attaining competitive advantage (Teece, 2007) but also enhances their effectiveness in the domain of DT. However, there remains a gap in understanding the value that design thinking, viewed as a set of dynamic capabilities, can bring to the field of DT (Çetinkaya, et al., 2013; Liedtka, 2015; Micheli et al., 2019).

Reflecting on its suitability for navigating uncertainty as fundamental to the value it offers, Owen (2007) argued that design thinking, unlike traditional management approaches, deliberately postpones decision-making as much as possible to maximize learning as a strategy for reducing uncertainty; learning has consistently been emphasized as central to the essence of design (Beckman & Barry, 2007). Verganti et al. (2021) anticipated that the evolution of the design thinking paradigm, along with the emergence of new design paradigms, would necessitate the incorporation of new perspectives. One such example is the "**Design as Inquiry**" perspective, extensively explored by Ann Pendleton-Jullian and John Seely Brown in "**Design Unbound**" (2018). These viewpoints emphasize the ability to comprehend a design problem among various stakeholders. This approach holds particular relevance at present, as design transitions from solving problems solely for products or services to addressing organizational change. Many struggles with how to effectively design for leadership, organizational restructuring, and driving transformation. Consultancies are employing design in this manner – applying it to drive transformations. Consequently, there is a need to critically examine the current practice of design thinking to grasp its context and address its limitations.

2.5. Consultancy Role in Developing Design Thinking Dynamic Capabilities

Consultants feed decisional processes, they act as information sources, providing useful information and affecting how an

organization interprets its competitive environment. Canato and Giangreco identified four typologies of consultants: information sources, standard setters, knowledge brokers, and knowledge integrators (2011). Consultants who work as information sources provide information to assess the performance of the industry and enhance internal decision-making. Standard setters' consultants provide a source of legitimacy and control the diffusion of new ideas in the market. Knowledge brokers are the ones able to detect and transfer useful experience from one industry to another. Eventually, knowledge integrators help organizations implement new solutions. Different types of consultants intervene in different steps during the innovation process.

The correlation between design thinking and consulting is acknowledged in various scholarly works (e.g., Çetinkaya, et al., 2013; Cooper, 2019; Owen, 2007), underscoring the importance of creativity and innovation in the business sphere. Rylander (2009) has adeptly synthesized these parallels, centring on a shared challenge: "**highly skilled individuals engaging in creative problem-solving**." The field located at the intersection of design and strategic management is termed "**design-led strategy**" (Knight et al., 2020). Hence, the proliferation of design in business consulting and the flourishing academic attention to the consultancy role as facilitators of creativity and innovation processes are unsurprising (Wrigley, 2017).

By studying a B2B environment, the research conducted by Magistretti et al. (2021) looked at how dynamic capabilities are built by the collaborations between the consulting organization and the client firms for DT. This mediation role that consulting firms have in the DT pursue, and the ability to enact design thinking dynamic capability to cope with the scope is a relevant finding of the research. Examining this interaction between consultants and the firm's managers, the study proposed five design thinking dynamic capabilities that can support the DT (see *Figure 6*):

- **Extending** (i.e., amplifying the shared knowledge base through constant collaboration with diverse stakeholders),
- **Debating** (i.e., questioning the technological challenge by juxtaposing digital and human perspectives),
- **Cropping** (i.e., selecting technological requirements based on the users),
- **Interpreting** (i.e., adopting different perception frames to investigate the different facets of the technological challenge),
- **Recombining** (i.e., combining technological and human knowledge within a holistic framing).

The design thinking dynamic capabilities illustrated the integration of design thinking (Brown, 2008), a social science approach, with dynamic capabilities (Teece, 2007), a strategic approach,

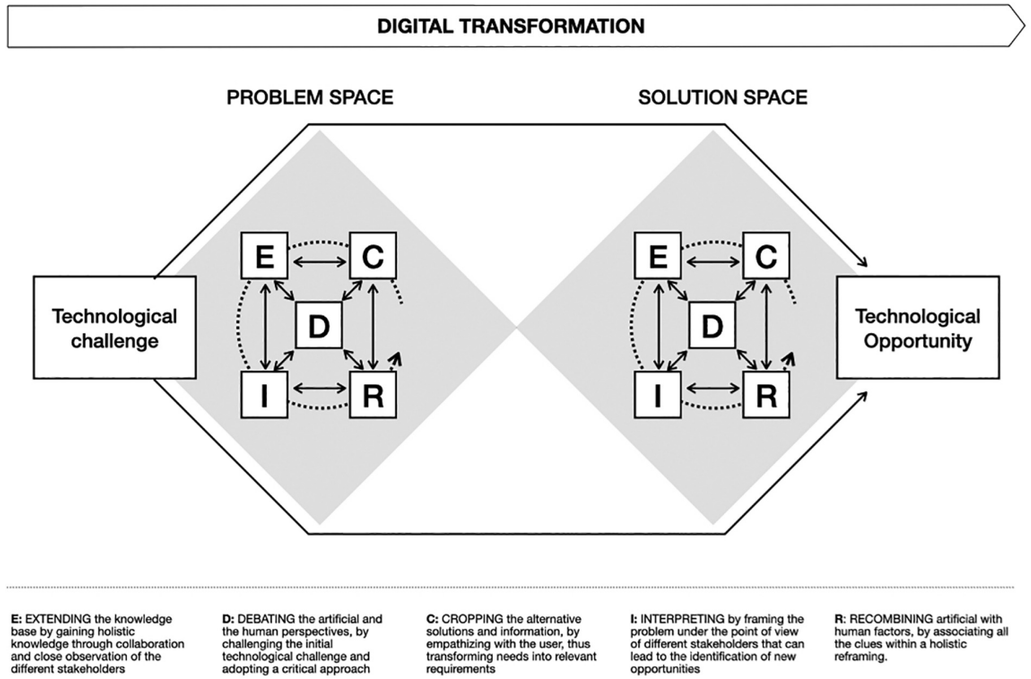

Figure 6. Design thinking dynamic capabilities to foster DT (Magistretti et al., 2021)

to show the significance of hybrid models and interconnected perspectives in fostering innovation and DT within academia. This research aims to contribute to the evolving relationship between the fields of design and strategy, aligning with the emerging trend of collaboration and integration between the two disciplines.

2.6. Key Takeaways

- The financial industry, historically characterized by resistance to change, is transforming due to the FinTech revolution and advancements in technologies like blockchain and AI, asking banks and insurers to balance innovation with maintaining trust to stay competitive.
- DT is emerging as a driver of innovation for firms, integrating digital technologies into the corporate landscape and necessitating a focus on digital innovation and transformation, yet research exploring how organizations undergo DT remains limited.
- The dynamic capabilities framework developed by Teece (2007) is suitable for analysing how established organizations implement DT by utilizing mechanisms of innovation and integration to sense, seize, and transform opportunities in response to technological and market changes.
- Design thinking, as a human-centred innovation approach, leverages dynamic capabilities to enhance DT processes and product development, yet its full potential and application in organizational change and transformation remain underexplored.
- Consultants enhance organizational decision-making and DT by applying design thinking dynamic capabilities – extending, debating, cropping, interpreting, and recombining – to advance management and innovation, based on the research of Magistretti et al. (2021).

Chapter 3

CONCEPTUAL MODEL

3.1. Conceptual Model overview

Grounded in the dynamic capabilities theory for DT and in the design thinking creative problem-solving method (Magistretti et al., 2021; Teece, 2007; Warner & Wäger, 2019), this research aimed to investigate the relationship between DT, dynamic capabilities, and design thinking. *Figure 7* shows the path relationships in the proposed research framework. The literature shows there is a direct relationship between the dynamic capabilities' theory and the design thinking method, specifically in the DT domain. Holistically, the study builds on the assumption that a design thinking approach could strengthen the effectiveness of DT within an organization (Cankurtaran & Beverland, 2020).

3.2. Dynamic Capabilities for DT

Dynamic capabilities are defined as the firm's ability to integrate, build, and reconfigure internal and external competencies to address rapidly changing environments (Teece, 2007). Dynamic capabilities thus reflect an organization's ability to achieve new and innovative forms of competitive advantage (Teece et al., 1997). Given that digital technologies affect the ways people engage in the process of innovation (Nambisan et al., 2019), the dynamic capabilities framework seems to be appropriate to illustrate how

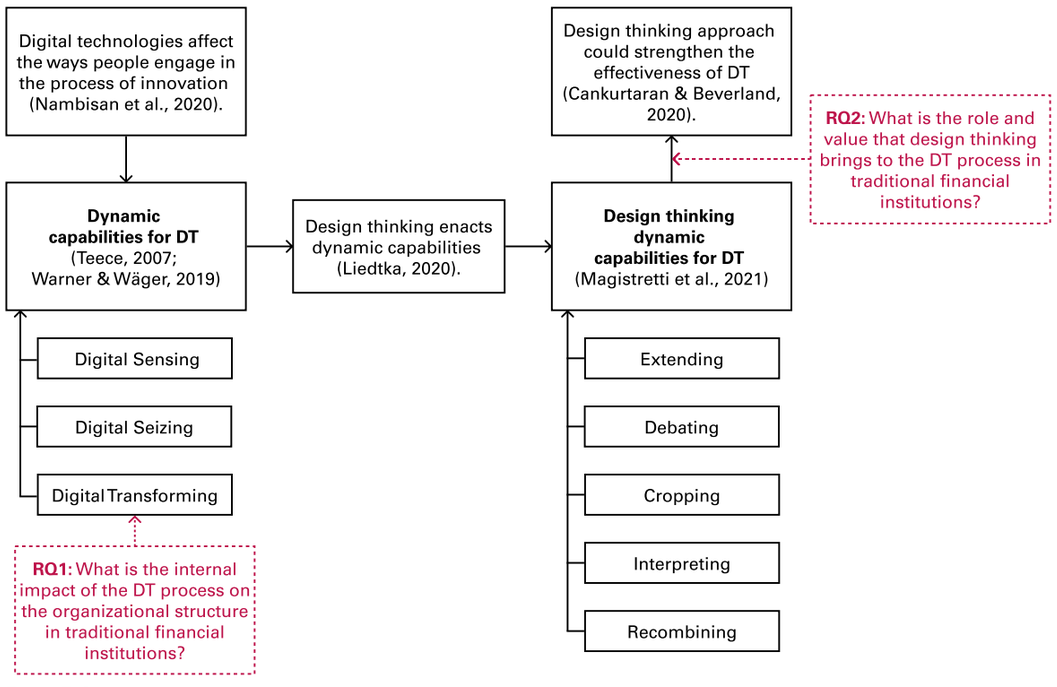

Figure 7. Conceptual model

DT affects firms. Warner and Wäger (2019) enhanced the dynamic capabilities framework by Teece (2007) to examine the disruptive effect of DT on incumbent firms in traditional industries. The authors, subsequently, argued that dynamic capabilities for DT consist of digital sensing, digital seizing, and digital transforming. The versatile nature of pervasive digital technologies underscores the importance of developing dynamic capabilities for a broader spectrum of organizations, but there is limited research that shows how firms are digitally transformed (Autio et al., 2018). Therefore, this research aims to shed light on how DT influences organizations, examining how it shapes their internal structure, improves their digital maturity and guides their navigation within the innovation ecosystem. RQ1 **What is the internal impact of the DT process on the organizational structure of traditional financial institutions**? attempts to inform the dynamic capabilities for DT section of the conceptual framework.

3.3. From Dynamic Capabilities to Design Thinking

Within design methodologies, design thinking is acknowledged for its validity in shaping innovation, problem-solving, and creativity, proving to be effective with business models and organizational challenges (Brown, 2008; Dell'Era et al., 2020; Liedtka et al., 2013). Concurrently, design thinking has been demonstrated to be an approach capable of enacting dynamic capabilities, thus serving as a method for implementing these capabilities into practice (Liedtka, 2020). Liedtka (2020) supports this statement by explaining that design thinking possesses the capacity to close the gap between an organization's aspirations for innovation and its ability to execute by moulding the real-life experiences of innovators themselves - through immersion, alignment, and motivation as their ideas are articulated, visualized, and prototyped. Therefore, the conceptual framework establishes a nexus between Teece's dynamic capabilities theory (2007) and the design thinking methodology (Brown, 2008), effectively bridging the gap between a strategic approach and a social science approach.

3.4. Design Thinking Dynamic Capabilities for DT

Magistretti et al. (2021) applied the dynamic capabilities theory to design thinking and proposed a set of five design thinking dynamic capabilities that can support DT: extending, debating, cropping, interpreting, and recombining. Moreover, this research revealed how consulting firms make use of this set of capabilities to facilitate and support DT projects. At the same time, the limited research available to illustrate the relationship between dynamic capabilities and design thinking in the digital technologies context

emphasizes the need for further investigation (Arbesman, 2017; Magistretti et al., 2021; Trabucchi & Buganza, 2018; Warner & Wäger, 2019). Such exploration is crucial for understanding the intertwined connections existing and emerging within these research areas. RQ2 **What is the role and value that design thinking brings to the DT process in traditional financial institutions**? aims to substantiate the assumption that the adoption of the design thinking approach could enhance the efficacy of DT (Cankurtaran & Beverland, 2020). It delves into examining the role and value that design thinking contributes to the DT process.

3.5. Key Takeaways

- Grounded in dynamic capabilities theory and design thinking as a creative problem-solving method, the research investigates the relationship between DT, dynamic capabilities, and design thinking, demonstrating a direct link that could enhance DT effectiveness within organizations.
- Dynamic capabilities enable firms to adapt to changing environments by integrating and reconfiguring competencies, essential for gaining competitive advantages, with this research focusing on how DT reshapes organizational structures and enhances digital maturity.
- Design thinking is recognized for its effectiveness in innovation and problem-solving, effectively enacting dynamic capabilities by bridging strategic and social science approaches through practical implementation in organizational settings.
- Magistretti et al. (2021) integrated dynamic capabilities with design thinking, identifying five key capabilities that enhance DT in consulting, highlighting the need for further research to explore their impact on DT efficacy in financial institutions.

Chapter 4

RESEARCH METHODOLOGY

4.1. Research method

In considering the research questions concerning the effectiveness of design thinking dynamic capabilities in driving DT within the consulting domain, this research opted for semi-structured interviews as the chosen research method. This approach offered flexibility in exploring diverse perspectives and facilitating in-depth discussions (Taylor, 2005). Semi-structured interviews are widely recognized as a predominant technique for qualitative data collection (Crabtree & DiCicco-Bloom, 2006). By employing semi-structured interviews, the aim was to capture nuanced insights into the integration of design thinking dynamic capabilities in DT efforts, advancing both theoretical understanding and practical applications within the consulting domain.

4.2. Participants

Employing a purposive sampling strategy rooted in criterion-based case selection (Patton, 2014), the participant selection process for this study was carefully structured. In defining the sample universe following Robinson's (2013) recommendation, specific criteria were established to ensure the inclusion of individuals who could offer meaningful insights into the integration of design thinking dynamic capabilities and DT efforts within the consulting domain, particularly focusing on traditional financial institutions. The criteria were guided by the demands of comparability, applicability, and expert insights, aiming to capture a range of perspectives from individuals with relevant expertise and experience.

Firstly, consultants affiliated with IB were included in the sample. This selection criterion ensured access to professionals actively engaged in DT projects and familiar with the company's methodologies and approaches. By including individuals at different levels of the organizational hierarchy (CEO, partners, directors, consultants), varying perspectives and experiences within the consulting firm could be captured.

Secondly, professionals involved in DT projects within traditional financial institutions such as banks, insurance companies, and pension funds were targeted. These individuals were identified through the network of IB, leveraging their connections within the industry to access relevant stakeholders. Their inclusion provided valuable insights into the challenges, opportunities, and best practices associated with DT initiatives within the specific context of traditional financial institutions.

Overall, the sampling criteria were precisely designed to ensure the selection of participants with diverse backgrounds, experiences, and perspectives, enabling a comprehensive exploration of the research topic. By incorporating individuals from both a consulting firm and client organizations within the financial sector, the study aimed to achieve a holistic understanding of the dynamics involved in leveraging design thinking dynamic capabilities for DT in this domain.

4.3. Data collection

In this study, data were collected through semi-structured interviews conducted in a single wave with 14 participants (see *Table 1*). The semi-structured interview format was chosen to allow for flexibility and depth in exploring participants' insights and experiences related to the problem statement. An interview guide (see *Appendix A*) was carefully designed to extract knowledge from participants regarding DT and innovation practices within their organizational contexts.

The interview guide consisted of two main sections: DT and innovation practices. In the first section, the aim was to

Table 1. Participants

Participant	Organisation	Position
A	Innovation Boosters	Chief Executive Officer
B	Innovation Boosters	Founder & Partner
C	Innovation Boosters	Partner
D	Innovation Boosters	Director
E	Innovation Boosters	Director
F	Innovation Boosters	Head of Change
G	Innovation Boosters	Consultant
H	APG - Asset Management (Pension fund)	AI Policy Lead
I	APG - Asset Management (Pension fund)	Digital Lead
L	ING - Analytics (Bank)	Customer Success and Product Adoption Lead
M	ING - Asset Based Finance (Bank)	Director Asset Experience - Product Development & Innovation
N	FBTO (part of ACHMEA) (Insurance company)	Product Manager
O	Centraal Beheer (part of ACHMEA) (Insurance company)	Head of Digital Marketing
P	ARAG (Legal insurance company)	Manager of Digital Innovation

understand participants' perceptions and experiences regarding DT initiatives within their organizational context. Questions aimed to elicit responses about the definition of DT for the participant's organization, specific DT initiatives underway, and the impact of DT on organizational structure and hierarchy. The second section focused on innovation practices, particularly those related to design thinking dynamic capabilities. Drawing from the framework provided by Magistretti et al. (2021), questions aimed to identify the underlying design thinking practices used in the company or by the consultants. These questions explored steps comprising a DT project, methods employed to encourage collaboration among stakeholders, prioritization of insights, identification of strategic opportunities, and achieving a comprehensive reframing of situations. Additionally, participants were asked about the motivations for applying innovation approaches to DT, as well as the advantages and drawbacks associated with this initiative.

Data collection took place between March and April 2024, with interviews conducted remotely. To ensure the accuracy and completeness, all interviews were recorded and transcribed. The transcriptions underwent meticulous review and verification to guarantee the integrity and reliability of the collected data.

4.4. Key Takeaways

- This research uses semi-structured interviews to explore the effectiveness of design thinking dynamic capabilities in driving DT within consulting, a method chosen for its flexibility and depth in capturing insights and advancing both theoretical and practical understanding.
- This study employed purposive sampling to select participants from IB and traditional financial institutions like banks and insurance companies, ensuring diverse insights into integrating design thinking dynamic capabilities with DT efforts.
- Data were collected through a single wave of semi-structured interviews with 14 participants, using an interview guide designed to explore their insights about DT and innovation practices within their organizations, focusing on how they integrate design thinking dynamic capabilities.

Chapter 5

RESULTS

5.1. Data analysis

The data analysis was grounded in the examination of the interview transcripts, following the qualitative and interpretative approach as proposed by Braun and Clarke (2006). The analysis started with transcribing the raw data collected during the interviews. With the transcripts available, each case was analysed separately through repeated readings to dive into the data and gain a comprehensive understanding of each scenario (Rossman & Rallis, 2011). Subsequently, the data were organized into chunks for further analysis and interpretation, laying the groundwork for the identification of relevant cross-case themes. Textual analysis of the data aimed to identify themes about the conceptual elements of DT and design thinking dynamic capabilities. The chunks of data were interpreted as "**abstract units of information**" (Creswell, 2009), through an iterative and inductive process, involving continuous movement between the data and emerging themes until an exhaustive set of themes was established.

5.2. Findings overview

Figure 8 outlines the research findings of this study on DT within financial institutions. The flowchart maps out the progression through three key questions that developed the interview guide and subsequently the interview analysis (see *Appendix B*): "**What defines DT in organizations?**", "**Why is design thinking applied?**", and "**How are design thinking dynamic capabilities enacted?**". This approach describes a systematic exploration from theoretical definitions to practical implementations for understanding how DT impacts organizational structures and processes (see *Table 2*).

The analysis of the results starts with exploring the "**Multidimensionality of DT in organizations**". This section addresses Interview Questions 1, 2, and 3, which delve into how DT is defined across various dimensions including strategy, culture, and organisational operations. The discussion highlights the importance of aligning strategic considerations with organizational culture to foster innovation tailored for DT. This segment also explores the challenges organizations face in transforming internal processes and implementing new technologies, highlighting the

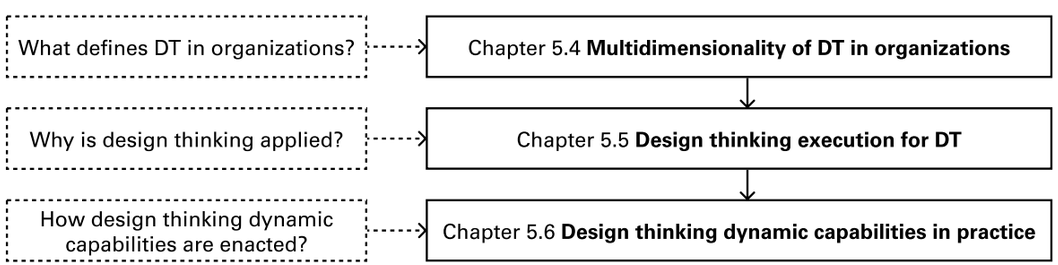

Figure 8. Research findings flowchart

Table 2. Research findings themes and sub-themes

Interview question	Themes	Sub-themes
Multidimensionality of DT in organizations (Interview Questions 1, 2, and 3)	The broad scope of DT: strategy, culture and operations	Strategic considerations and organizational culture for DT
		Fostering innovation for DT
	DT impact on organizational dynamics	Transformation of internal processes and implementation challenges
		Integration of new technologies for a human-centred approach
		Slow realization of benefits and organizational inertia
Design thinking execution for DT (Interview Questions 5 and 6)	The value of a structured approach to innovation	Managing uncertainty and effective implementation
		A structured approach to user-centric innovation
	Drawbacks of applying a structured innovation approach	Neglecting innovation
		Culture challenges and overemphasis on the process
		Consulting limitations
Design thinking dynamic capabilities in practice (Interview Question 4)	Extending, a capability to increase the depth of DT	Broadening knowledge and facilitating cross-disciplinary collaboration
		Enhancing customer insights
		Cultivating an innovative ecosystem and driving strategic vision
	Debating, a capability to challenge the status quo	Engaging stakeholders to enhance understanding
		Addressing organizational challenges
		Fostering engagement and teamwork
		Defining roles and decision-making influence
	Cropping, a capability to narrow the focus	Strategy alignment and execution
		Fostering influence and collaborative decision-making

→

Interview question	Themes	Sub-themes
→	Interpreting, a capability to inform decision-making	Market and customer insights
		Organizational insights
	Recombining, a capability to integrate technology and human insights	Integrating diverse knowledge to foster innovation
		Stakeholder alignment to manage complexity

slow realization of benefits and how organizational inertia can impede progress.

The findings then transition to "**Design thinking execution for DT**", corresponding to Interview Questions 5 and 6. Here, the focus shifts to the practical application of design thinking in the execution of DT. This section underscores the value of a structured approach to innovation, emphasizing the importance of managing uncertainty and implementing effective user-centric strategies. It also critically assesses potential drawbacks, such as the neglect of broader innovation objectives and an overemphasis on processes that might limit the effectiveness of design thinking applications.

The analysis concludes with "**Design thinking dynamic capabilities in practice**", explored by Interview Question 4. This part of the discussion examines the enactment of dynamic capabilities through design thinking, highlighting how these capabilities – extending, debating, cropping, interpreting, and recombining – contribute to an organization's ability to adapt and innovate. It details how these capabilities enable organizations to enhance cross-disciplinary collaboration, improve customer insights, and foster a more agile and responsive decision-making environment. The section provides insights into how organizations can better integrate technology and human insights to navigate the complexities of DT.

5.3. Innovation gap between banks and insurers

Throughout the interviews with key stakeholders – especially with Participants L and M from banks and Participants N, O, and P from insurance companies – significant differences in innovation and DT capabilities have been found, highlighting an apparent forward leap in banks compared to their insurance counterparts.

Innovation serves as a driving force in shaping the trajectory of businesses within the financial sector. Amid the 21st-century socio-economic and environmental challenges, innovation is necessary for addressing key market needs and enhancing competitiveness (Al-kalouti et al., 2020; de Medeiros et al., 2014). Banks have been increasingly aggressive in embracing innovation,

viewing it as essential to surviving and thriving in a volatile market environment. The imperative to innovate is driven by the need to satisfy ever-evolving customer needs, thereby ensuring profitability and shareholder value (Mullan et al., 2017; YuSheng & Ibrahim, 2019). Banks are not only adopting new technologies but are also forging paths in new markets and service enhancements. Conversely, insurance companies have been more conservative and slower in their innovation journeys, and despite the sector's large capital structures and customer data, many insurers continue to see DT as less critical, given their current market stability (Cappiello, 2020). However, there is a growing recognition among these firms of the potential benefits of digital technologies and partnerships with InsurTech startups, aimed at enhancing their product offerings and customer engagement (Cappiello, 2020; Watson, 2017).

The disparity in innovation between banks and insurance companies underscores a divergence in their responses to DT pressures. While banks view innovation as a strategic imperative for survival and growth, insurance companies, albeit gradually acknowledging the benefits, have yet to fully commit to this path.

5.4. Multidimensionality of DT in Organizations

5.4.1. The broad scope of DT: strategy, culture, and operations

DT is not confined to technological upgrades but extends to strategic, cultural, and operational realms. The following findings encapsulate the essence of DT as it unfolds within organizational contexts, shedding light on strategic approaches, cultural dynamics, and employee engagement.

Strategic considerations and organizational culture for DT

DT is predominantly recognized as an essential strategic initiative that goes beyond technological updates to fundamentally redefine internal processes and customer interactions. Its inception is often a response to both external pressures and intrinsic organizational aspirations towards modernization and efficiency. Its success depends on the alignment with the organization's strategic vision, which requires a shift in adaptability and change management practices. The role of organizational culture is brought to the forefront as either a catalyst or a barrier to DT. The prevailing attitudes towards change and the collective mindset within an organization significantly influence the trajectory and success of DT initiatives. A culture that nurtures innovation and champions continuous learning emerges as vital for ingraining DT into the organizational fabric. Engagement levels among employees measure the outcomes of DT initiatives. A correlation is observed between the depth of employee understanding of DT and their

active involvement in transformation processes. This underscores the importance of fostering a participatory culture and leadership where employees are an active part of the innovation journey.

"You can have all the AI systems, software, and digital platforms in the world, but if you don't have the right people, and if they don't have the right capabilities and a different mindset, which is what is asked of them to live in a digital world, then you will never get the results that you want." – Participant A

The cultural shift induced by DT extends beyond the simple adoption of new tools, it requires a fundamental change in organizational mentality towards one that values agility, innovation, and continuous learning. This shift is essential for fostering a proactive and innovative organizational culture. However, altering entrenched corporate cultures can create significant challenges.

"Why do we need to improve all those aspects of the company with the idea of what this means for the future employee in terms of skills? And how do we help them to acquire those skills? So, we thought of all those aspects and along the way, we saw things that could be necessary in terms of a new organizational structure." – Participant I

Resistance from employees, often stemming from fear of the unknown or discomfort with new technologies, can slow down the adoption of digital practices. To mitigate this, organizations should deploy effective communication strategies, offer extensive training, and provide clear demonstrations of the benefits of these new approaches to secure buy-in from all levels of the workforce.

"These days you cannot do DT without a CFO with digitalization high on the agenda and therefore in the whole management board. You can see that companies that are lacking in this transition also lack people in high positions with digitalization as their priority." – Participant G

DT is described not as an isolated project but as part of a strategic vision that moves the organization forward. Implementing this vision involves new management strategies to handle the dynamics of transitioning to different digital processes, managing stakeholder expectations, and mitigating disruptions to business operations.

"The key factor in transforming these kinds of organizations is to have really strong management that knows what they want and is able to set a good example. They should not tolerate any other behaviour. Then, you should get rid of the rotten apples and get it going." – Participant O

Fostering innovation for DT

Innovation within DT is tied to the organizational culture that supports it. The data suggest that successful DT initiatives require cultivating an environment that not only embraces change but actively promotes innovative and creative thinking. This involves

shifting the organizational mindset to view DT not as a single project but as a continuous evolutionary process that integrates new ideas and technologies into everyday business practices.

"So obviously, digitalization is a means to reach a certain goal, our goal is to be the best in class at leading asset management, let's put it like this. [...] So that was the umbrella (DT as a strategy pillar) that allows us to do this with the right focus." – Participant I

Effective implementation of DT initiatives lies in the ability to foster collaboration across various departments and with external stakeholders. The organization's structured innovation strategy is characterized by customer-centric approaches, targeting incremental and locally applicable developments to facilitate agility in DT execution. Organizations are therefore adopting collaborative platforms and tools that facilitate communication and project management among different teams.

"There is so much headspace already taken up by many things. [...] So, we consciously used a more local approach, changing department by department and doing a lot of bottom-up projects." – Participant H

Additionally, engaging stakeholders through regular updates, feedback loops, and participatory decision-making processes ensures that DT initiatives are aligned with user needs and business objectives. Consulting plays a crucial role in supporting the development of innovation and strategy within the organization, which is driven by a desire to understand the root problems and foster a culture of collaboration and forward-thinking.

"To create awareness of the transformation they were in. We also set up a digital mentorship program in which there was a training platform. [...] And a mentor was offered to certain projects so that they could help on execution." – Participant E

5.4.2. DT impact on organizational dynamics

The impact of DT within organizations is multifaceted, touching every aspect of business operations from internal processes to customer interactions. While the opportunities for innovation and competitive advantage are significant, they are accompanied by challenges that must be managed to fully realize the execution and potential of DT initiatives.

Transformation of internal processes and implementation challenges

The process of implementing DT is constellated with complexities, attributed to the challenges of achieving internal alignment, managing change effectively, and restructuring operations to accommodate new digital strategies. Beyond the cultural pivot, DT generates a deep influence on technological practices. The integration of emergent technologies redefines organizational

workflows. This influence extends to fostering an agile working environment, characterized by its emphasis on collaboration, flexibility, and an intense utilization of data to drive decisions. The necessity for strategic alignment and visionary leadership is underscored to guide and sustain DT efforts.

"Our previous chairman was very focused on being a tech company with a banking license kind of idea." – Participant L

Additionally, the importance of staying relevant in an evolving market highlights the necessity for DT initiatives to be agile and responsive to external changes. A structured approach to managing DT emerges as a theme, suggesting that methodical and systematic processes are key to effectively navigating the uncertainty inherent in DT. This includes fostering an environment that encourages iterative development and supports employees in adapting to new ways of working. Adaptation is a recurrent topic, where the human factor is emphasized as central to DT efforts. The data reflects a need to focus on technology as a tool to enhance human processes rather than as an end in itself.

"A technological transformation is happening, but it is also societal. [...] It's like a whole new way of thinking that is constantly changing. So, it's not just a one-off; it keeps changing all the time. You need to be able to adapt and be very resilient because what happens tomorrow might already be different in two years." – Participant E

The rapid pace of technological advancement necessitates continuous skill development and often highlights the skill gaps within an organization's workforce. Acquiring new talents or upskilling existing employees to handle advanced technologies processes is a requirement that can strain resources and affect the timeline of DT projects. The interviewees pointed out difficulties in securing adequate funding and human resources for DT projects and in justifying these investments through clear Return on Investments (ROI). DT initiatives often require substantial upfront capital with long-term benefits, which can be challenging to articulate and quantify.

"Our implementation projects take always two to three times longer than they should be, and that's because we don't hire external people that are professionals, and we think we can do it on our own and that's half true." – Participant O

DT alters internal operations, enhancing efficiency through automation and complex data management systems. These technological enhancements are designed to increase operational efficiency, reduce errors, and cut costs, fundamentally reshaping the way organizations conduct their day-to-day operations.

"If we can use DT, everything that comes with it is to save time and to make us less dependent on human mistakes." – Participant A

The integration of emerging digital technologies with existing

systems presents, at the same time, substantial operational challenges. Organizations try to navigate the technical complexities of merging new digital tools with legacy systems without disrupting existing operations. As mentioned by the participants, this requires detailed planning and execution to ensure compatibility and maintain operational continuity. The risk of disruption to ongoing operations can deter firms from pursuing more comprehensive integration, thereby limiting the effectiveness of DT initiatives.

"What happens a lot is that all these IT systems don't have the same source and don't have the same bases, so they communicate differently internally to get and to capture the data. So, a large part of the problem of DT within large organizations is simply the basis of how they use and store their data. That, it is not aligned." – Participant C

While these changes aim to streamline workflows and improve productivity, they can also disrupt established routines and workflows, leading to initial drops in productivity as employees adjust to new systems. Moreover, the integration of these systems requires extensive training and support, underscoring the need for comprehensive change management strategies.

"The impact of DT is quite heavy because the internal operations need to continue and at the same time change needs to be implemented." – Participant G

Integration of new technologies for a human-centred approach

Organizations are increasingly deploying advanced technologies such as advanced analytics, AI, and cloud computing, as part of their DT initiatives. These technologies are integrated to enhance efficiency, improve decision-making processes, and foster innovation across business functions. By embedding these technologies into their operational frameworks, organizations aim to streamline processes, reduce costs, and enhance service delivery, thus aligning technological adoption with strategic business goals.

"For example, about the developments around AI. [...] We are running a big project on this. We are developing a tool that can help lawyers in handling claims." – Participant P

A significant emphasis is placed on ensuring that DT initiatives are customer-centric. This involves redesigning customer interactions to leverage digital platforms, thereby enhancing customer engagement and satisfaction. By focusing on the customer journey, organizations tailor their digital services to meet evolving customer expectations, thereby driving customer loyalty and business growth.

"We expect from our customers that they first try to do their things themselves on the website and if we didn't succeed in giving them the excellent customer journey on that, [...] we always offer them

help, that always had been a call and now it's a chat." – Participant N

DT transforms operational models and customer engagement strategies. This transformation necessitates a human-centric approach that recognizes the value of reshaping technology around human interactions within the organizational ecosystem. Enhancing the customer experience is a key objective of DT, with organizations leveraging advanced digital technologies to provide more personalized, efficient, and interactive customer service. This can lead to increased customer satisfaction and loyalty, as services become more aligned with individual preferences and expectations.

"But actually, we see that we have made the right transformation [...] to give the customer a better customer journey, so it's not only from a cost perspective but also from a customer benefits perspective and if you are smart you can combine them. That is the biggest challenge for us so, how can we do things more efficiently and more effectively but also considering how will we maintain quality." – Participant N

However, maintaining this level of personalization and efficiency requires continuous technological updates and system maintenance, which can be resource-intensive. Organizations aim to balance the need for ongoing investment in technology with the need to deliver a solid customer experience.

"But sometimes I need to learn other jobs because the manual tasks that they were performing are now performed by the system and they, for instance, need to focus more on quality of the outcomes or quality of the interactions with the customers." – Participant M

Slow realization of benefits and organizational inertia

The benefits of DT often materialize more slowly than anticipated. This delay is attributed to the complexities involved in integrating new technologies with legacy systems, scaling up digital solutions across the organization, and ensuring that all employees are capable of utilizing these new tools. Such delays can undermine the perceived value of DT initiatives, leading to skepticism and limited support from stakeholders. Participants pointed out how the impact of DT can't be visible or found because the transformation is not happening and affecting their way of working.

"We forget all about people need to adapt to a new environment, to a new team and also to a new way of working." – Participant O

Resistance to change is a pervasive challenge in DT initiatives. This resistance is rooted in organizational inertia, particularly in larger, established companies with rigid structures and deeply ingrained processes. Overcoming this inertia requires not only technological solutions but also a transformation in organizational culture. This involves embracing flexibility, fostering an environment of continuous learning, and actively engaging all stakeholders in the transformation process.

"You see in the companies that we work for it is hard to change people. Everyone wants to change but no one wants to change and that's what's blocking."- Participant A

5.5. Design Thinking Execution for DT

5.5.1. The value of a structured approach to innovation

Design thinking, when implemented, brings great value to DT by promoting a systematic, human-centric approach to innovation. This methodology facilitates the exploration of new ideas and ensures that solutions are aligned with user needs. Overcoming challenges associated with this approach, such as resistance to change, is essential for realizing the full potential of design thinking in driving transformative outcomes.

Managing uncertainty and effective implementation

Design thinking is valuable in environments characterized by high uncertainty. It provides tools and methodologies that help teams navigate and innovate within ambiguous contexts.

"There are very few people who are comfortable with not knowing what's going to happen, especially if there's no, no predictability, no knowledge whatsoever, then they lose grip, and a structured approach or process allows for some predictability." – Participant F

The iterative nature of design thinking allows for continuous learning and adaptation, which is relevant when dealing with unpredictable market dynamics or technologies. However, organizations can struggle with embracing the flexibility required to iterate effectively, which can hinder their ability to adapt to new information or challenges.

"So every time you iterate, you have this previous situation to compare with and then lessons learned afterwards, and then you can take it to the next iteration." – Participant G

Effective implementation of design thinking involves translating ideas into actionable strategies and tangible outcomes. This includes fostering leadership that champions design thinking principles and embedding these into the organizational culture. A significant barrier to implementation is the resistance to change within organizations, which can prevent adopting new, innovative practices necessary for successful transformation.

"Ownership is important in these transformations; you need leaders who will champion this transformation. [...] I think in the end it will benefit the success of it and then these people." – Participant D

A structured approach to user-centric innovation

The structured approach of design thinking helps organizations systematically explore and exploit innovative opportunities. This

method involves defined stages that guide the innovation process, ensuring that every step is defined and builds upon the previous one. Challenges here include maintaining the discipline to follow these structured steps without creativity and ensuring that all team members are aligned throughout the process.

"But if you start big, you can only fail. You start small and step by step by step and you get success every time." – Participant C

Maintaining a user-centric focus is a cornerstone of design thinking. This approach ensures that solutions are developed with a deep understanding of the users' needs and insights, leading to coherent and satisfactory products or services. However, consistently maintaining this focus requires ongoing engagement with users, which can be resource-intensive and may challenge organizations to stay aligned with user needs between evolving external dynamics.

"It's that you have a better chance in coming up with a solution that fits the needs of the user and the customer." – Participant L

5.5.2. Drawbacks of applying a structured innovation approach

Design thinking also presents challenges and drawbacks in its application. These challenges may slow down an organization's ability to fully leverage its potential to innovate and stay relevant against competitors.

Neglecting innovation

One significant challenge identified by the organizations studied in this thesis is the tendency to neglect innovation due to various organizational pressures or misaligned priorities. Often, innovation is not seen as a priority for some departments, or it is viewed as a risk rather than an opportunity, leading to a lack of support and resources for innovative initiatives. Furthermore, there is a risk of "reinventing the wheel" where efforts do not lead to new outcomes but merely reuse old ideas in new formats.

"Innovation is not your primary process. If you're in a pension fund company or whatever company, you have your primary processes, and this is not the primary process." – Participant F

Culture challenges and overemphasis on the process

Organizational structures that are overly hierarchical can impede the flexibility required for an effective design thinking application. In many cases, the existing corporate culture may not support the iterative, fail-fast approach necessary for innovation, leading to resistance or lack of engagement from key stakeholders. Additionally, design thinking might be implemented superficially, reducing it to a "box-checking" exercise rather than a transformative influence on the organizational processes and mindsets.

"It is a way to structure and support working towards the end goal, but the process is not the end goal itself, or applying the process. It's about what you want to achieve with it." – Participant F

An overemphasis on the structured process of design thinking can sometimes stifle the creativity and spontaneity needed for true innovation. This can make the process feel mandatory and rigid, potentially turning creative exploration into an uninspired procedure. Additionally, if the focus is too heavy on justifying every step or outcome, it can lead to a defensive attitude rather than an open, explorative mindset that welcomes unexpected insights and ideas.

Consulting limitations

Relying exclusively on external consultants to drive design thinking initiatives can also present drawbacks. Consultants may not fully understand the unique context or internal dynamics of the organization, leading to recommendations that are not entirely applicable or sustainable. Moreover, there might be a dependency on these external facilitators, which can prevent the internal team from developing their capabilities and insights in design thinking methodologies.

"There can be certain elements that should already be part of the organization and we (as consultants) can miss those if they are not well represented in the group and we may miss out on some expert knowledge if we are not the experts, but the facilitators." – Participant D

5.6. Design Thinking Dynamic Capabilities in Practice

5.6.1. Extending, a capability to increase the depth of DT

The role of the "Extending" within the design thinking dynamic capabilities framework is essential to increasing the scope and depth of DT initiatives. Organizations can develop customer-centric solutions, leverage cross-disciplinary expertise, and create a strategic vision that drives long-term success. This capability is critical for organizations seeking to lead in a dynamic and ever-changing digital landscape.

Broadening knowledge and facilitating cross-disciplinary collaboration

The "Extending" capability plays an important role in both broadening the organization's knowledge base and enhancing cross-disciplinary collaboration. This process involves incorporating a diverse range of insights and expertise, crucial for driving innovative DT efforts. By reaching out beyond traditional boundaries and fostering interaction among various fields, organizations capture unique insights and integrate technical, business, and creative perspectives. Such collaborations enrich the development and implementation of

strategies, ultimately enhancing the innovation potential of digital solutions. At the same time, varying perspectives and expertise can lead to conflicting priorities and confusion. Organizations can struggle with filtering and synthesizing these diverse inputs into actionable and aligned strategies.

"For example, the people in the digital department, I think, 70% of them have their own company next to their job and they learn a lot about new technologies." – Participant O

Enhancing customer insights

A focus of "Extending" capabilities is to deepen understanding of customer needs and experiences. Organizations employ various methods such as interviews, customer journey mappings, and direct feedback mechanisms to gain insights into customer preferences and pain points. This focus on integrating customer insights allows for the creation of digital solutions that resonate with end users, ensuring that products and services are not only innovative but also aligned with market demands. The profound understanding gained through extensive customer interaction enables companies to tailor their offerings more precisely, which can lead to increased customer satisfaction.

"First, we need to understand the customer, what do they want? What are the gains, the pains and all these things." – Participant I

Cultivating an innovative ecosystem and driving strategic vision

"Extending" also facilitates the cultivation of an innovative ecosystem and the development of a strategic vision that incorporates a long-term view of the organization's goals. By setting up innovation hubs, partnering with academic institutions, and engaging as tech startups, organizations keep track of technological advancements and emerging trends. Such proactive engagement supports continuous learning and can position the organization as a leader in DT. Moreover, by anticipating future trends and technologies, organizations can prepare effectively for upcoming changes, strategically positioning themselves to take advantage of new opportunities and maintain competitiveness in a rapidly evolving digital world. However, differences in organizational cultures, operational processes, and business objectives can hinder effective collaboration and integration of insights.

"Well, it always starts with a vision and the responsible for this vision is the manager of the contact centre within the Digital department." – Participant N

5.6.2. Debating, a capability to challenge the status quo

The capability of "Debating" supports the innovation practice in shaping effective strategies and fostering an inclusive organizational culture. This step allows the stakeholders to challenge the status quo through critical discussion and collaborative decision-making.

Engaging stakeholders to enhance understanding

"Debating" enhances stakeholder engagement by involving different department members and external entities in the innovation process. This engagement helps in revealing hidden assumptions and perspectives that might not be considered otherwise. This process helps clarify the objectives and expected outcomes of DT initiatives. It also supports aligning divergent stakeholders' expectations, although achieving this alignment can be complex and may require repeated interactions and adjustments. Managing these discussions can be challenging as it implies balancing differing opinions and ensuring that all voices are heard without letting any viewpoint dominate the discussion.

"I think it's always good to start a session by informing the stakeholders about the problem. [...] I think it's important that the colleagues also feel responsible for the problem. It is about having the responsibility that we share responsibility." – Participant P

Addressing organizational challenges

"Debating" supports identifying organizational challenges that might impede DT efforts. By openly discussing potential obstacles, departments can proactively deliver strategies to mitigate them. However, this requires a culture that welcomes the expression of concerns and criticisms, which might not be present in all organizational cultures. The "Debating" capability also gives structure to the transformation process. By allowing stakeholders to question the status quo, organizations can refine their ways of working. The main challenge lies in ensuring that these debates lead to constructive outcomes and do not devolve into monologues given by people in higher management positions. The risk of being stuck to a business-as-usual approach is rarely considered.

"In terms of aligning and bringing people together, we use roadmaps. [...] It's a critical tool for getting people together and then saying - OK these are the improvement points that are on this journey, are they on your roadmap as well? - because that is what ties us to the customer." – Participant L

Fostering engagement and teamwork

By debating different aspects of DT projects, teams can develop a stronger sense of collaboration. The "Debating" capability helps break down silos by exposing team members to different aspects of the project and encouraging them to think about the issue holistically. Engaging in meaningful conversation fosters engagement by making stakeholders active participants in shaping the DT agenda. This involvement is fundamental for building ownership and commitment to the change process. One issue identified is that intense debates might lead to decision paralysis

if not effectively managed or if there is an absence of a decision-making framework to resolve misalignments.

"Most of the work we do in that sense is just putting people together in a room and letting them collaborate." – Participant D

Defining roles and decision-making influence

"Debating" also serves a role in defining roles and responsibilities for team members involved in DT initiatives. It helps clarify who is accountable for what actions, ensuring that each phase of the project has clear leadership and ownership. One of the main challenges associated with this aspect is ensuring that the defined roles are accountable throughout the project's process. There is a tendency for roles to blur as projects advance, especially in dynamic environments where rapid responses and adjustments are common. Additionally, while influencing decision-making is beneficial, it can lead to difficulties if not all participants are on equal conditions of expressing their views or if some participants dominate the discussions.

"It's not only the highest person speaking for what he or she thinks, but it is also about having singular points of view in every team." – Participant G

5.6.3. Cropping, a capability to narrow the focus

"Cropping" involves selecting the elements that create value, ensuring that resources are allocated efficiently for enhancing the effectiveness of DT initiatives. It allows organizations to focus their efforts strategically, address critical challenges directly, and ensure that all stakeholders are aligned throughout the process.

Strategy alignment and execution

"Cropping" helps set a clear direction for DT projects by ensuring proper scoping and defining roles and responsibilities. It also facilitates strategic alignment by resonating project goals with all stakeholders and maintaining accountability. The challenge lies in balancing visionary goals with the need to focus on achievable targets. At the same time, "Cropping" is instrumental in addressing the multifaceted challenges that arise during DT. By prioritizing critical issues and setting a focused agenda, teams can more effectively convince stakeholders and overcome resistance.

"That's why contracting is important. All involved stakeholders or project leads initially agreed, saying, 'OK, this is the goal.' Then, no matter what happens, the goal remains, and the end justifies the means." – Participant F

Fostering influence and collaborative decision-making

"Cropping" enhances influence and collaboration by involving key stakeholders in the decision-making process and ensuring that all voices are heard. This approach helps build consensus and

fosters a sense of ownership among all participants. Yet, the need to balance influence with effective project governance can sometimes complicate the dynamics, especially when trying to align disparate interests with project goals.

"If you want to persuade the stakeholders, you need to try to find common ground on why they should support your project and that's what I tend to focus on then." – Participant M

Moreover, "Cropping" supports project facilitation by helping teams focus on the elements of transformation that are critical for success. It enables targeted support where it is needed most, ensuring that resources are utilized where they can have the greatest impact.

5.6.4. Interpreting, a capability to inform decision-making

"Interpreting" capability enriches the DT process by providing deeper insights into technological challenges, market dynamics, and customer needs. Organizations can better understand the impact and potential of digital technologies. This capability facilitates strategic foresight and complex decision-making.

Market and customer insights

"Interpreting" market trends is relevant for organizations to align their DT strategies with the evolving external dynamics. This capability highlights the importance of leveraging internal knowledge to anticipate changes and adapt strategies accordingly. Organizations also use this capability to tailor their digital products more closely to customer expectations and needs, thereby enhancing satisfaction and loyalty. However, enhancing customer engagement through holistic interpretation of customer data and feedback can be a critical issue for organizations because of inaccurate or incomplete data interpretation. The issue is twofold: it does not only involve the technical capability to process large volumes of data but also the skill to extract meaningful patterns that reflect customer preferences and behaviours.

"The best innovations came in our business from the network meeting that we organize every month with key customers, we talk with them every time we think is needed." – Participant O

Organizational insights

"Interpreting" allows for a deep dive into the internal processes and capabilities of the organization. By interpreting internal data and feedback, organizations can identify strengths, weaknesses, and areas ripe for DT. The difficulty lies in overcoming internal resistance that may impede objective decision-making. "Interpreting" helps in identifying new opportunities for DT and assessing their feasibility. The challenge is to maintain a balance between ambitious innovation and feasibility, ensuring that opportunities are both visionary and executable. Organizations

struggle with resource allocation, prioritizing which projects to pursue, and scaling their innovations without compromising on quality or strategic alignment.

"And from there we could link the technology opportunity with business departments to say - is this something that would offer value to the customer for you, as a team and as an organization?" – Participant I

5.6.5. Recombining, a capability to integrate technology and human insights

"Recombining" enables organizations to integrate both technological and human insights, enhance product development and foster innovation. While challenges such as integrating diverse knowledge and maintaining strategic alignment pose complex questions, effectively managing these through systematic processes and open collaboration leads to transformative outcomes.

Integrating diverse knowledge to foster innovation

"Recombining" involves blending varied knowledge from different areas of the organization to create innovative solutions. This integration is important for utilizing the full spectrum of ideas and capabilities within the organization. However, effectively synthesizing these insights without creating disorganized strategies that lack focus can be problematic. "Recombining" fosters an environment where innovation encourages the intersection of different expertise. This interdisciplinary approach can lead to breakthrough ideas and applications. Nonetheless, fostering effective innovation requires overcoming organizational silos, which can be slowed down by traditional organizational structures and culture.

"Holistic is never fully holistic I think, and I'm not sure that you need a holistic understanding. It's more important to have a sort of dot on the horizon. So where are we going and are we aligned on that end goal even if it's years from now and then, where do we start?" – Participant F

In this way, "Recombining" supports continuous learning and innovation within the organization. It encourages teams to experiment and learn from each iteration of their transformation efforts, adapting strategies as needed. This iterative learning process is essential for staying relevant in a rapidly changing digital landscape, although it requires maintaining a dynamic approach to problem-solving and decision-making.

Stakeholder alignment to manage complexity

This capability also emphasizes the alignment of different stakeholder visions and the strategic directions of the organization. Ensuring that all employees share a common understanding and commitment to the goals of DT initiatives is key. Recombining helps in aligning these disparate views, though it often involves navigating complex negotiations and prioritizing differing needs.

"So, strategy is about a team. Individuals don't win." – Participant C

By synthesizing different perspectives, organizations can also anticipate potential risks and develop strategies to mitigate them. However, the process itself can be filled with challenges, such as balancing stakeholder interests and integrating contrasting data into actionable plans.

5.7. Key Takeaways

- Data analysis in this thesis involved a qualitative approach to examining interview transcripts, organizing data into thematic units related to DT and design thinking dynamic capabilities through an iterative and inductive process.
- Interview data analysis revealed that banks significantly outpace insurance companies in innovation and DT capabilities, aggressively embracing them as crucial for survival, while insurance companies are slower and less committed despite recognizing potential benefits.
- DT extends beyond technological updates to encompass strategic, cultural, and operational dimensions, necessitating alignment between these areas to effectively drive innovation and overcome challenges such as organizational inertia.
- Design thinking facilitates DT by providing a structured approach to innovation, focusing on user-centric strategies and managing uncertainties, while also highlighting potential drawbacks like the neglect of broader objectives.
- The implementation of design thinking dynamic capabilities – extending, debating, cropping, interpreting, and recombining – enhances an organization's adaptability and innovation, promoting cross-disciplinary collaboration and responsive decision-making processes.

Chapter 6

DISCUSSION

6.1. Strategic Integration and Organizational Dynamics in DT

The strategic implications of DT align with existing research that views DT not only as a response to external pressures but also as an intrinsic organizational aspiration towards innovation and efficiency (Covin et al., 2020; Covin & Lumpkin, 2011). This study's findings highlight that DT is recognized as a strategic initiative that redefines internal processes and customer interactions. Its success lies in aligning DT with the organization's strategic vision, necessitating a shift in adaptability and change management practices. The strategic alignment and visionary leadership required for successful DT are consistent with the necessary adoption of an entrepreneurial mindset (Covin et al., 2020; Covin & Lumpkin, 2011). Participants noted that organizations with clear strategic visions are better positioned to navigate the complexity of DT. Strong leadership that prioritizes digital initiatives and integrates them into the broader organizational strategy is necessary. This aligns with the findings of Ferreira et al. (2019), who emphasize the importance of strategic alignment in driving DT. Additionally, the role of management in setting the example and driving change is pointed out. Participants highlighted that managers must not only advocate for DT but also demonstrate commitment by allocating resources, setting clear expectations, and holding teams accountable. This resonates with Gupta et al. (2023) on the importance of balancing innovation and operations, especially in the financial sector. The insights into the entrepreneurial responses to the challenges within DT initiatives align with Kraus et al. (2012), who argue that adopting an entrepreneurial approach can benefit companies facing uncertain challenges. However, the study also indicates that organizational inertia and resistance to change can hinder entrepreneurial initiatives. This suggests that the link between entrepreneurial orientation and successful DT may be more complex and less direct than explained.

Innovation within DT is closely tied to organizational culture. The role of organizational culture in facilitating or hindering DT is constantly highlighted by the participants, as cultural dynamics significantly influence the success of DT initiatives. Organizational culture and changes are closely linked when addressing transformation success. However, the role of organizational culture appears to be more prominently discussed by participants precisely because organizational change has yet to occur or become visible. This emphasis suggests that in many cases, it is challenging to address and elaborate on organizational change, as the DT is not happening in a way that produces noticeable outcomes. This finding underscores the necessity of fostering a culture that embraces innovation, reflecting the perspectives of Poole & van de Ven (2004) on the correlation between organizational change, organizational culture and innovation. Participants

emphasized that a culture fostering innovation and learning is a priority for embedding DT into the organizational framework, underscoring how the organizational culture can act as either a catalyst or a barrier to DT. This involves shifting the organizational mindset to view DT as a continuous evolutionary process rather than a one-off project, aligning with the understanding that this form of DT transcends the scopes of earlier IT-enabled changes (Orlikowski, 2000). Since employees are the foundation of an organization, incumbents face the critical challenge of balancing the use of existing capabilities with the development of new digital capabilities that align with historical path dependencies (Svahn et al., 2017). Addressing this challenge effectively hinges on fostering collaboration across departments and with external stakeholders. The findings highlighted the need for enhancing communication strategies, providing extensive training, and demonstrating the benefits of new approaches as essential steps in securing buy-in from all workforce levels, thereby facilitating successful DT implementation.

6.2. Employee Involvement and Technology Adoption in DT

Employee engagement emerged as a central factor in the successful implementation of DT. The depth of employee understanding and involvement in transformation processes correlates with the outcomes of DT initiatives. Participants highlighted the importance of fostering a participatory culture where employees are actively involved in the innovation journey. This finding resonates with the literature, which emphasizes that engaging employees through a collaborative culture and leadership is essential to drive innovation (Schoemaker et al., 2018). The dual effect of DT on employee roles was a significant finding. While the literature often discusses the enhancement of roles through technology (Barrett et al., 2015), this study reveals that roles are both enhanced and disrupted as employees adapt to new digital tools and processes. This underscores the importance of digital literacy, competency, and resource allocation in the workplace, which is critical for the successful reorganization of business structures in response to DT. The integration of new technologies into existing systems presents important challenges, as noted by Tilson et al. (2010). Participants in this study underscored the difficulties of merging new digital tools with legacy systems without disrupting ongoing operations. This requires detailed execution to ensure compatibility and maintain operational continuity. The risk of disruption can impede organizations from pursuing holistic integration, thereby limiting the effectiveness of DT. This observation aligns with the perspectives of Kallinikos et al. (2013), who highlight the generative, adaptable, and combinatory nature of digital technologies as distinguishing characteristics

that set them apart from earlier DT. The transformation of internal processes and customer experience enhancement through DT extends discussions in the existing literature on the potential of DT to reshape organizational structures and business operations (Barrett et al., 2015; Iansiti & Lakhani, 2014). Participants highlighted that DT initiatives often aim to enhance efficiency, improve decision-making processes, and foster innovation across business functions. By embedding advanced technologies into their operational frameworks, organizations aim to streamline processes, reduce costs, and minimise human errors. Enhancing the customer experience is a key objective of DT, with organizations leveraging digital technologies to provide more personalized, efficient, and interactive services (Teece, 2012). This transformation requires a human-centric approach, recognizing the value of reshaping technology around human interactions within the organizational ecosystem. However, maintaining this level of personalization and efficiency requires continuous technological updates and system maintenance, which can be resource-intensive.

6.3. The Value of Design Thinking

The integration of design thinking into the strategic frameworks of established organizations, particularly through the lens of dynamic capabilities, offers a new perspective for navigating the complexities of DT. This study extends upon theories by Teece et al. (2007) and Magistretti et al. (2021), exploring the interplay between operational implementation and strategic innovation facilitated by design thinking. The dynamic capabilities framework, as proposed by Teece (2007), emphasizes the need for organizations to adapt and reconfigure internal and external competencies in response to rapidly changing environments. This ability to adapt is crucial for embracing and integrating the innovative processes that design thinking offers. At the same time, integrating design thinking dynamic capabilities into DT efforts offers organizations a reliable framework for innovation and strategic renewal. Each capability plays a unique role in fostering an innovative, responsive, and strategically aligned organizational culture (Magistretti et al., 2021). However, the practical difficulties in embedding these innovative processes within established structures underscore the ongoing need for organizations to adapt and evolve.

The comprehensive integration of design thinking within DT initiatives, as evidenced by the findings of Magistretti et al. (2021), underscores a shift towards more structured, yet adaptive, innovation approaches in complex business environments. The results reflect that while design thinking facilitates the exploration of new ideas and ensures solutions are well-aligned with user needs, its implementation can be hindered by internal resistance to change and rigidity in organizational structures.

This recalls the challenges outlined in the literature where the cultivation and implementation of dynamic capabilities are often impeded by existing organizational culture and resistance to new methodologies (Schoemaker et al., 2018; Teece, 2007).

Furthermore, the literature identifies design thinking as a mechanism that enhances the sensing, seizing, and transforming capacities within organizations (Magistretti et al. 2021, Warner and Wäger, 2019). The research highlights the significant value of a structured approach to innovation, particularly in environments characterized by uncertainty and rapid market changes, where traditional strategies may fall short. This structured approach, however, requires a balance to avoid suffocating creativity, as overly rigid processes can turn innovation efforts into average routines, potentially leading to innovation neglect. This finding resonates with the literature's concern over the potential superficial application of design thinking, reducing it to a box-checking exercise rather than a transformative force (Liedtka, 2015).

The insights from participants in the study also underscore the critical role of leadership in championing these transformations and integrating them into the organizational culture, an important factor for the implementation of dynamic capabilities (Covin & Lumpkin, 2011). The findings align with the consultancy roles discussed by Canato and Giangreco (2011), where consultants act as knowledge brokers and integrators, facilitating the adoption of design thinking practices. However, the dependency on external consultants may hinder the development of internal capabilities, suggesting that for design thinking to be truly effective, it must be deeply embedded within the organization, requiring ongoing engagement with both internal and external stakeholders to ensure alignment with evolving user needs and market dynamics.

In conclusion, aligning the insights from the research with the findings from Magistretti et al. (2021), it becomes apparent that while design thinking offers a valuable framework for fostering innovation and navigating the complexities of DT, its success is contingent upon a supportive organizational culture, strategic leadership, and the integration of dynamic capabilities that allow for continuous adaptation and learning.

6.4. Revised Conceptual Model

The revised conceptual model (see *Figure 9*) presented in this thesis builds on the foundational theories of dynamic capabilities (Teece, 2007) and design thinking (Magistretti et al., 2021) to address the evolving challenges of DT within traditional finance organizations. The identification of three new capabilities – "**Digital Adapting**", "**Conveying**", and "**Governing**" – advances our current understanding of how strategic, cultural, and operational shifts influenced by digital technologies can impact organizational

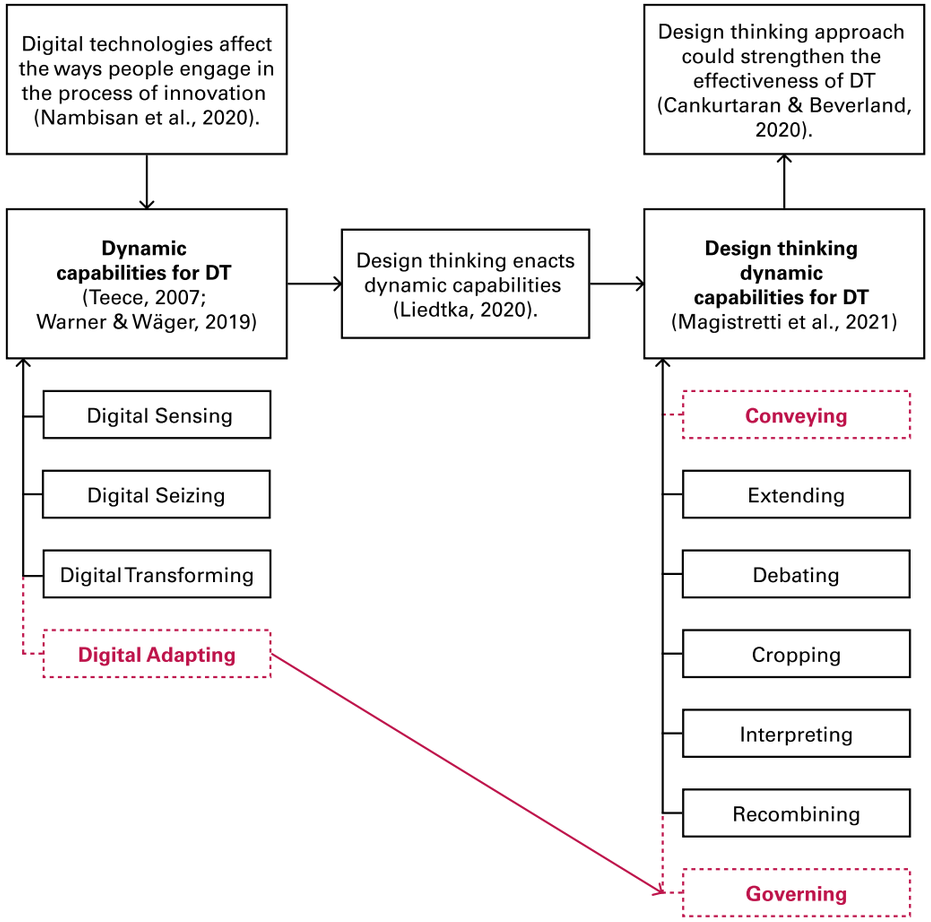

Figure 9. Revised conceptual model

dynamics and competitive positioning.

"Digital Adapting" emerges as a dynamic capability able to extend the concept of DT beyond initial implementation to encompass ongoing adaptability and resilience in organizational strategy and operations. This capability reflects the necessity for firms to remain agile, continually adjusting to rapid technological changes and market dynamics to sustain innovation and competitive advantage. This finding aligns with Teece's (2007) statement on the importance of the ability to integrate, build, and reconfigure internal and external competencies in response to quickly changing environments.

"Conveying" focuses on the fundamental role of effective and shared communication in ensuring the success of DT efforts. It involves articulating and promoting the value and strategic objectives of design thinking methodologies across all organizational levels.

This capability is relevant for cultivating a shared understanding and engagement with DT initiatives and the design thinking approach, thereby fostering a collaborative organizational culture that is aligned with transformative goals.

"Governing", a design thinking dynamic capability derived from the newly introduced "Digital Adapting", involves the implementation of ongoing governance mechanisms that guide and oversee the alignment of DT initiatives with organizational objectives. This capability ensures that DT efforts are not only strategically coherent but also systematically integrated into the organizational governance structures, facilitating effective and continuous implementation.

These capabilities collectively address the complex interplay between technology, strategy, and culture in DT. The introduction of these capabilities into the design thinking dynamic capabilities framework for DT provides deeper insights into how organizations can leverage design thinking to manage the multifaceted aspects of DT. This enhanced understanding is particularly relevant in the traditional finance sector, where strategic alignment, cultural adaptation, and effective governance are crucial for the successful realization of digital initiatives. The findings from this study underscore the critical role of leadership in championing these transformations, the strategic alignment with organizational visions, and the cultural shifts necessary to foster an environment favourable for continuous innovation and learning.

6.5. Key Takeaways

- Successful DT hinges on strategic alignment with the organization's vision, strong leadership, and a culture that fosters innovation, with participants emphasizing that clear strategic visions and leadership commitment are crucial for navigating DT complexities.
- Employee engagement is crucial for DT success, requiring a participatory culture, digital literacy, and effective integration of new technologies to enhance roles, internal processes, and customer experience.
- Integrating design thinking into organizational strategies through dynamic capabilities fosters innovation and strategic renewal in DT, but success requires a supportive culture, strategic leadership, and continuous adaptation.
- The thesis introduces three new dynamic capabilities – Digital adapting, Conveying, and Governing – that enhance our current understanding of how strategic, cultural, and operational shifts driven by digital technologies can impact organizational dynamics and competitive positioning in traditional finance organizations.

Chapter 7

FROM RESEARCH TO DESIGN

7.1. Problem definition

The insights gained during the context analysis, literature review, and interview data analysis are used to define the final design brief. The findings enable the transition from empirical and desk research to the formulation of a problem statement, initiating the design phase of the project.

A problem statement is crucial for pinpointing and encapsulating dissatisfaction with a specific situation (Zijlstra, 2020). It entails an analysis of the current state, understanding its underlying causes, and considering the expected behaviours of all people involved. This comprehensive approach ensures that the problem is identified and framed, paving the way for effective solutions in the design phase of the project.

Figure 10 highlights the gap identified through the research, from which the design problem has been derived.

Design problem statement

"In the transition from execution to scaling, organizations face challenges in sustaining the precondition of long-lasting governance and management needed to effectively implement and continue DT. The problem identified in effectively scaling DT centres on the need for a strategic foundation established by top management, coupled with a supportive organizational culture that promotes adaptability and continuous learning."

Who has the problem? The problem primarily affects managers and those responsible for overseeing the transformation, who frequently lack a comprehensive understanding and connection to the full scope of what is required for a holistic DT within an organization. Often, these individuals are either isolated within silos, independent from the departments that require DT, or they experience a significant disconnection in communication and strategic understanding with the board of the organization.

7.2. Design direction and Design goals

A design direction is essential for creating a design output that aligns with the conducted research, particularly addressing the needs identified and expressed by IB. It steers the design process and establishes the overarching objective of the design effort.

Design direction

"For consultants at IB working on DT projects, the design output aims to foster meaningful conversations with DT managers. The tool offers practical steps for evaluating the DT maturity of organizations, with an emphasis on the human aspects of the transformation. This focus enables managers and operational teams to develop the necessary capabilities to scale DT and achieve successful continuous implementation."

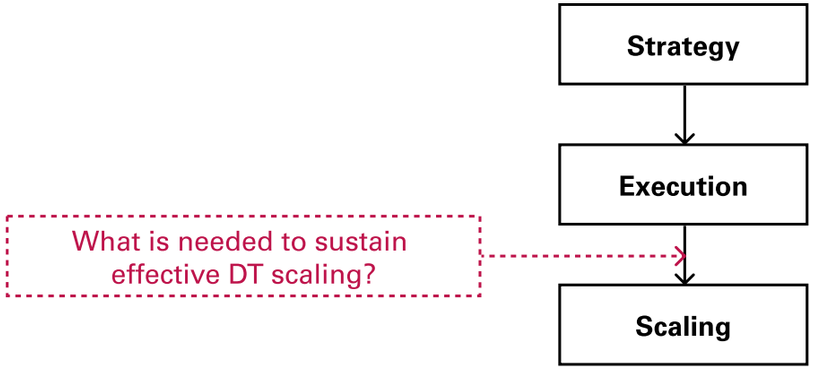

Figure 10. Research gap visualization

The design goals state the main objectives of the design output and ensure that the final output aligns with the design problem and design direction.

Design goals

"The objectives entail addressing these challenges through the implementation of structured innovation and the establishment of clear governance mechanisms, while simultaneously fostering continuous learning, enhancing digital literacy, and promoting self-advocacy within managers and operational teams."

7.3. Design criteria

Defining the design criteria establishes guidelines for the ideation phase, using these principles as areas to explore and incorporate into the final solution. The list of criteria defines the objectives and guidelines for the ideation, design and development of a design output (Zijlstra, 2020).

The principles have been based on the findings from the literature and expert interviews. *Table 3* presents the research inputs and design criteria derived from the research phase. The left column illustrates the selection of research inputs, serving as a synthesis of the research. This synthesis facilitated thorough definition of design criteria, ensuring the inclusion of all identified nuances, needs, gaps, and issues. The right column lists the design criteria that form the foundation of the design phase, highlighting the 10 principles derived from the research inputs. This ensures alignment between research and design, guiding the development of a coherent design output. Additionally, two criteria (Criteria 9 and 10) have been derived from the analysis of the Execute Framework provided by IB (see **Chapter 1.5.2.**), to better align the design outcome with IB needs.

Table 3. Research inputs and design criteria

Research inputs	Design criteria
1. DT should be driven and supported by the management as a strategic priority.	**1.** Ensure upper management actively champions and supports DT as a strategic initiative.
2. Organizational culture plays a critical role in DT, acting as either a catalyst or a barrier to its success.	**2.** Cultivate an organizational culture that accelerates rather than impedes DT.
3. A culture of continuous learning is essential for successfully integrating DT within the organization.	**3.** Foster a continuous learning mindset to facilitate the integration of DT.
4. The level of employee understanding of DT directly influences their engagement in the transformation process.	**4.** Enhance employee understanding of DT to increase their involvement in the process.
5. DT impacts the standard operational workflows within the organization.	**5.** Adjust standard operational workflows to accommodate the impacts of DT.
6. Flexibility and adaptability are key requirements for organizations undergoing DT.	**6.** Promote flexibility and adaptability within the organization to support DT efforts.
7. DT presents an opportunity to challenge the status quo within the organization.	**7.** Encourage challenging the status quo to leverage opportunities presented by DT.
8. Employing a structured approach to innovation is necessary for managing the uncertainty and complexity associated with DT.	**8.** Implement a structured approach to innovation to manage the uncertainty and complexity associated with DT.
9. Analyse governance structures to identify gaps affecting execution and decision-making.	**9.** Strengthen governance structures to eliminate gaps that slow execution and strategic decision-making.
10. Evaluate data management practices to assess data accessibility for strategic decisions.	**10.** Enhance data management practices to guarantee easily accessible data for informed strategic decisions.

7.4. Key Takeaways

- The problem definition identifies challenges in scaling DT due to the need for a strategic foundation, supportive culture, and comprehensive understanding among managers and leaders overseeing the transformation.
- The design direction aims to help IB consultants foster meaningful DT conversations and evaluate DT maturity, with goals to implement structured innovation, clear governance, continuous learning, digital literacy, and self-advocacy for managers and operational teams.
- The design criteria, based on literature and expert interviews, guide the ideation and development of the design output, ensuring upper management support, a supportive culture, continuous learning, employee understanding, adaptable workflows, flexibility, innovation, strong governance, and improved data management for DT.

Chapter 8

DESIGN DEVELOPMENT

8.1. Design foundation

As the initial step in developing the design output, a personal brainstorming session was conducted to map the translation of design requirements into preliminary ideas and early reasonings. This process involved generating keywords to create associations and cluster them into main topics. The session began with a clear focus on the identified problem statement, using the gap between execution and scaling as the starting point for generating words. The brainstorming further concentrated on defining the goals and methods to address this gap.

Figure 11 illustrates the mapping of the initial brainstorming session. The map breaks down the overarching processes into goals (to), methodologies (how), leadership qualities (leadership), and organizational support structures (management) needed to scale a DT effort effectively.

- To: this section highlights the goals of the change management approach. Keywords like "scale", "monitor", "audit", "execute", and "KPIs" suggest a focus on measurable, scalable results that need continuous monitoring and control. This is about the end goals and includes actions like validating, managing progress, and empowering, which are crucial for maintaining momentum in DT.
- How: here, the focus shifts to the methodologies of implementation. Terms like "change manager", "transformation office", and "governance model" point to the structured approaches to overseeing and facilitating change. This area emphasizes the practical aspects of executing the strategy, including setting up new teams and defining the roles of the people involved.
- Leadership:this section stresses the importance of leadership qualities needed to drive change. It includes "people", "transparency", "employee engagement", and "collaboration". The emphasis is on the human aspect of leadership, the need for clear communication, and the development of a shared vision. Leadership in this context is about inspiring and mobilizing people, empowering them, and advocating for change.
- Management: this section deals with the organizational support structures that need to be in place. It includes elements like "support", "risk", "HR", "IT", and "board", indicating the broad spectrum of resources and backing needed for transformation. There is a strong focus on building a learning culture of upskilling, retraining, and enhancing digital literacy to ensure the organization can sustain new challenges and opportunities brought about by DT.

The Venn diagram in *Figure 12* shows the synthesis of the

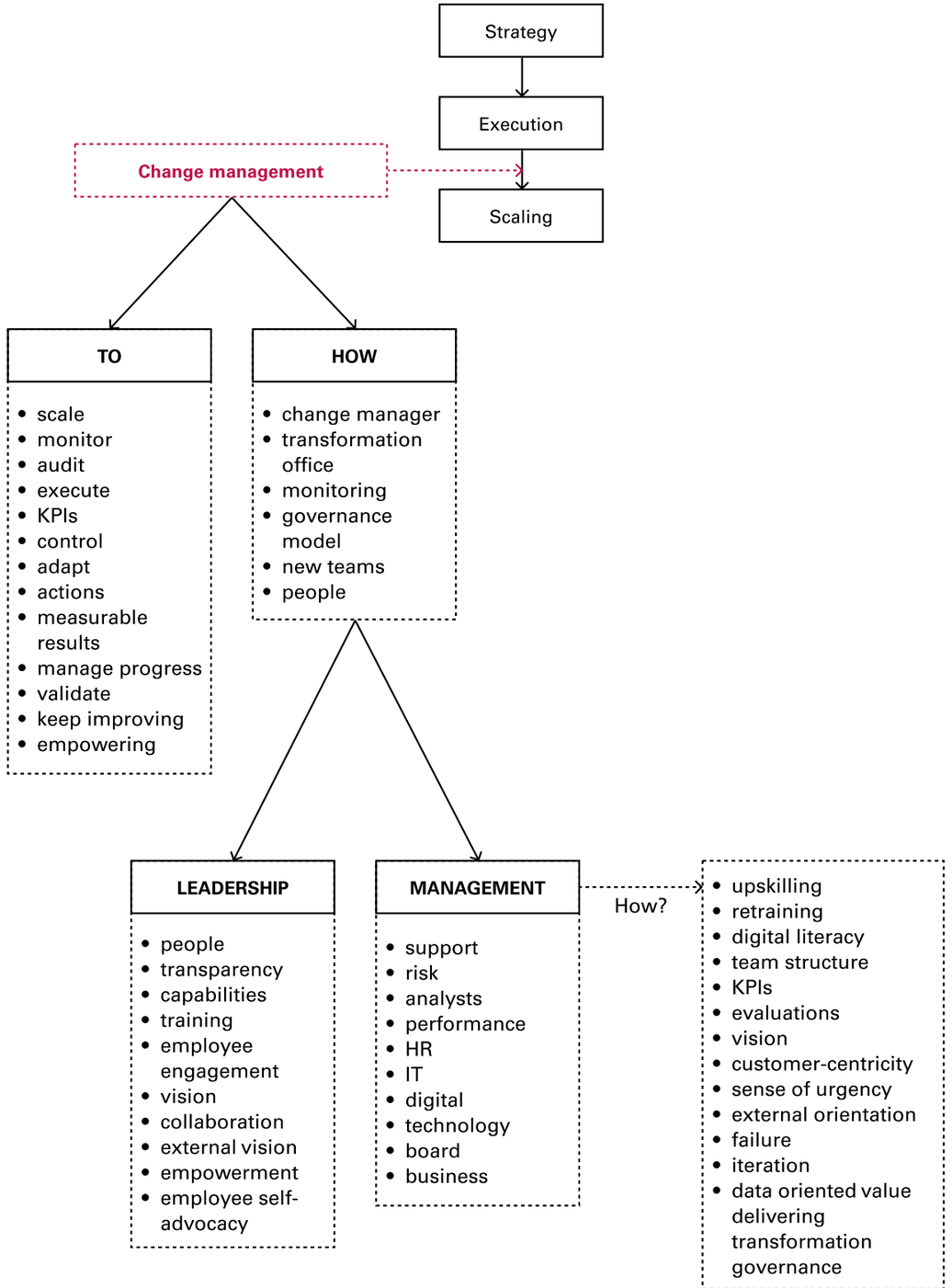

Figure 11. Brainstorming session map

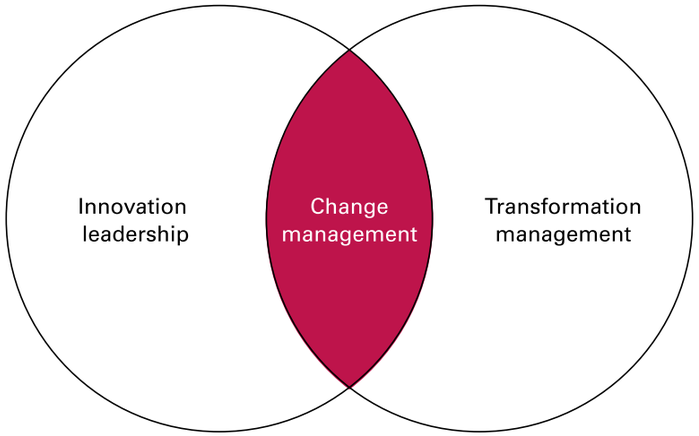

Figure 12. Brainstorming session synthesis

brainstorming session, setting a foundational framework for developing the design output. Innovation leadership focuses on fostering a creative and forward-thinking environment that encourages new ideas and approaches. This leadership drives the organization to challenge the status quo and pursue transformative technologies. Leaders, as archetypes, are characterised by their vision, enthusiasm, creativity, adaptability, inspiration, innovation bravery, imagination, and willingness to experiment and initiate changes. They derive their influence from their personal qualities and traits and utilize their power to effectively guide and impact their followers (Capowski, 1994). Transformation management focuses on the overarching process of transforming the organization to meet new business goals. It involves the redefinition of business processes, technologies, and models to fundamentally reshape the organization. Managers, as archetypes, are rational, consulting, persistent, problem-solving, tough-minded, analytical, structured, deliberate, authoritative, and stabilizing. They draw their power from their position and authority (Capowski, 1994).

While leadership involves understanding the direction in which an organization should head, management focuses on the processes and strategies required to reach that destination (Maccoby, 2000). Change management serves as the bridge connecting innovation leadership and transformation management. It encompasses the essential strategies and practices required to navigate change effectively. This function ensures that the innovative impulses from leadership are implemented in a structured way that is coherent with the broader transformation goals of the organization. Organizational change as a discipline has evolved from the field of Organizational Development (Vaill, 1989) and places significant emphasis on the behavioural aspects of managing change (Crawford & Nahmias, 2010). Change managers are then strategic, adaptable, empathetic, communicative, resilient, proactive,

and facilitative. They draw their strength from their ability to understand and navigate the complexities of both human and systemic aspects of transformation (Hughes, 2007). Utilizing their relational and positional power, change managers align, motivate, and guide teams through the processes of change, ensuring that transitions are smoothly implemented and that organizational goals are achieved.

8.2. Co-creation workshop with students

Following the ideas and word associations developed during the individual brainstorming session, it became evident that a thorough understanding of the behavioural and human aspects of a change manager within the context of this research and DT, specifically, was required. This exploration aimed to identify the needs, challenges, ambitions, and other factors contributing to making the role of a change manager easier to empathise with, and to also enhance the user-centred dimension of the project.

To fulfil this need, a co-creation workshop involving students was organized and conducted. The primary objective of the workshop was to develop a personas for a change manager. Defined as "fictitious, specific, concrete representations of target users", personas serve as hypothetical archetypes of real users, representing an aggregate of target users who exhibit common behavioural traits (Pruitt & Adlin, 2010).

The co-creation workshop was structured to include 7 participants, comprising four master's students from the Industrial Design Engineering faculty – three specializing in Strategic Product Design and one in Design for Interaction – and three master's students from the Management of Technology master within the Technology, Policy, and Management faculty (see *Figure*

Figure 13. Co-creation session with students (Photo 1)

Figure 14. Co-creation session with students (Photo 2)

13 and *Figure 14*). This diverse composition of participants was deliberately chosen to effectively address the dual aspects of the role of a change manager, which encompasses both innovation and management expertise. Before the workshop, participants were provided with a one-pager to acquaint them with the subject matter and objectives of the session, which is detailed in *Appendix C*, with students. The workshop started with a brief introduction to the topic, followed by collaborative work sessions. The participants were organized into two pairs and one group of three, allowing for mixed interactions. To facilitate empathy with the change manager role and stimulate discussions, participants were provided with two pages of quotes extracted from the interviews conducted for the research phase (see *Appendix D*). They engaged with three different canvases, each designed to elicit specific features and frameworks relevant to the persona of a change manager (see *Appendix E*). The workshop was conducted over one hour and finished with a short reflection. Minimal guidance was provided during the session to encourage participants to draw upon their distinct academic backgrounds and knowledge, thereby enriching the discussion and outcomes with a broad spectrum of insights.

Furthermore, the creation of personas was deemed appropriate for the testing workshop planned in collaboration with IB to be conducted at the end of the project. The personas aimed to provide essential content for the workshop, where consultants were expected to role-play the personas of change managers (see **Chapter 10.1.**). This approach not only supported the immediate development needs but also offered significant value for future project steps, ensuring that the design solution would be tested and validated against realistic scenarios and needs.

8.3. Change Manager personas

The analysis of the workshop was conducted through meticulous transcription of each sticky note, aiming to categorize the insights according to the specific questions posed on the canvases. This approach facilitated a comprehensive synthesis of the data, ultimately enabling the depiction of the personas of a change manager (see *Figure 15*).

Building on the insights gathered from the workshop, it was also possible to outline a typical day at work in the life of Lisa, the change manager personas, described through a structured five-step narrative (see *Figure 16*). Developing a journey of a typical day for the personas, also defined as a written scenario, is useful for defining tasks to be performed and acquiring more understanding of the context (Zijlstra, 2020).

Firstly, it helped define and explain the specific tasks and responsibilities that a change manager is expected to perform. This narrative provided clear guidance on the daily operations and decision-making processes involved in the role, offering valuable background and context for managers. Understanding how a change manager should behave and interact within the organizational environment is crucial for effective role execution.

Secondly, the written scenario served as a practical tool for the validation workshop planned with IB consultants at the end of the project, to support them in the role-playing activities. By having a well-defined and realistic scenario, consultants could better understand the dynamics and challenges faced by change managers, thereby enhancing their ability to engage meaningfully and empathetically during the workshop.

8.4. Criteria categorization

The design direction (see **Chapter 7.2.**) highlighted the need to develop an actionable framework, in the form of a process or flowchart, to better inform IB consultants. The tool should offer practical steps for evaluating the DT maturity of organizations, emphasizing the human aspects of the transformation.

To further develop the design outcome based on the direction identified, the design criteria were categorized into two groups: innovation leadership and transformation management (see *Table 4*). This categorization facilitated a structured approach to addressing both the behavioural and operational dimensions of the change manager's role within DT. Building on the findings from the co-creation workshop with students, the developed personas provided valuable insights into the context and challenges of the change manager role. By focusing on these two distinct yet complementary aspects, each group informed the creation

Lisa De Vries, 36

Change Manager

Lisa is happily married to Peter, and together they live in Amsterdam with their daughter Klara and Pluto, their beloved poodle. With a background in innovation management, Lisa is an extrovert, direct and mindful woman.

Mission

- **Orchestrate transition** Lisa guides the company's shift towards DT, ensuring a smooth transition into tech operations.
- **Champion digital solutions** she drives the adoption of innovative technologies and business models.
- **Manage risks** Lisa handles the risks linked to new technological implementations.

Responsibilities

Initial responsibilities

- Work with the strategy team to develop a digital roadmap and digital learning journeys
- Develop an overview of necessary investments with business, finance, IT, and HR, along with expected benefits.
- Create strong engagement around DT at the executive level and spread this engagement throughout the organization.

Responsibilities during execution

- Manage the overall progress of the DT in different departments in the organization
- Address specific issues as they arise during the transformation process.
- Facilitate cross-departmental collaboration to ensure alignment and integration of DT.
- Monitor and report on the transformation's impact to the board and other stakeholders.

Daily work life

- **Strategic alignment** Lisa spends part of her day in strategic meetings with upper management to ensure DT strategies align with the company's overarching goals.
- **Hands-on workshops** she conducts workshops with teams to adjust strategies, train staff, and inspire innovative thinking.
- **Continuous learning** Lisa keeps track of new developments through case studies, market trends, and feedback from peers.
- **Capability assessment** she evaluates the technological capabilities of team members and designs digital learning journeys tailored to their needs.
- **Culture of learning** through workshops and training sessions, Lisa promotes a culture that values learning from failures, fostering adaptability and resilience.

Position in the hierarchy

- **Reporting** she reports directly to the board for strategic oversight and accountability.
- **Importance** she holds a critical position, typically filled internally, that drives the company's DT efforts.
- **Duration** the position usually lasts 2-3 years, necessary for the integration of DT into standard management practices.

Challenges

- **Resistance to change** Lisa encounters resistance from teams who are fearful of new processes and technologies.
- **Fear of failure** there's a constant concern about the potential for failure, which can impact decision-making and innovation.
- **Managing the complexity** of DT requires adaptability.

Figure 15. Change manager personas

Setting

Imagine walking into the office of a traditional Dutch bank, where DT is the buzzword but scepticism hangs in the air. Meet Lisa, an experienced manager. Her role is critical in navigating this transitional period and ensuring the company's smooth evolution into a digitally savvy entity. Lisa has to drive operational teams in the DT journey, while they have to carry out tasks and deliver digital products.

1. Alignment with board strategy	Lisa starts her journey by meeting with the board to ensure she is fully aligned with the DT strategy. In these strategic meetings, Lisa gathers the latest updates, objectives, and expectations set by the leadership. This alignment is necessary for her to tailor her approach and effectively steer the company toward its digital goals.	
2. Collaboration with operational teams	Following her alignment with the board, Lisa collaborates with the operational teams in charge of delivering digital products for the bank. This involves engaging with team members to understand their roles, responsibilities, and specific areas requiring digital enhancement. Her goal is to build trust and motivate the team, ensuring everyone is on board and ready to embrace the necessary changes.	
3. Assessment of technological capabilities	Lisa conducts a thorough assessment of the team's current technological capabilities. She identifies skill gaps and determines whether employees need upskilling or retraining to meet the demands of the DT. This assessment is vital to ensure that the team is equipped with the necessary skills to implement and sustain digital tools and processes effectively.	
4. Development of digital learning journeys	Based on the assessment, Lisa prepares customized digital learning journeys for the team. She designs training programs and workshops aimed at building a learning-from-failure mindset, encouraging innovation and resilience. These initiatives are crafted to help team members acquire new skills and adapt to digital tools, fostering a culture of continuous learning and improvement.	
5. Monitoring progress and empowerment	Lisa monitors the progress of the DT using KPIs. She also evaluates the development of a positive mindset and the empowerment of team members. Regular check-in and feedback sessions are conducted to ensure that the transformation is on track and that employees feel supported and motivated. Her goal is to drive continuous improvement and achieve operational excellence.	

Figure 16. Change manager workday example

Innovation leadership	Transformation management
1. DT should be driven and supported by the management as a strategic priority.	**5.** Adjust standard operational workflows to accommodate the impacts of DT.
2. Organizational culture plays a critical role in DT, acting as either a catalyst or a barrier to its success.	**6.** Promote flexibility and adaptability within the organization to support DT efforts.
3. A culture of continuous learning is essential for successfully integrating DT within the organization.	**8.** Implement a structured approach to innovation to manage the uncertainty and complexity associated with DT.
4. The level of employee understanding of DT directly influences their engagement in the transformation process.	**9.** Strengthen governance structures to eliminate gaps that slow execution and strategic decision-making.
7. Encourage challenging the status quo to leverage opportunities presented by DT.	**10.** Enhance data management practices to guarantee easily accessible data for informed strategic decisions.

Table 4. Design criteria categorization

of specific steps within an overall process, ensuring that the transformation efforts are both strategically aligned and practically executable. The steps are connected by a background scenario that outlines the initial and final context, helping to identify the DT maturity level and execution progress.

8.5. Key Takeaways

- The design foundation involved brainstorming to translate design requirements into ideas, focusing on goals, methodologies, leadership, and management for scaling DT, with a synthesized framework that connects innovation leadership and transformation management through effective change management.
- A co-creation workshop with students developed personas for a change manager in DT, enhancing the user-centred dimension of the project and preparing for future testing and validation in collaboration with IB.
- The workshop analysis categorized insights to create personas and a typical day narrative for a change manager, providing practical context and validation tools for the role-playing activities with IB consultants.
- The design criteria categorization into innovation leadership and transformation management informed the creation of a strategic change management process.

Chapter 9

DESIGN SOLUTION

9.1. Change Management Process

The design outcome is a Change Management Process (CMP), tailored for professionals in managerial roles who are navigating the complexities of DT within their organizations. This process builds upon the foundational concepts illustrated in the Venn diagram in *Figure 12* (see **Chapter 8.1.**) and is designed to bridge top-down management strategies with bottom-up operational perspectives. The tool recognizes the role of managers who are actively engaged in DT processes, aiming to provoke meaningful reflection on both operational and behavioural strategies within their professional domain. It delineates a developmental process through which DT maturity and awareness are fostered, beginning from an initial stage where DT activities are minimal, and progressing to a mature stage where DT is integrated, and the manager is proficient in sustaining the transformation momentum. Enriching this strategic process are two canvases that guide the managers in the process and that involve critical questioning and reflection.

Figure 17 presents the Change Management Process. The CMP is divided into two principal components: innovation leadership at the top and transformation management at the bottom.

In the upper section under innovation leadership, the process is structured into three main sequential steps, which are visually represented through two interconnected wheels. These steps are

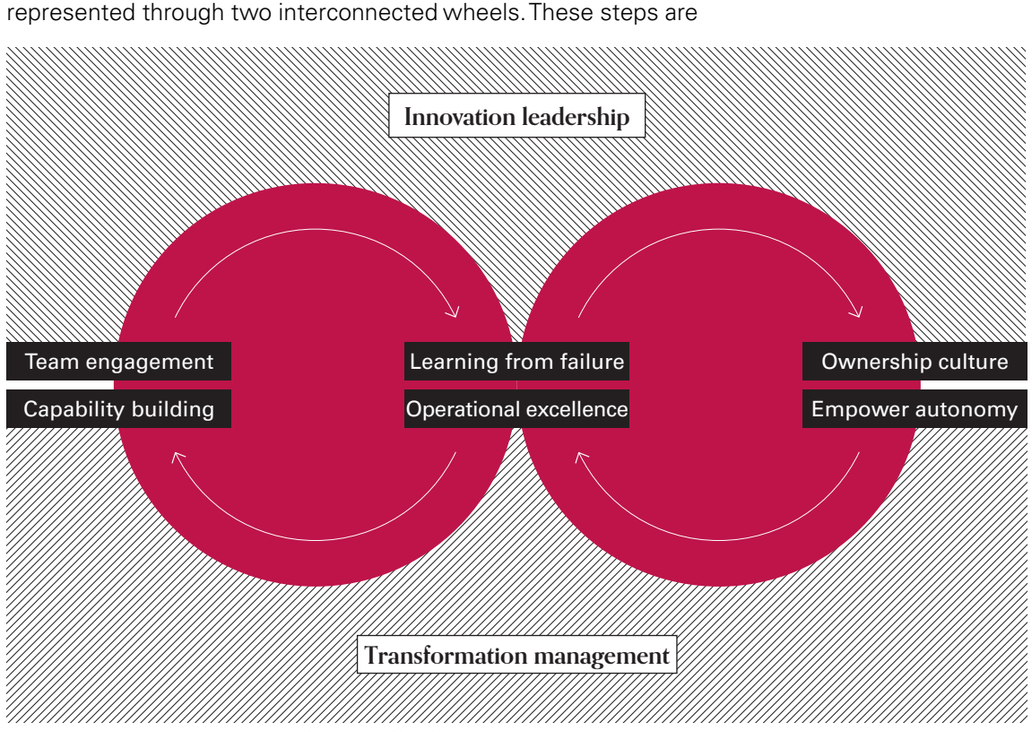

Figure 17. Change Management Process (CMP)

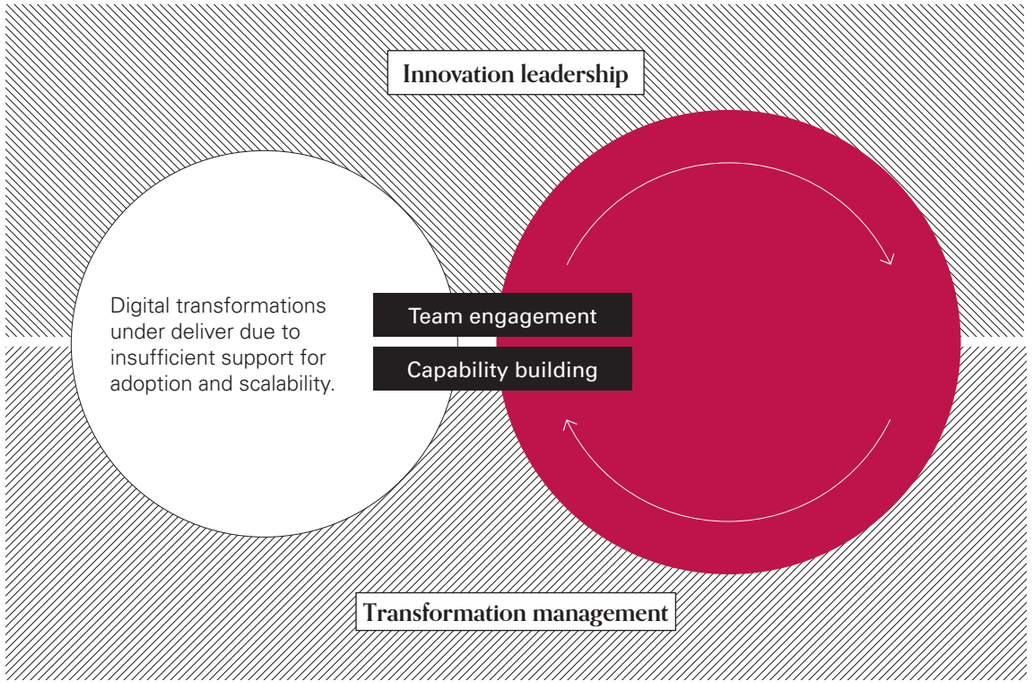

Figure 18. Step 1 of the Change Management Process

team engagement, learning from failure, and the cultivation of an ownership culture. Each step is designed to foster an environment of innovative thinking and proactive leadership within teams. The lower section, grounded in transformation management, also unfolds in three sequential steps organized within two wheels. These steps include capability building, operational excellence, and empowering autonomy. This segment of the process is dedicated to the practical aspects of managing change, focusing on enhancing skills and optimizing processes to ensure effective implementation of DT. The intersection of these two sections embodies the essence of change management.

The following sections will detail the process, delineating each step to illustrate its application and benefits in fostering a comprehensive leadership and management mindset.

9.1.1. Step 1

Figure 18 illustrates the starting scenario of the CMP and the consecutive first step to elicit how to take action.

A major challenge in DT is that even top digital solutions often fail to deliver expected impacts. This is because while companies invest in developing these solutions, they do not adequately support user adoption or scaling throughout the organization. This scenario reflects these change management issues, emphasizing

detailed approaches to tackle technical, process, and human factors that hinder the full realization of a solution's potential.

The first step of the CMP is focused on the collaborative and human aspects of the DT journey:

- Team engagement in the context of DT involves more than just aligning with the company's vision; it requires a deep, actionable understanding of individual roles and responsibilities across the organization. This alignment is crucial because DT necessitate extensive cross-functional collaboration. Effective team engagement is characterized by a commitment that extends beyond resource allocation. It demands accountability from C-suite leaders who are responsible for delivering the vision and deriving maximum value from the invested resources. Moreover, team engagement underlines the importance of having a bench of in-house digital talent who work closely with business colleagues to drive digital excellence. This close collaboration fosters rapid development cycles and a better understanding of business contexts, which are pivotal for a company aiming to differentiate itself through digital solutions.
- Capability building for digital talent is fundamental to sustaining competitive advantage in fast-evolving technological landscapes. Recognizing that the value of digital professionals is intrinsically linked to their skills, capability building must focus on continuous skill enhancement. DT is essentially a talent transformation that prioritizes the development of a workforce capable of using technology and innovation. Companies can support their digital talent by providing flexible career paths and personalized learning journeys tailored to their specific needs. Such developmental support not only helps in cultivating a core bench of competent technologists but also ensures that these key players are equipped to contribute effectively to the company's digital strategy and operations. This strategic investment in talent development is critical for retaining top talent and maintaining a workforce that can meet the demands of rapidly changing technological environments.

9.1.2. Step 2

The second step of the CMP aims to introduce and foster a failing forward mindset to achieve operational excellence in DT (see *Figure 19*):

- A learning-from-failure mindset is an approach that emphasizes the value of making mistakes as a critical component of the learning process, inspired by design methodologies like design thinking. This approach encourages organizations to view failures not as setbacks but as vital stepping stones to greater innovation. By fostering an environment where employees

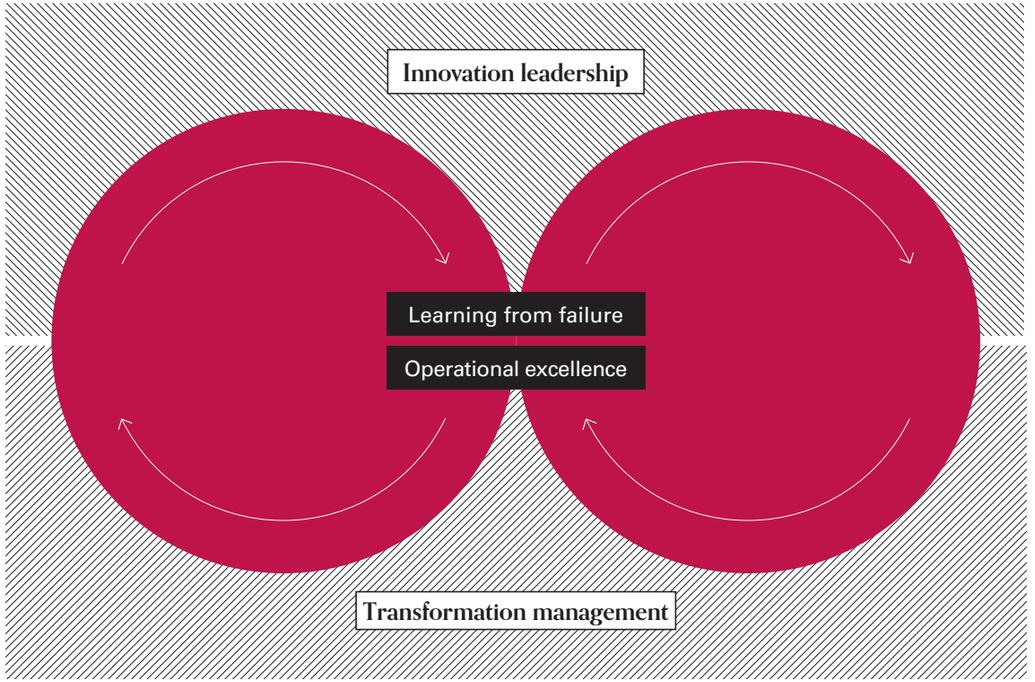

Figure 19. Step 2 of the Change Management Process

are encouraged to experiment and iterate on their ideas, businesses cultivate a culture of continuous improvement. Ultimately, learning how to fail and extract lessons from each failure equips employees to deliver improved products and achieve better outcomes. Embracing this mindset ensures that organizations not only adapt and evolve in response to changing market dynamics but also drive forward with innovative solutions that are tested and improved through learned experiences.

- Reaching operational excellence in DT involves creating an agile, scalable infrastructure where teams have access to the necessary data, applications, and tools needed for innovation. By building a distributed technology environment that ensures data is clean, relevant, and accessible, companies can make better decisions and develop high-quality solutions more efficiently. An agile operating model is essential for maintaining flexibility and speed in technological development, allowing companies to scale their efforts across numerous agile teams efficiently. Each team operates with a clear mission linked to the overarching digital strategy and focuses on achieving measurable outcomes within reasonable timeframes, thereby enhancing overall operational effectiveness and aligning with strategic goals.

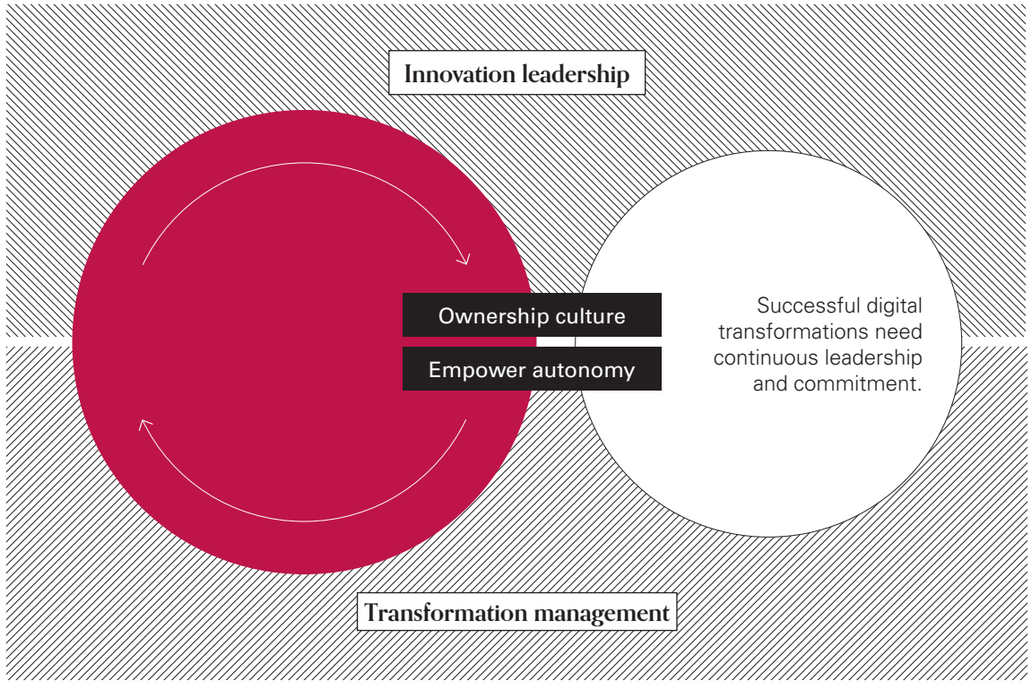

Figure 20. Step 3 of the Change Management Process

9.1.3. Step 3

The last step of the CMP focuses on developing and building a culture of responsibility and ownership among all the employees, ensuring sustained commitment to achieving the objectives of DT (see *Figure 20*):

- Developing an ownership culture within an organization means fostering a sense of autonomy among teams, especially in agile environments. This culture empowers teams to take full responsibility for their projects, from development to realizing value. Teams are given the freedom to make decisions, allowing them to navigate the best path to achieve their missions. An ownership culture enhances team engagement and motivation by making each member accountable for both creating and implementing solutions. This accountability drives innovation and efficiency, encouraging proactive problem-solving and continuous improvement. By embedding these values, organizations not only improve their products and solutions but also ensure stronger alignment with their strategic objectives.
- Empowering autonomy means giving employees the trust and authority to make impactful decisions and mobilize the organization. Empowered employees have the influence to take action internally and scale their initiatives. By granting this level of autonomy, management allows teams to ask for what they need directly from their leaders, fostering open communication channels between upper and middle management. This approach not only enhances the responsiveness and agility of the organization but also ensures that employees feel valued and trusted to drive meaningful change. Empowering autonomy ultimately leads to a more dynamic and engaged workforce, fully capable of executing the company's strategic vision.

The final step connects to a concluding scenario that envisions successful governance of DT. For DT to succeed and scale, leadership must commit to the extensive organizational changes necessary to leverage technology effectively. Recognizing that DT is a continual process of evolution and improvement will shift the entire organizational approach to the transformation. Embracing this ongoing journey means it's always "Day 1" for DT. This mindset is necessary for navigating the final phase of the change management framework, marking not an end, but the beginning of sustained effort and adaptation.

9.1.4. Process canvases

The design exercise included in the CMP comprises two canvases (see *Figure 21* and *Figure 22*), each containing four questions designed to engage managers in an active reflective journey aligned with the previously outlined CMP presented in *Figure 17*.

Canvas 1 includes the following questions:

- **Team engagement**: Could you describe how your talent strategy aligns with your digital roadmap?
- **Capability building**: Could you elaborate on the gaps that exist in your team's digital capabilities?
- **Learning from failure**: Could you explain the role that cross-disciplinary expertise plays in the structure of your team?
- **Operational excellence**: Could you describe the digital learning journeys provided to your team?

Canvas 2 includes the following questions:

- **Learning from failure**: Could you describe how you foster a culture of failing and learning within your team?
- **Operational excellence**: Could you explain how your team reports progress and results?
- **Ownership culture**: Can you describe how the responsibility for the results is shared within the team?
- **Empower autonomy**: Could you describe the ways in which your team is encouraged to innovate independently?

These questions operate under certain assumptions, notably that

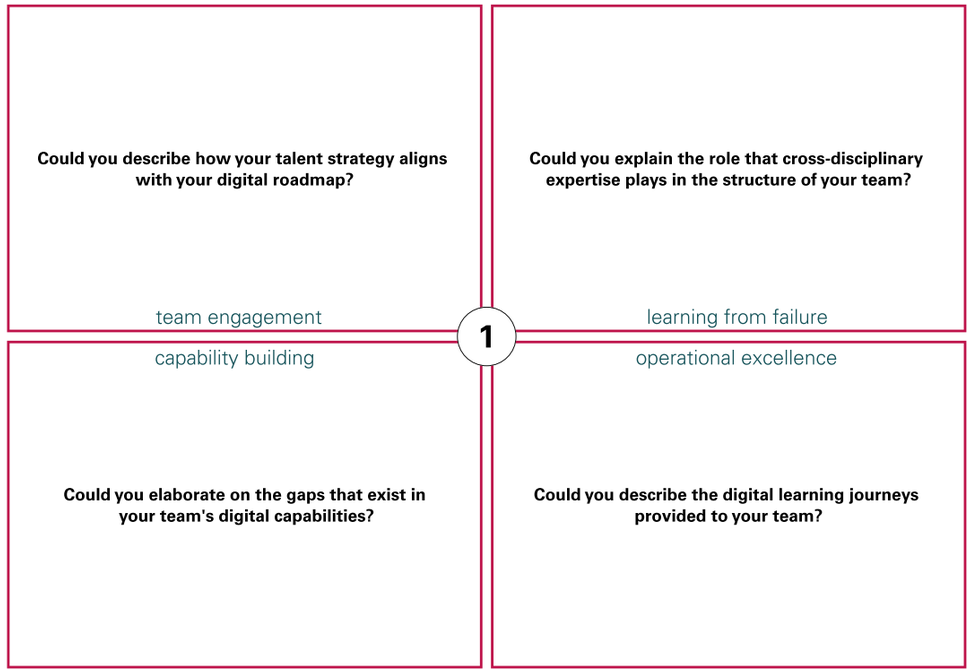

Figure 21. Canvas 1

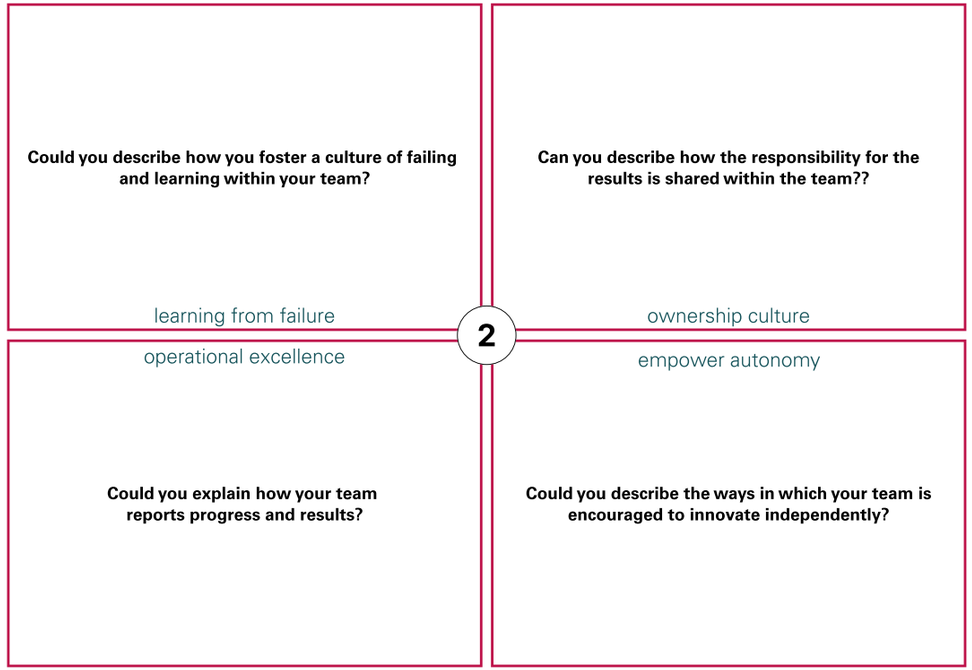

Figure 22. Canvas 2

a DT manager or professional should be already familiar with the actions connected with their role. The utilization of a question-based activity serves to stimulate discussions and reflections on personal actions and to promote critical thinking. The questions are crafted not only to facilitate dialogue but also to prompt professionals to consider their subsequent steps and actions, encouraging them to strategize responses to the challenges identified.

Moreover, the canvases support this reflection process by providing textual explanations and definitions for each step and item (see *Appendix G*), thus enhancing understanding and aiding in the thoughtful examination of their practices and potential impacts on DT initiatives.

9.2. Key Takeaways

- The design outcome is a Change Management Process (CMP), combining innovation leadership and transformation management to foster DT maturity through sequential steps of team engagement, learning from failure, ownership culture, capability building, operational excellence, and empowering autonomy.
- The first step of the CMP focuses on team engagement and capability building, emphasizing the importance of cross-functional collaboration and continuous skill enhancement for effective DT implementation.
- The second step of the CMP promotes a learning-from-failure mindset and operational excellence to drive continuous improvement and innovation in DT.
- The third and last step of the CMP focuses on developing an ownership culture and empowering autonomy among employees to ensure sustained commitment and successful governance of DT.
- The CMP includes two canvases with questions to engage DT managers in reflection and critical thinking, supporting their understanding and strategic responses.

Chapter 10

VALIDATION & EVALUATION

10.1. Roleplay workshop with IB consultants

To validate the Change Management Process, a roleplay workshop was conducted with consultants from IB (see *Figure 23*). The workshop involved four innovation consultants and spanned two hours. Participants were instructed to embody the role of a change manager, aligning their actions and thought processes with the personas provided (see *Figure 15* and *Figure 16*).

Before the workshop, participants were equipped with detailed information on the change manager personas (see **Chapter 8.3.**) along with other essential background information to contextualize the research of DT (see *Appendix F* and *Appendix G*). The session started with a brief presentation outlining the CMP, the role of a change manager within this context, and the expected actions. The workshop required participants to engage with the questions on each canvas (see *Figure 21* and *Figure 22*) individually. This exercise was designed to prompt participants to think critically about the responses and potential actions a change manager might take to advance the transformation process. After completing each canvas, a brief discussion was held to review insights and reflections. The workshop concluded with a 15-minute discussion and reflection, allowing participants to share their thoughts and feedback on the activity and the framework's applicability in real-world scenarios.

The validation goals of the workshop were threefold: firstly, to confirm participants' understanding of the questions posed within the canvas; secondly, to measure the extent to which the questions stimulated reflection and potential actions among the participants; and thirdly, to identify any blind spots or missed opportunities within the CMP that could be addressed to enhance its effectiveness and applicability.

The analysis of the workshop was conducted through detailed transcription of each answer. This approach facilitated a comprehensive synthesis of the data, ultimately enabling the identification of four areas for further reflection and one action notebook.

10.1.1. Areas for further reflection

The analysis of the session identified four areas for further reflection, that emphasize aspects calling for attention in the implementation of the CMP. These critical areas were pinpointed by consultants leveraging their expertise as innovation and transformation professionals. Their insights are crucial for ensuring that strategic adjustments align closely with overarching organizational goals and should be considered in the further testing and implementation of the CMP.

The following list outlines critical points identified in the execution of the CMP and its associated canvases. Clustered into four areas,

Figure 23. Roleplay workshop with IB consultants

this feedback is intended to guide IB in the next steps of testing and implementing the CMP.

1. **Missing roles**: consider including in the target users of the CMP also roles that connect directly strategy and client needs, such as decision-makers, innovation leads, and client perspective roles. These roles should ensure that strategic initiatives are driven effectively and meet market demands. Human-centred roles like people managers and coaches are necessary for fostering a supportive and collaborative environment while identifying effective change agents is essential for spearheading initiatives.
2. **Alignment**: focus on stressing more the need for alignment across the organization, this involves ensuring all stakeholders and strategies are synchronized with internal capabilities and customer insights. This can be aligned with promoting a culture that supports experimentation and learning from failures, which are vital for ongoing improvement and innovation.
3. **Learning**: a robust learning framework should include continuous skill development and tailored training that adapts to evolving project needs. Consider delivering personalized and flexible learning options for DT managers and operational teams, and cross-team sessions to enhance skill integration and team cohesion. Incentives for training completion and

fostering a growth mindset encourage proactive learning and development.

4. **Team structure**: focus also on developing a team structure that supports high-intensity collaboration and integrates extensive experience and cross-disciplinary knowledge. Creating specific personas for roles can help align training with individual career paths and organizational goals, enhancing both personal development and strategic alignment.

10.1.2. Action checklist

The development of the Action checklist (see *Figure 24*) was inspired by the insights gathered from the roleplay workshop with consultants, highlighting the need for a practical addition to the CMP. This checklist aims to provide a set of suggestions and actions to support IB consultants in their DT projects. It serves as a practical tool that complements the theoretical process, ensuring strategic concepts are accompanied by actionable steps. By offering this resource, the checklist enhances the application of the strategic model, facilitating more effective and efficient execution of DT initiatives. It works as a starting point for IB and IB consultants to think about and reflect on the practical aspects of executing the CMP and canvases. The action checklist is a basic guideline to be improved with more testing and iteration, and it also inspires IB to refine the final process in the best direction.

10.2. Evaluation

10.2.1. Feasibility, viability, and desirability evaluation

To assess the desirability, feasibility, and viability of the solution, the company supervisors were asked to give their opinion on the topic. This assessment is based on the design thinking theory illustrated by Tim Brown (2008).

- **Desirability** is about meeting people's needs: the CMP is a useful tool for IB to facilitate dialogues with clients and prospects. It functions not only as a tool for conversation but also forms the cornerstone of workshop elements, such as the canvases presented and tested in the roleplay workshop. An aspect yet to be explored is how the model resonates with potential clients and whether they find it a useful tool for initiating internal conversations.
- **Feasibility** is about having time and resources to develop the solution: using the outcomes in conversations and workshops is feasible from an IB perspective, and it is anticipated that they will be utilized. The implications are more likely to present organizational feasibility challenges rather than technological ones.

Action Checklist

Purpose
This Action checklist serves as a practical guide for IB consultants working on Digital Transformation (DT) projects. It provides a series of actions and best practices to support the execution of DT strategies.

How to use
Use this Action checklist in conjunction with the Change Management Process and canvases. Refer to it at different stages of the DT process to identify suitable actions and ensure alignment with best practices.

Preparation and Planning

Agile setup
- Establish sprints
- Foster growth mindset
- Ensure psychological safety

Team culture
- Define group culture
- Implement structured feedback system
- Regular workshops and team building sessions

Onboarding and roles
- Develop structured onboarding process
- Define specific roles and responsibilities
- Use RACI framework (Responsible, Accountable, Consulted, Informed)s

Execution and Monitoring

KPIs and metrics
- Set and track KPIs & OKRs
- Use metrics to identifyc and create opportunities

Scrum master role
- Conduct weekly updates and monthly progress checks
- Hold quarterly strategy and progress alignment meetings

Communication and trust
- Maintain structured and transparent communication channels
- Encourage team collective responsibility

Feedback and Improvement

Reflection and learning
- Hold reflection sessions regularly
- Share and celebrate failure stories

Adjustments
- Use feedback systems for continuous improvement
- Allocate time for lab sessions and mini-projects

Idea management
- Implement an idea management system
- Collect suggestions through an idea box

Tools and Resources

Visibility and tracking
- Role clarity and visibility tools (e.g., Kanban board)
- Regular dashboard moments for informal and formal role checks

Progress tracking
- Monitor progress with check-in sessions
- Use stage gates to track project milestones

Resource allocation
- Allocate time and resources effectively
- Manage time for lab sessions and individual projects

Figure 24. Action checklist

- **Viability** is about generating profits: the outcome does not yet specify the exact details of the service offering, such as time investment or the specifics of client engagement. It could be utilized in scenarios such as a 2-hour "Benchmarking" workshop that includes preparation and wrap-up, or in more intensive deep dive sessions. Fees for these services could range from 5,000€ to approximately 20,000€, with the exact

expectations being contingent on the perceived value derived from the engagement.

10.2.2. Design criteria achievement evaluation

The evaluation of the design criteria (see **Chapter 7.3.**) defined at the project's inception was conducted using three labels: not achieved, partially achieved, and achieved. This assessment, presented in *Table 5*, provides a systematic review of the extent to which each criterion was met, offering insights into the effectiveness of the design process and identifying areas for future improvement.

Table 5. Design criteria evaluation

Design criteria	Evaluation
1. Ensure upper management actively champions and supports DT as a strategic initiative.	**Achieved** The solution targets managers involved in DT, encouraging them to reflect on their leadership and management approaches while providing a clear process with the attached canvases.
2. Cultivate an organizational culture that accelerates rather than impedes DT.	**Achieved** Step 2 of the CMP aims to cultivate a "failing forward" organizational culture that promotes change and structured execution.
3. Foster a continuous learning mindset to facilitate the integration of DT.	**Achieved** Step 1 and Step 2 of the CMP focus on developing new capabilities and promoting a learning mindset.
4. Enhance employee understanding of DT to increase their involvement in the process.	**Achieved** Step 1 of the CMP enhances employee understanding of DT through defined team engagement and alignment, supported by progress meetings and check-in to ensure comprehensive knowledge at all organizational levels.
5. Adjust standard operational workflows to accommodate the impacts of DT.	**Partially achieved** The CMP triggers reflection on managers' approaches to DT, emphasizing the managerial perspective and the behavioural-human dimension rather than the operational workflow.
6. Promote flexibility and adaptability within the organization to support DT efforts.	**Achieved** The CMP aims to foster a learning-from-failure mindset, developing flexibility and adaptability throughout the organization.
7. Encourage challenging the status quo to leverage opportunities presented by DT. →	**Achieved** Step 3 of the CMP promotes autonomy and self-advocacy, encouraging employees to challenge the current organizational structure.
8. Implement a structured approach to innovation to manage the uncertainty and complexity associated with DT.	**Partially achieved** The CMP aims to improve and enhance current strategies used by organizations to manage complexity, without introducing a novel structured approach to innovation.
9. Strengthen governance structures to eliminate gaps that slow execution and strategic decision-making.	**Achieved** The canvases focus on triggering reflection to identify current gaps in execution strategies, highlighting areas for improvement and suggesting new practices.
10. Enhance data management practices to guarantee easily accessible data for informed strategic decisions.	**Not achieved** The CMP does not focus on data management analysis and does not include any strategies to improve it.

10.3. Key Takeaways

- The roleplay workshop validated the CMP by engaging IB consultants in critical reflection, identifying four key areas for further improvement: missing roles, alignment, learning, and team structure.
- An action checklist was developed to provide practical suggestions and steps, enhancing the theoretical framework's application in real-world DT projects.
- The evaluation of the solution's desirability, feasibility, and viability by company supervisors highlights its usefulness for facilitating dialogues, feasibility for implementation, and potential profitability depending on the engagement details.
- The CMP was evaluated against the ten design criteria developed, achieving most, with some areas partially achieved or not focused on.

Chapter 11

CONCLUSIONS

11.1. Conclusion

The present thesis aimed to utilize the Dynamic Capability theory within design thinking practice to investigate the DT processes within the case company Innovation Boosters. Based on semi-structured interviews with 14 participants, the research aimed to empirically investigate the effectiveness of design thinking in strengthening DT processes within traditional financial institutions, offering new insights into the connection between dynamic capabilities, design thinking, and DT processes. By integrating Teece's (2007) dynamic capabilities framework with empirical research within the traditional financial sector, this thesis provided a novel understanding of how DT reshapes and restructures the organizations. The impact of DT on traditional financial institutions (RQ1) varies greatly depending on the organization's maturity, explained as the capability level to develop and carry out DT, and approach to DT. In less mature organizations, the impact is often minimal due to a lack of structured implementation and strategic alignment. In contrast, highly mature organizations experience significant internal transformations, such as redefined processes and improved adaptability, driven by strong leadership and a culture of innovation. The research, additionally, examined how design thinking dynamic capabilities are enacted and fostered in DT, highlighting the role of design practice in shaping DT strategies (Brown, 2008; Liedtka et al., 2013; Magistretti et al., 2021). Design thinking plays a crucial role in DT (RQ2) by providing a structured, iterative framework that supports creative and analytical reasoning. It enhances the execution of DT initiatives by fostering a user-centric approach, promoting collaboration, and enabling continuous improvement. This approach helps overcome internal resistance to change, aligns DT efforts with strategic goals, and ensures that innovation is practical and sustainable within the organization. The mediator role of consulting firms in reinforcing firm capabilities during innovation projects for DT was also explored.

The design development process involved defining the design problem, setting the design direction, and the design goals and establishing a list of ten design criteria. Following this, a persona for the change manager role was created through a co-creation session with students familiar with the concept. The identified role of a change manager addresses the behavioural aspects of DT implementation. This foundation subsequently supported the development of a Change Management Process (CMP) based on the intersection between innovation leadership and transformation management. The CMP bridges top-down strategies with bottom-up perspectives, fostering DT maturity from initial stages to full integration. Additionally, two canvases guide change managers and DT professionals through critical questioning and reflection to sustain the transformation. Ultimately, the process was tested and evaluated by IB consultants, from which four areas for further reflection were identified. Additionally, an action checklist was developed to practically support the consultants in their work.

11.2. Theoretical implications

This thesis extends Dynamic Capability theory (Teece, 2007) and the design thinking dynamic capabilities framework (Magistretti et al., 2021) by introducing three new capabilities: "**Digital Adapting**", "**Conveying**", and "**Governing**". "**Digital Adapting**" ensures ongoing agility and resilience in response to technological changes, aligning with Teece's (2007) focus on reconfiguring competencies. "**Conveying**" highlights the importance of effective communication in promoting design thinking across organizational levels and fostering a collaborative culture. "**Governing**" emphasizes governance mechanisms to align DT initiatives with organizational objectives, ensuring strategic coherence and systematic integration.

These capabilities provide deeper insights into the interplay of technology, strategy, and culture in DT, particularly in traditional finance. They highlight the importance of leadership, strategic alignment, and cultural adaptation for successful digital initiatives. Additionally, this research contributes to understanding on how design thinking can effectively support leadership and organizational transformation, addressing the existing gaps in literature and practice.

11.3. Practical implications

The findings of this thesis have some important managerial implications. Firstly, the introduction of the three new capabilities provides a strategic framework for managers navigating DT. These capabilities underscore the necessity for organizations to maintain agility and resilience ("**Digital adapting**"), promote effective communication and shared understanding of DT initiatives ("**Conveying**"), and implement robust governance mechanisms to align DT with organizational objectives ("**Governing**").

For managers, fostering a culture of continuous innovation and learning is necessary. This involves not only supporting ongoing technological adaptation but also ensuring that all levels of the organization understand and are engaged with the strategic goals of DT. Managers should establish solid governance frameworks that support the systematic integration of DT efforts. Moreover, the role of leadership is pivotal in championing DT. Leaders must prioritize DT within their strategic vision, demonstrate commitment by allocating resources, and set clear expectations.

Finally, managers can benefit from a structured yet flexible approach that supports creative and analytical problem-solving by

integrating design thinking into DT processes. Design thinking's emphasis on iterative development and user-centric strategies can help manage uncertainties and drive effective organizational transformation. This thesis suggests that managers leverage these methodologies to enhance their dynamic capabilities, ensuring that their organizations are well-equipped to adapt to rapid technological changes and remain competitive.

11.4. Relevance for the Case Company (IB)

To assess the relevance of the Change Management Process (CMP) for IB, the company supervisors were asked to give their opinion on the topic.

The CMP is relevant for IB in two ways. The initial application precedes the use of the Execute Framework, which targets the creation of high-performing teams by enhancing team structure, ensuring psychological safety, defining clear roles and responsibilities, and establishing methods for measuring results. While the Execute Framework is dedicated to a set team, the CMP is applied one step earlier. This positioning allows for an assessment of team capabilities and structures, providing the opportunity to advise on and implement adjustments in team setup, alignment, or skills before initiating the Execute Framework process.

The second application, though more general, could serve as a pivotal strength for IB. The CMP can be employed in strategic trajectories with C-level executives to establish the necessary elements and management for DT. The process' emphasis on team synergy, feedback, and continuous improvement aligns well with organizational strengths, facilitating more effective discussions on DT at the upper management level. However, how this framework integrates into existing practical models will require further testing.

11.5. Limitations

This thesis like other scientific research has some limitations. Firstly, it focuses only on the Dutch financial sector, which may not represent the global financial landscape. Secondly, the research was conducted in collaboration with a small Dutch consultancy working with a limited number of financial organizations in the Netherlands. This may have introduced biases specific to these organizations and the consultancy. The participant pool was limited in size and diversity, comprising individuals from IB and Dutch financial organizations. Additionally, the co-creation workshop involved a small number of participants exclusively from the Delft University of Technology, which may not fully capture the entire

educational context in the domain of design and management. These limitations suggest the need for broader, more diverse samples in future research to enhance the validity and applicability of the findings.

11.6. Future research

While this thesis sheds light on DT, dynamic capabilities and design thinking, further research is needed in some areas. Future studies should explore the role of leadership in driving successful DT initiatives and how organizations can adapt their strategies and structures to improve DT execution. Additionally, studying the integration of DT into existing organizational processes and systems will provide actionable insights for practitioners navigating DT challenges. Moreover, investigating the interactions between design thinking dynamic capabilities and other organizational elements, such as culture, leadership, structure, and governance, would identify more information on the challenges of DT. Eventually, it would also be valuable to examine the implementation of design thinking dynamic capabilities across other sectors, like the healthcare domain or the manufacturing industry.

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APPENDIX

Appendix A - Interview guide

Interview Guide

Digital transformation (DT), a process of leveraging technology to foster firms' innovation capabilities and performance, is intricately linked with organizational change. Organizational change refers to the evolution of companies over time and it is crucial for DT success but, at the same time, it can also pose challenges if not managed effectively. While artificial Intelligence (AI) and big data technologies offer new opportunities, these technological advancements introduce uncertainty for companies navigating DT journeys, making it difficult to address digital challenges effectively. Human-centric innovation approaches are becoming more and more the main focus in many industries, especially in industries where DT requires new competencies and capabilities to drive transformation or develop effective customer experiences. Therefore, this research aims to investigate the role of innovation practices for DT processes in an organisational setting, specifically within the traditional financial sector.

Before we begin, I would like to ensure the information you provide is going to be treated anonymously and that all the collected data is going to be handled confidentially. You can always withdraw from the interview at any point. You are invited to share your perspective on the topics, as there are no right or wrong answers. Always feel free to interrupt or correct me.

Make sure that the informed consent form is signed.

QUESTIONS

- Introduce yourself and describe your role within the company.
    - Company, Job title, Years of experience, Hierarchy, Industry, Type of projects.

<u>Digital Transformation (DT)</u>

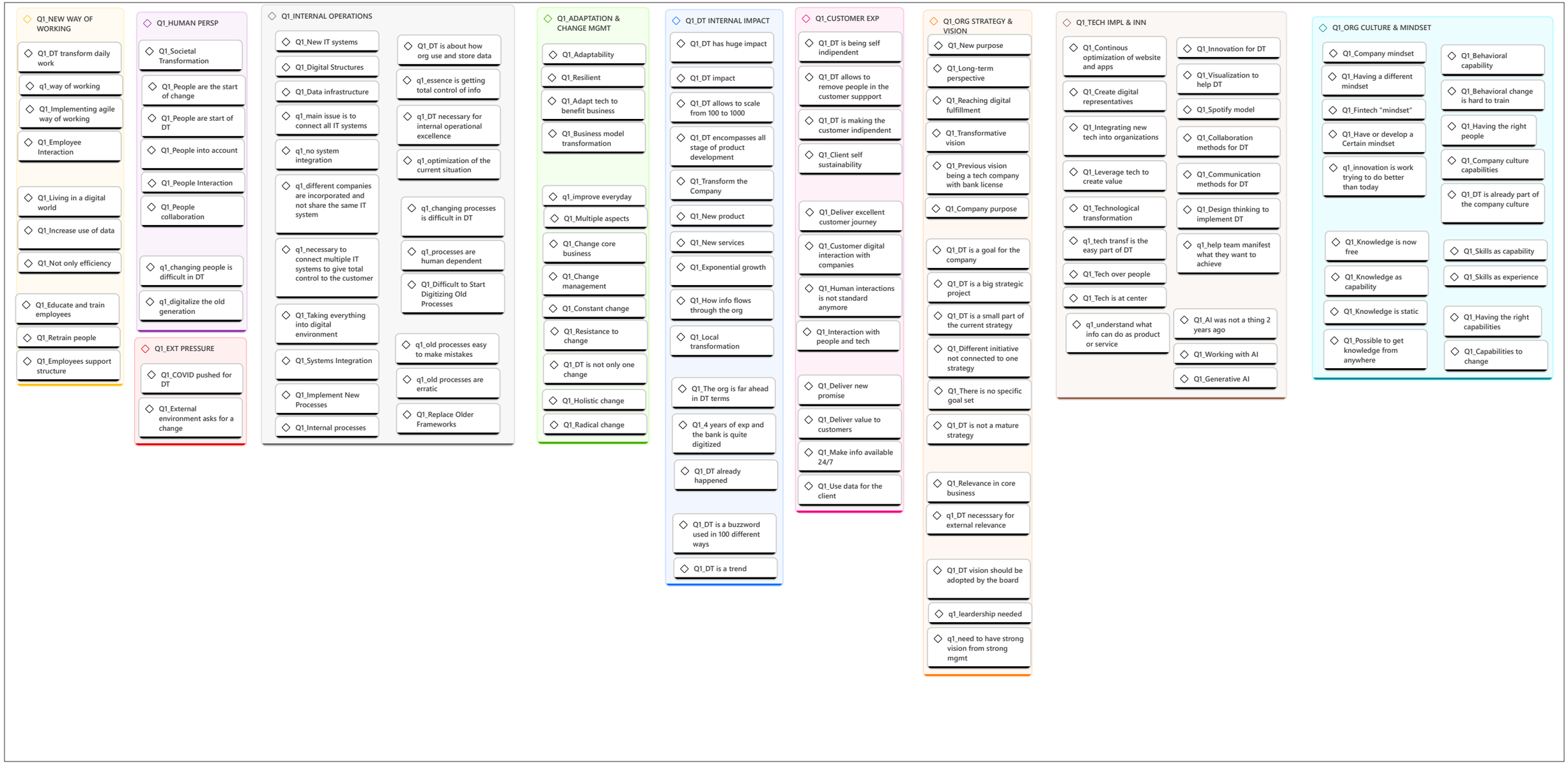
- Q1: How do you articulate and describe the phenomenon (essence) of DT within your organisational context?
- Q2: What specific DT initiatives is your company undertaking?
    - How is your company fostering innovation for DT?
    - What strategies is your company employing to implement DT?
- Q3: How does DT influence internal organisational processes?
    - In what ways is the company redesigning its internal structure because of DT?
    - How is the organisational hierarchy changing because of DT?

<u>Design Thinking</u>

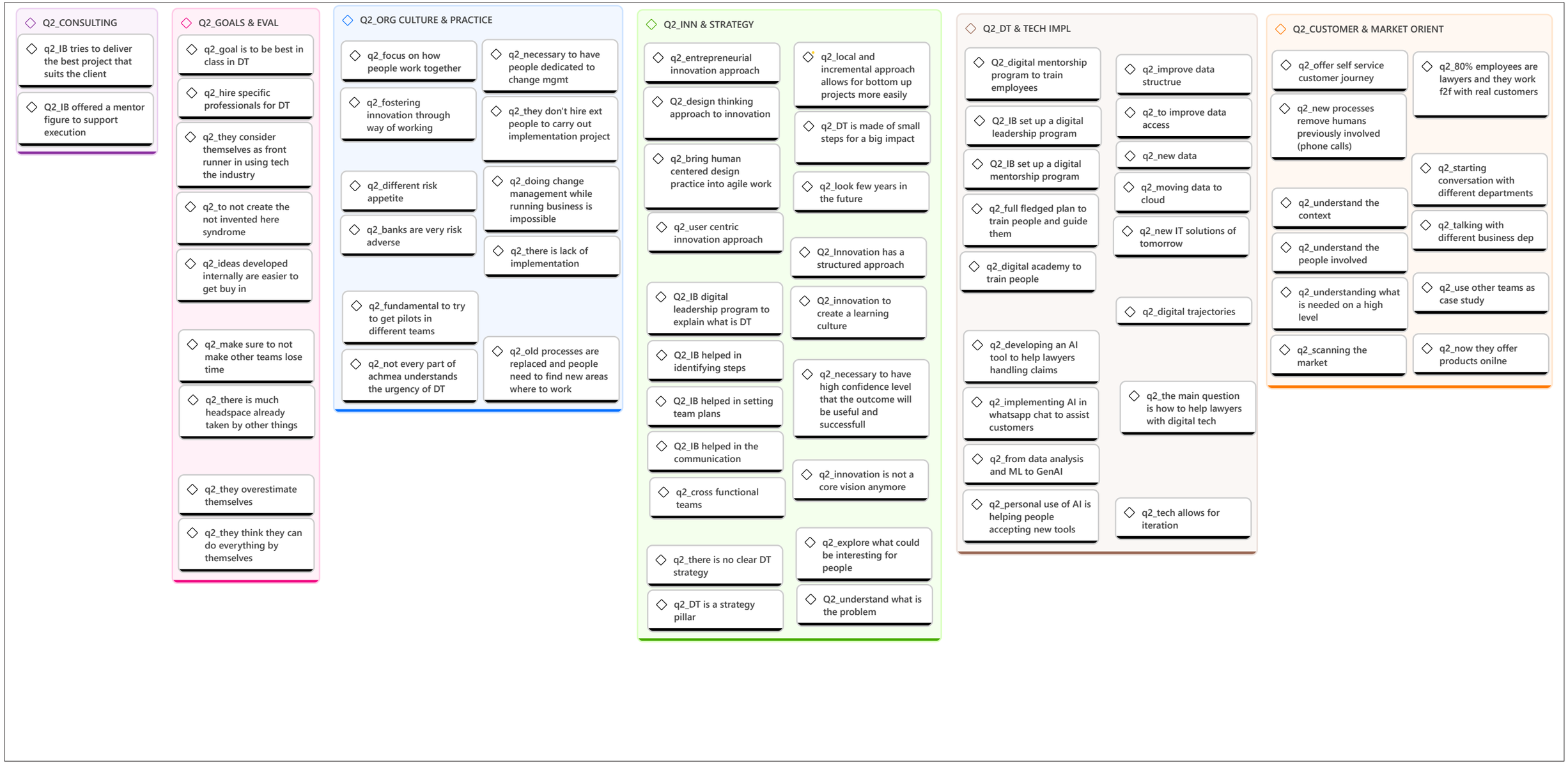
- Q4: What steps comprise a DT project in your organisational context?
    - How do you perceive the innovation challenge? (Extending)
    - What methods do you employ to encourage collaboration among stakeholders? (Debating)
    - How do you determine which insights from involved stakeholders to prioritize? (Cropping)
    - How do you identify future strategic opportunities? (Interpreting)
    - In what ways do you achieve a comprehensive reframing of the situation? (Recombining)
- Q5: What motivates the application of this approach to DT?
- Q6: What advantages and drawbacks come with applying this approach to DT initiatives?

Appendix B - Interview analysis

Q1: How do you articulate and describe the phenomenon (essence) of DT within your organization context?



Q2: What specific DT initiatives is your company undertaking?



Q3: How does DT influence internal organisational processes?

Q3_INTERNAL IMPACT PEOPLE

- q3_employees need to learn new skills
- Q3_DT requires learning
- q3_learning new jobs
- q3_train employees to work with new tools
- q3_wasting a lot of time in learning
- q3_they think that people can learn by themselves, only 2% can
- q3_they forget that people need to adapt to a new way of working
- q3_new way of working
- Q3_Change way people interact
- q3_manual labor is being removed
- q3_now internal teams are in charge of DT
- q3_many people lost their job because of thec
- q3_new agreements between employees
- q3_new practices are embeded
- q3_big impact on people side
- q3_difficult to have communication with all departments
- Q3_DT always impacts People
- Q3_Learn from Data
- q3_lower risk of mistakes
- q3_make the org less dependent on human mistakes
- q3_impact on very practical skills
- q3_improve work quality

Q3_INTERNAL IMPACT TECH

- q3_benefits on processes automation
- q3_better ways of processing
- q3_cost reduction
- q3_save time
- q3_quicker processes
- q3_DT is all about doing things more cost efficient that meet quality standards
- q3_internal operations need to continue while change is happening
- q3_less dependencies of different team
- q3_big impact on tech side
- q3_at first DT slows you down and it speeds up you
- q3_check how the IT structure can operate in the new structure
- q3_tech at the center of the transformation
- q3_tech becomes more complex to manage
- q3_hacking tech development is so impacting
- q3_necessar to be tech development responsive
- q3_new tools require new agreements
- q3_requires learning new tools
- q3_IT departments are bigger
- q3_pain point in acquiring IT talents

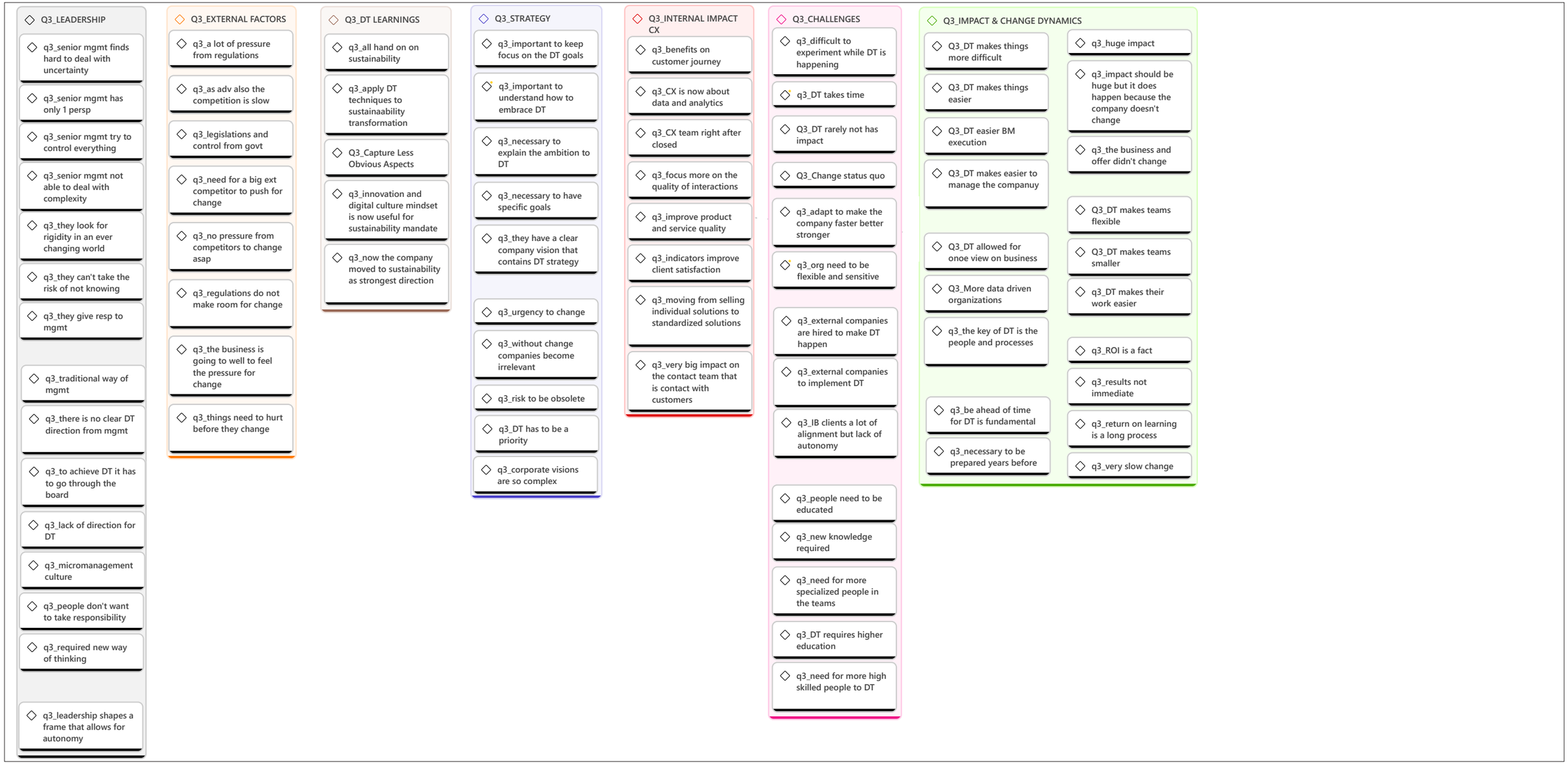
Q3_CHANGE MGMT

- q3_board does not have the right mindset to DT
- q3_board vision is necessary
- q3_CFO has to have DT as priority in the agenda
- q3_DT officer is possible to have in the boar
- q3_direction from the board is missing specifically on DT
- q3_change is embedded because it was decided chairman
- q3_org structure only changes when there is a strong push from mgmt
- q3_business as usual
- q3_there is no need for change
- q3_DT is not a priority
- q3_every time they think they have the best solution in org restructure
- q3_in 8 years nothing changed
- q3_the change started 5-6 years ago
- q3_change should also be driven bottom up
- q3_change starts top down
- q3_basic knowledge is still required
- q3_basic knowledge will be normalized in 5 years
- q3_behavioural change required
- q3_org cultural change
- q3_DT involves trust in the system
- q3_DT requires new mindset
- q3_everyone wants to change but no one wants to change
- q3_focus on the shift needed
- q3_for companies is hard to be self reflective

Q3_ORG STRUCTURE

- q3_no changes in the hierarchy
- q3_there is possibility for hierarchy change in the future
- q3_hierarchy change will happen too late
- q3_define new teams in the same structure
- q3_FBTO hierarchy is pretty flat
- q3_org becomes less hierarchical
- q3_younger people are getting more responsibile jobs
- q3_younger profess are more tech savvy
- q3_there a more specialists in org
- q3_instead of giving profess more resp
- q3_silos
- q3_no migration between departments
- q3_sustainability teams are now taking over the innovation dep
- q3_sustainability team got lots of funding
- q3_innovation group moved down
- q3_innovation team first team to be closed
- q3_innovation team is getting more attention and budget
- q3_company already changed the structured because of a new way of working
- q3_org structure is already prepared for more DT
- q3_in the hierarchy there are differences but people stick to the same
- q3_different structure but they keep doing the sam

Q3: How does DT influence internal organisational processes?



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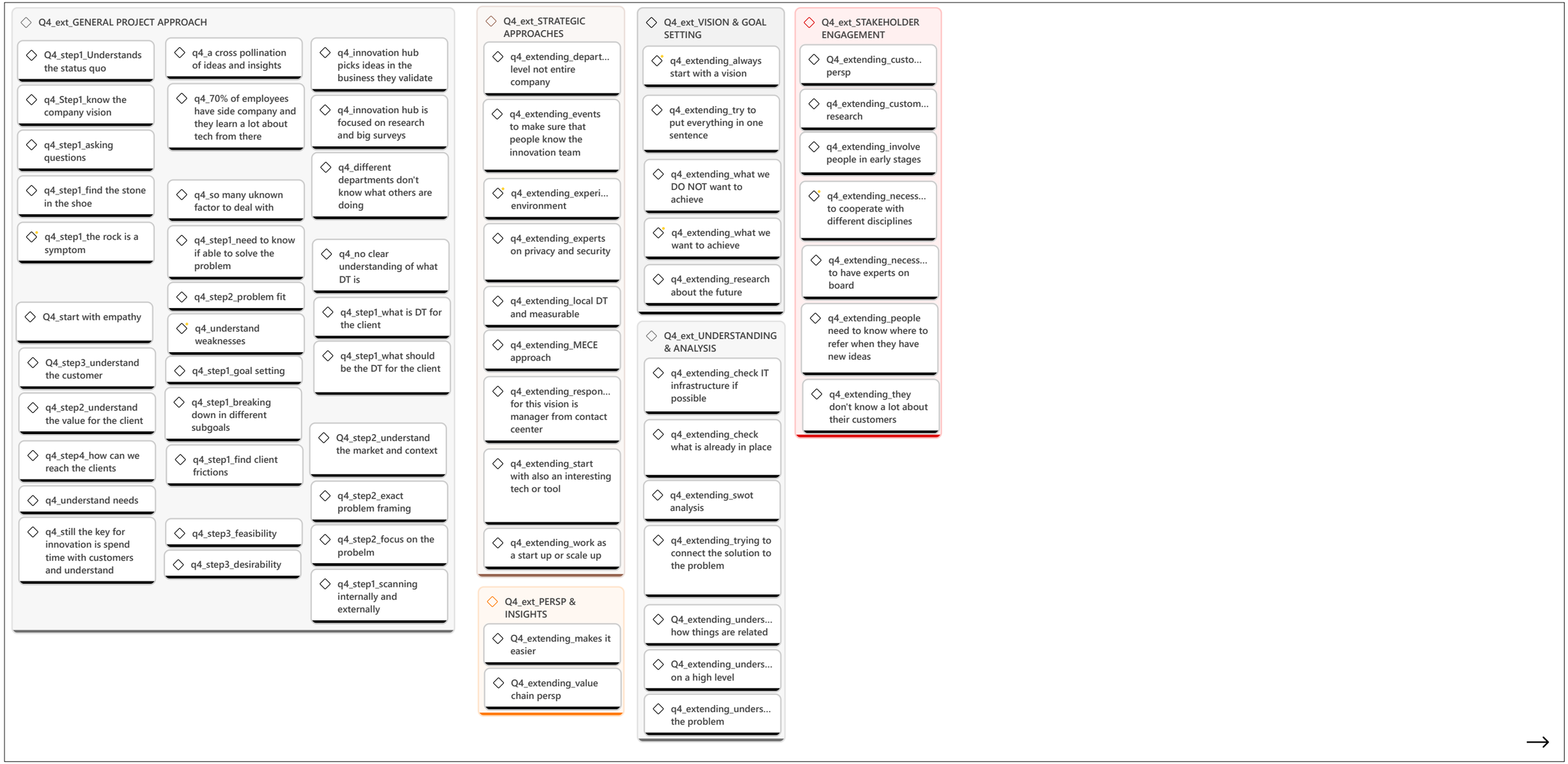

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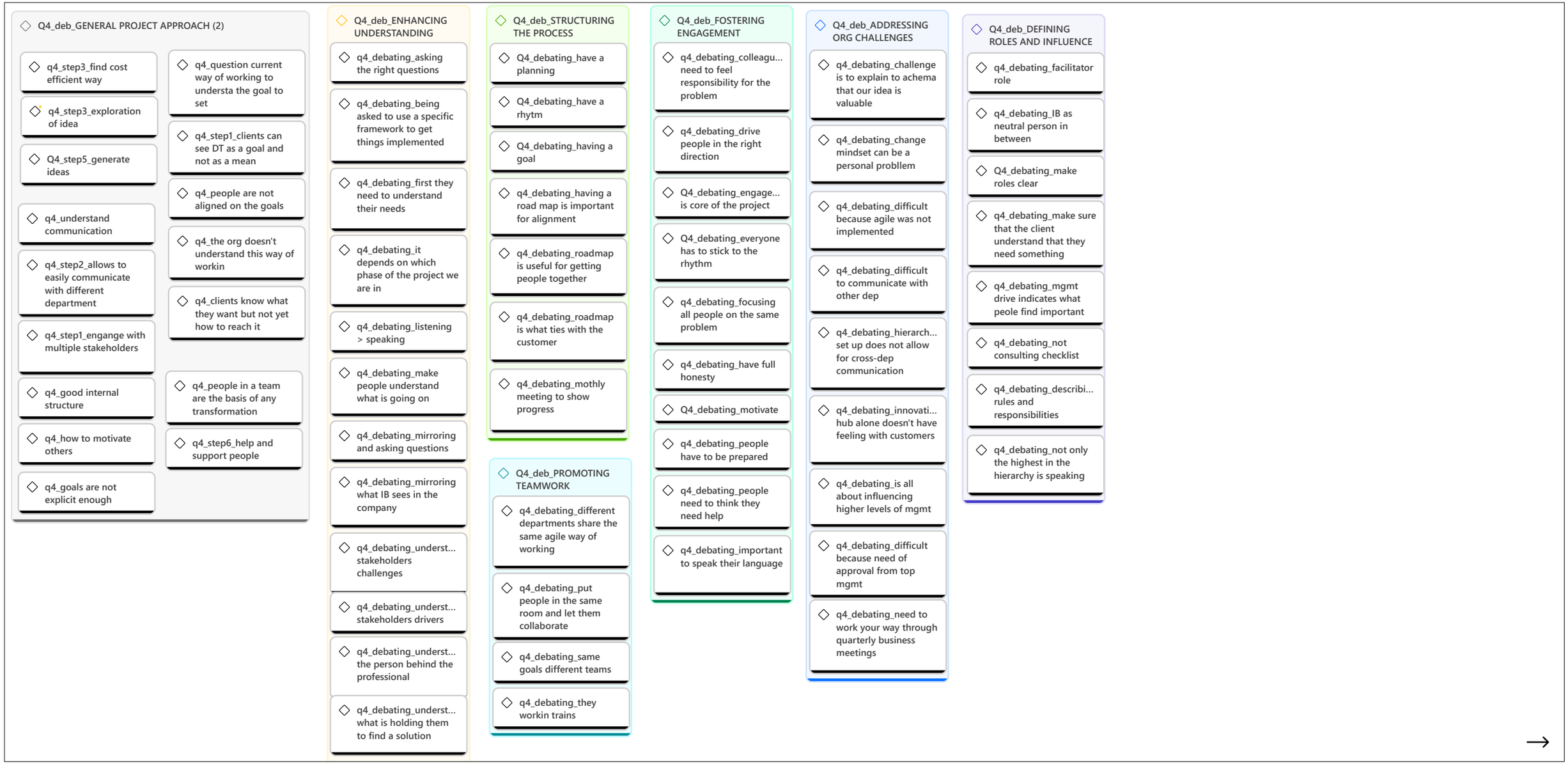

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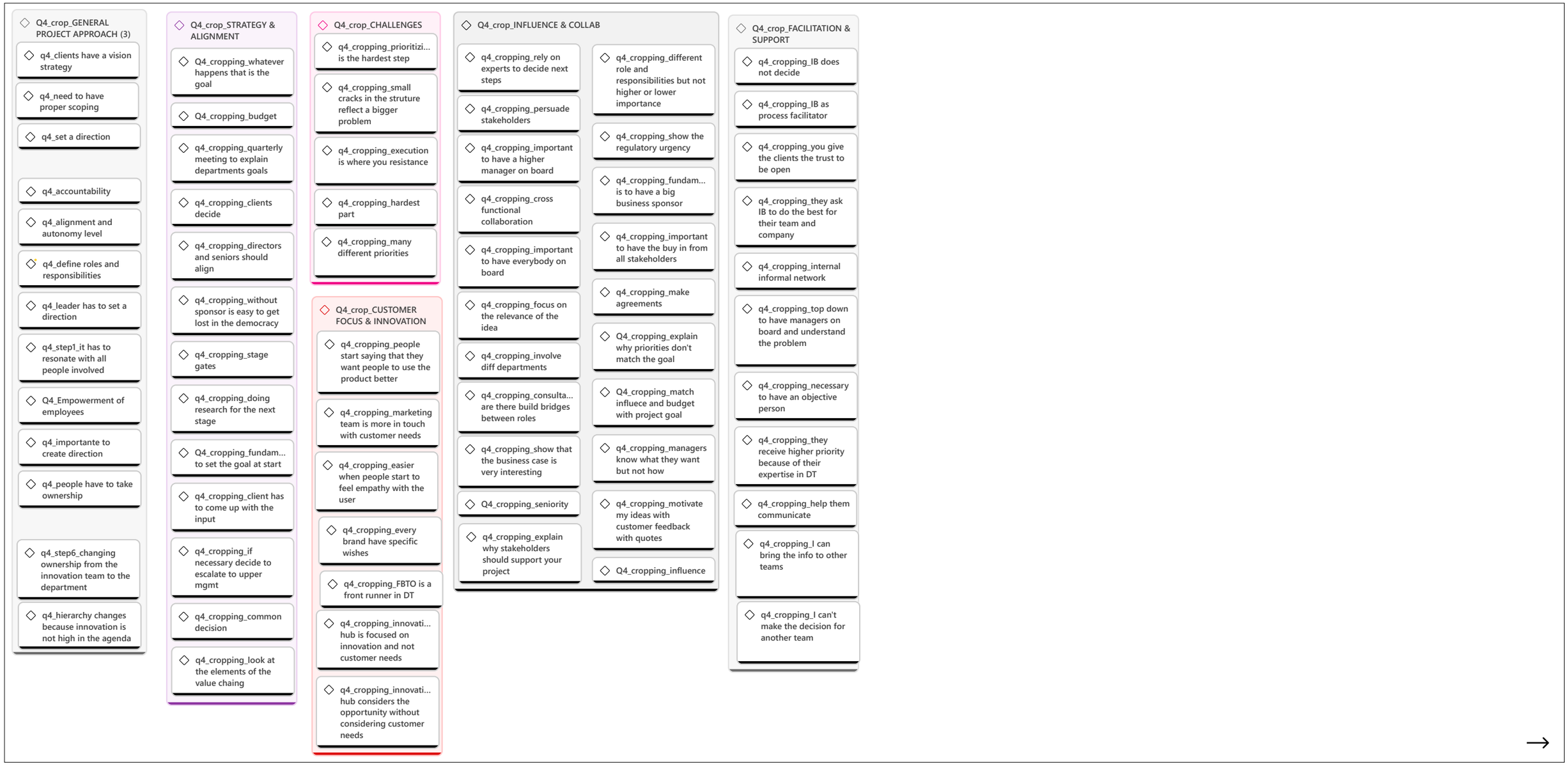

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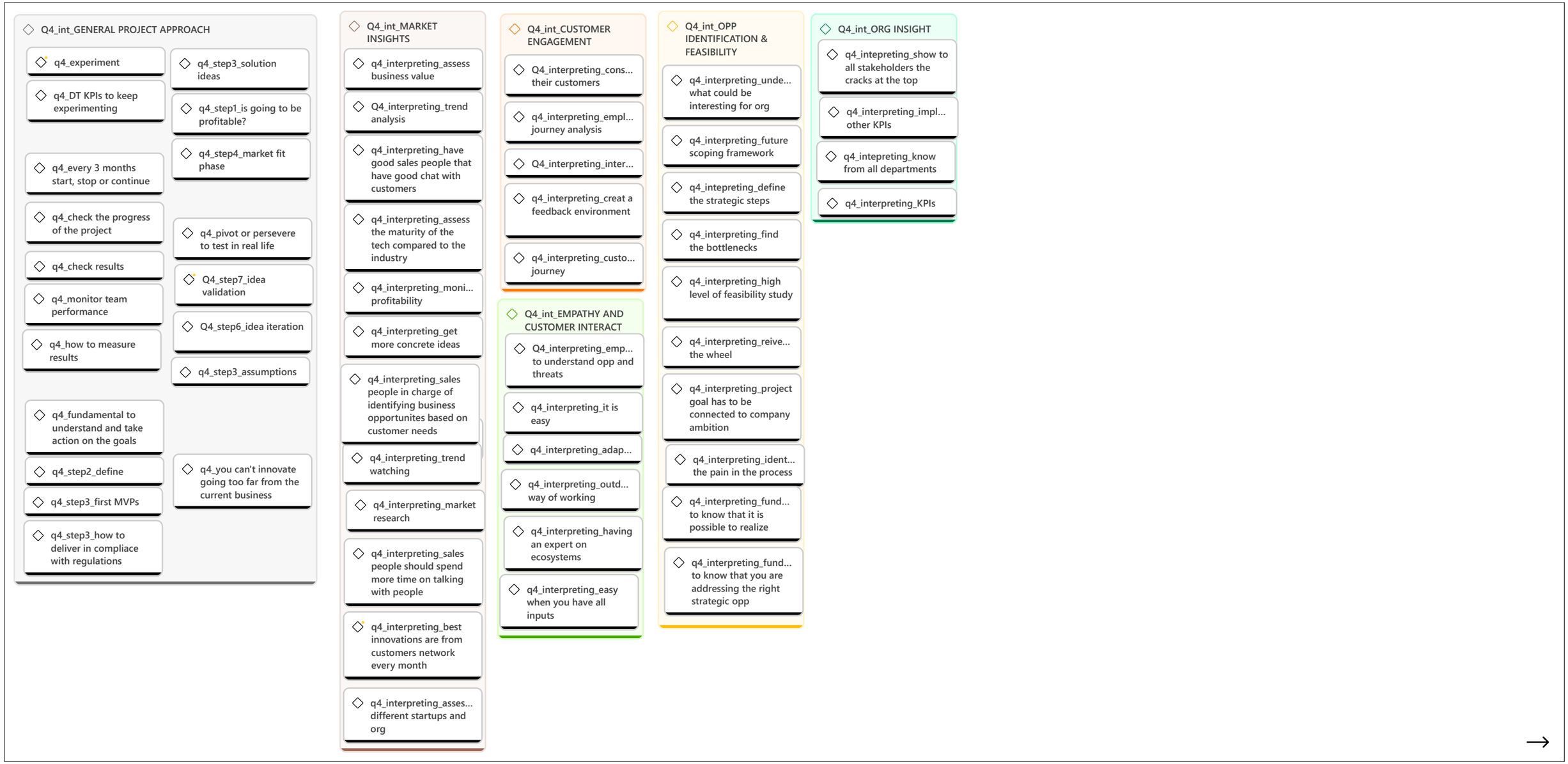

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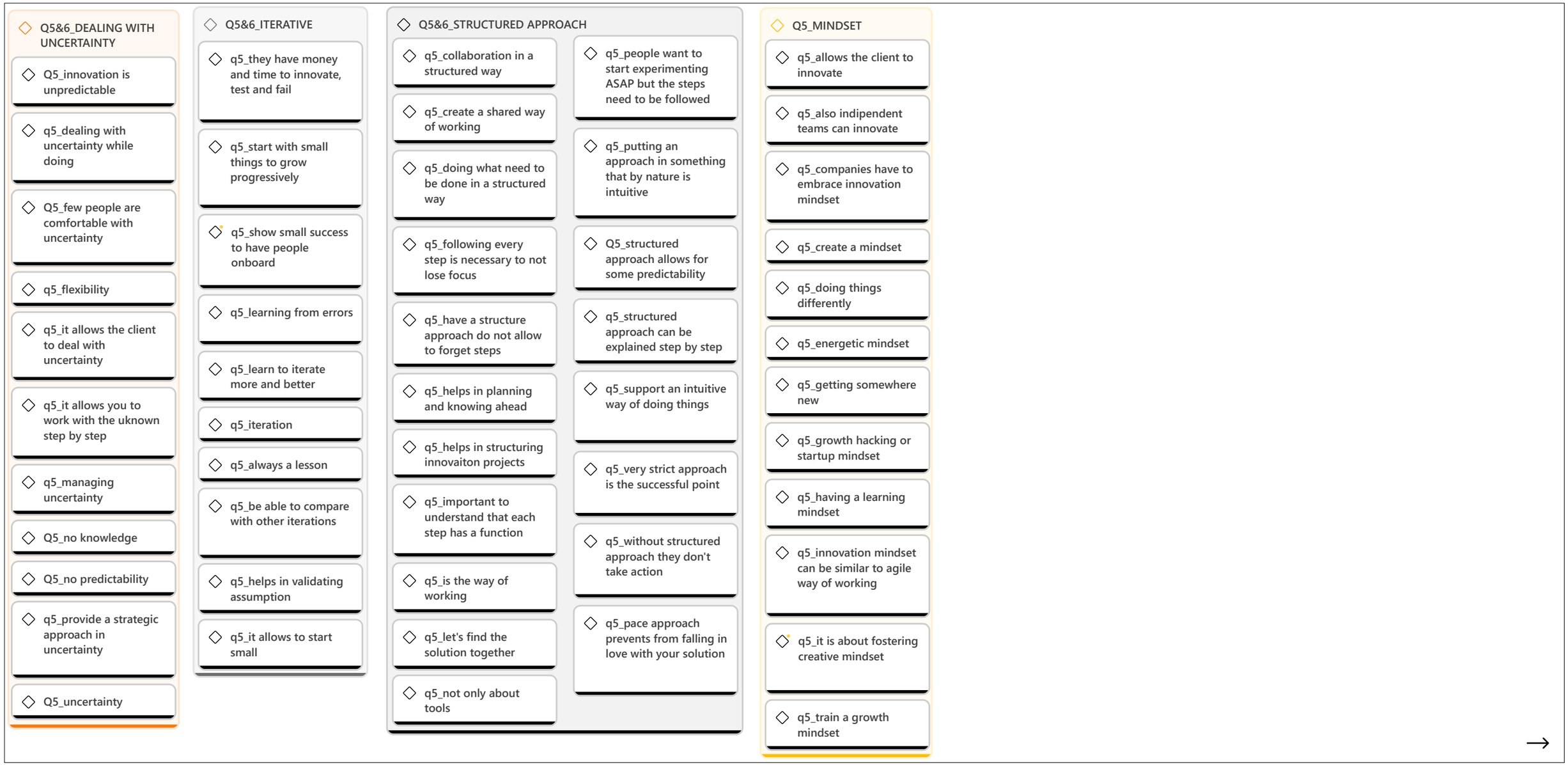
Q5: What motivates the application of this approach to DT?



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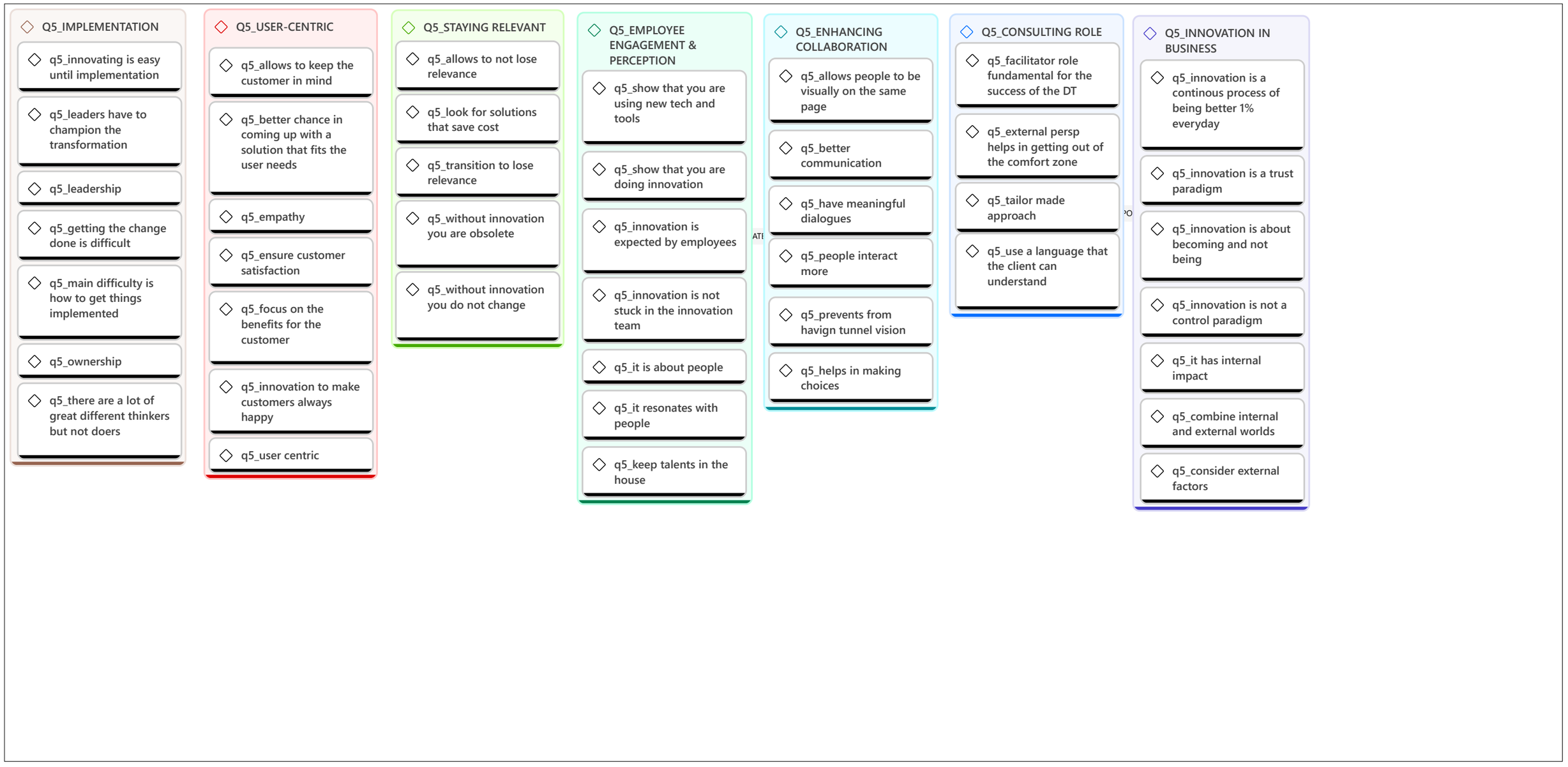
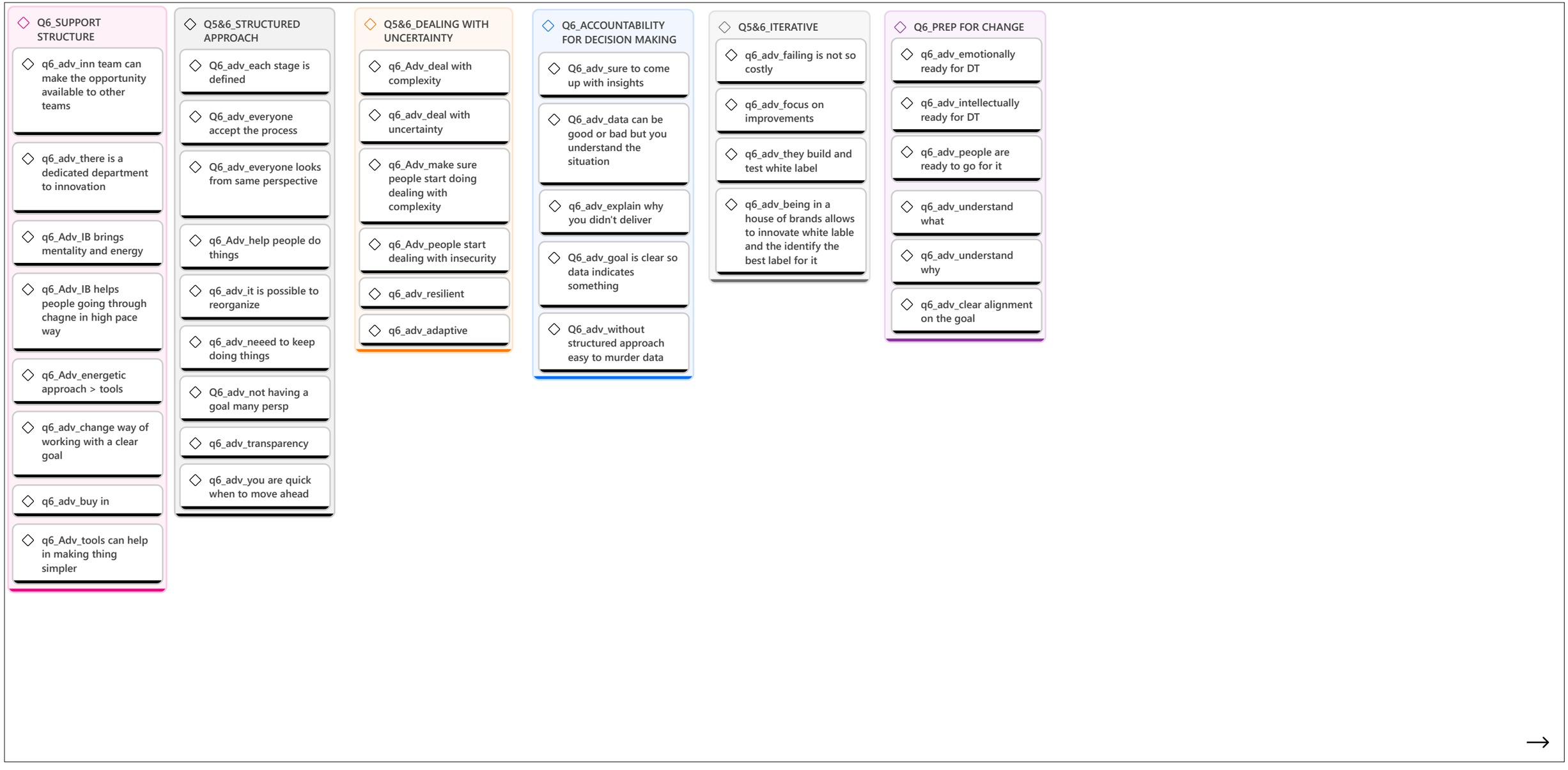


Q6: What advantages and drawbacks come with applying this approach to DT initiatives?



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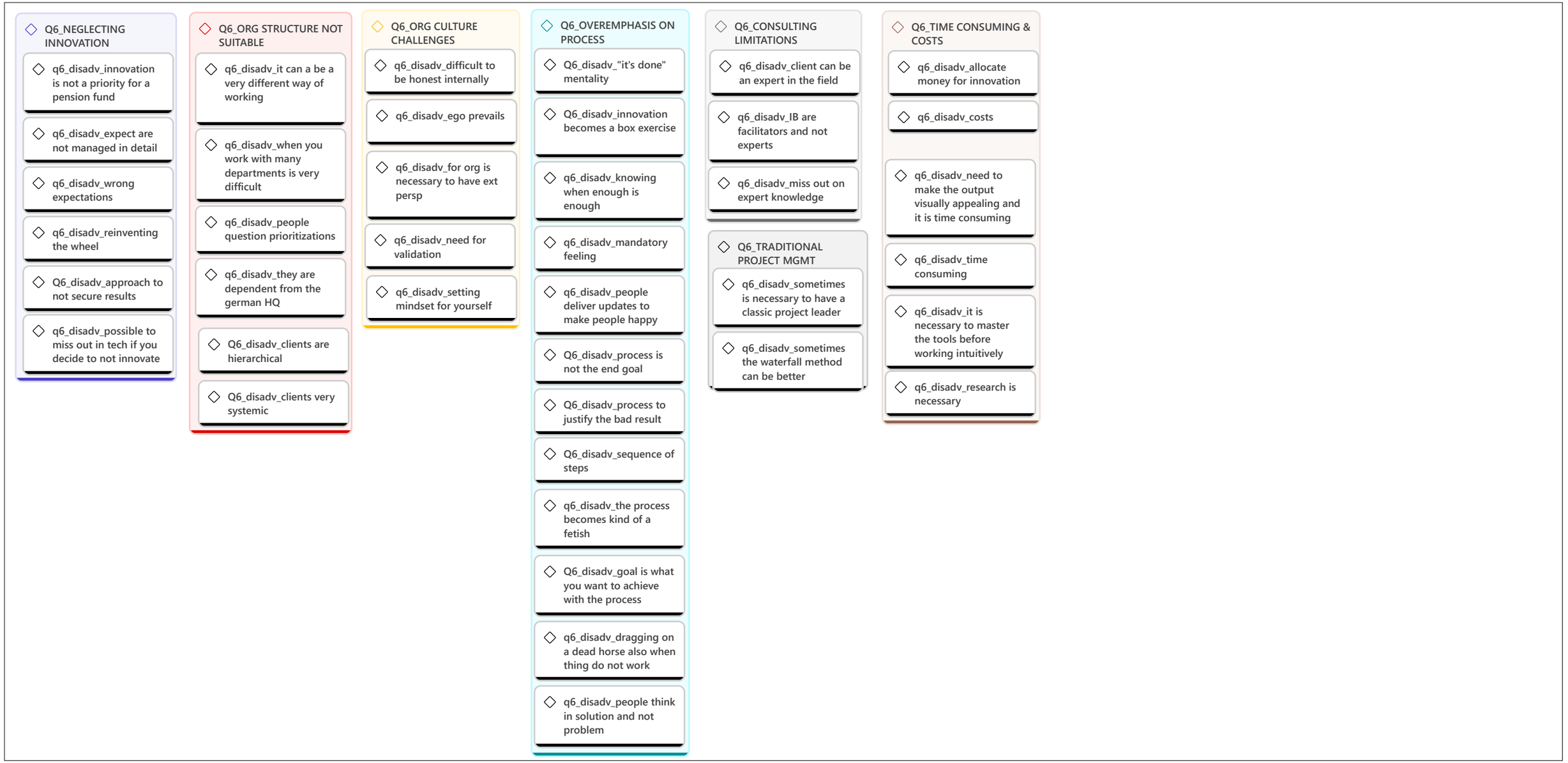


Appendix C - One pager for co-creation workshop

CAN YOU LEAD THE CHANGE IN DIGITAL TRANSFORMATION?

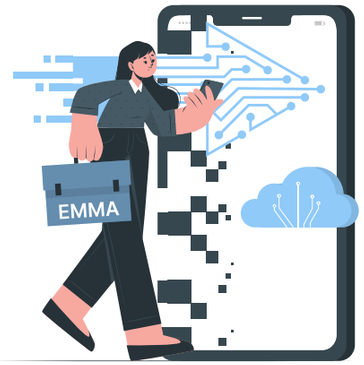
1

- **Digital transformation** (DT) is a process of leveraging technology to foster firms' innovation capabilities and performance.
- DT is intricately linked with **organizational change**. Organizational change refers to the evolution of companies over time and it is crucial for DT success but, at the same time, it can also pose challenges if not managed effectively.
- DT holds the potential to influence various stages of the **innovation process** due to the extensive range of enabling technologies and the multiple ways in which they can enhance product and service performance.
- While artificial Intelligence (AI) and big data technologies offer new opportunities, these technological advancements introduce **uncertainty** for companies navigating DT journeys, making it difficult to address digital challenges effectively.
- **Human-centric innovation approaches** are becoming more and more the main focus in many sectors, especially in industries where DT requires **new competencies and capabilities** to drive transformation or develop effective customer experiences.
- This project aims to investigate **the role of innovation practices for DT processes in an organisational setting**, specifically within the traditional financial sector.

At this stage of the research, a significant issue identified in DT is how even the best digital solutions just **don't have the impact they're supposed to**.

→ This session aims to explore the **challenges of change management**, concentrating on the human issues that prevent effective solutions from achieving their potential.
→ Change management can be defined as the intersection between **innovation leadership** and **transformation management**.

EMMA
Change Manager



- **Enhance adoption:** she facilitates the adoption of digital solutions and innovates business models to maximize value.
- **Promote scalability:** she ensures digital solutions are designed for easy replication and reuse across the organization.
- **Develop digital culture:** she focuses on enhancing digital leadership skills and building capabilities across the enterprise.
- **Manage risks**: she addresses new risks and integrates control measures to build digital trust.

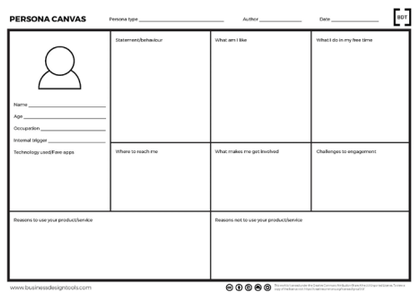
PERSONA CANVAS

In this session you will create a Persona. Together with a fellow student you will go through each section of a Persona Canvas. You will be asked to describe the role of EMMA, a Change Manager, in a hypothetical organisational setting with the information at your disposal.

- Personas are **portraits of fictional but realistic individuals** that are used as a common reference point to communicate particular groups in your intended audience.
- Personas are created by drawing together the **characteristics of similar people** - their behaviours and motivations - into one "**archetype"** through which the group can be understood.
- By creating a fictional character to embody these characteristics, you don't lose the little **details** that make someone the person they are.
- Personas help ensure that the work stays **focused on people**, rather than an abstract description of the group they are said to represent.

"I want to know the people I'm working with by visualizing their key characteristics."

"I want to identify the leadership and management capabilities needed."



Appendix D - Quotes from interviews for co-creation workshop

“A process is also something to shield yourself with. Like, no, we used the process. You can't judge us.”

“I think it's it's almost impossible nowadays to have a fully mapped playing field before you start and if you do, by the time you're done the playing field will have changed. ”

“Our implementation projects take always two to three times longer than they should be, and that's because we don't hire external people that are professionals”

“So why do we need to improve all those aspects of the company with the idea of what this means for the future employee in terms of skills?”

“We also set up a digital mentorship program in which there was a training platform. And a mentor was offered to certain projects so that they could help on execution."

“A technological transformation is happening, but it is also societal. It's like a whole new way of thinking that is constantly changing.”

"The key factor in transforming these organizations is to have really strong management that knows what they want and is able to set a good example.”

“So, if we can use DT, everything that comes with it is to save time and to make us less dependent on human mistakes.”

“A large part of the problem of DT within large organizations is very simply the basis of how they use and store their data. That, it is not aligned.”

“You start with a goal. You start with a planning and from there you have a rhythm where you make it very explicit who is expected for which meeting, workshop, session, bilateral, whatever.”

“It's not only about the tools or how you do it, also about people and how do you foster a creative mindset for innovation.”

“The management should not tolerate any other behaviour. Then, you should get rid of the rotten apples and get it going."

“We forget all about people need to adapt to new environment, new team and also new way of working.”

“The impact of DT it is quite heavy because the internal operations need to continue and at the same time change need to be implemented.”

“If you want to persuade and the stakeholders, you try to find common ground why they should support your project and and that's what what I tend to focus on then.”

“Well, it always starts with a vision and the responsible for this vision is the manager of the contact center within the Digital department.”

“And how do we help them to acquire those skills? So, we thought of all those aspects and along the way, we saw things that could be necessary in terms of a new organizational structure.”

→

“These days you cannot do DT without a CFO with digitalization high on the agenda and therefore in the whole management board.”

“When you have engineers or squads that can actually get some contact with the customer, then they start to feel empathy because they're like, ohh, this is how they use my product.”

“You can see that companies that are lacking in this transition also lack people in high positions with digitalization as their priority.”

“Without a process or approach, it's very easy to murder your data”

“We see that we have made the right transformation to give the customer a better customer journey, so it's not only from cost perspective but also from customer benefits perspective and if you are smart you can combine them.”

“Our previous chairman was very focused on being a tech company with a banking license kind of idea.”

“There are very few people who are comfortable with not knowing what's gonna happen, especially if the there's no knowledge whatsoever, because they lose grip and a structured approach or process process allows for some predictability.”

“You can have all digital platforms in the world, but if you don't have the right people, and if they don't have the right capabilities and a different mindset, then you will never get the results.”

“We think we can do it on our own and that’s half true.”

“Have good sales people that can have a a good chat with the customers, not about the products, but about their business and needs.”

“Having a prototype really helps you to understand the idea very well yourself, but also to inspire and and make it very clear to to other stakeholders what you're what you're meaning.”

“I need to learn other jobs because the manual tasks are now performed by the system and I need to focus more on quality of the interactions with the customers.”

"There's so much headspace already taken up by many things. So, we consciously used a more local approach, changing department by department and doing a lot of bottom-up projects."

“You need to be able to adapt and be very resilient because what happens tomorrow might already be different in two years.”

“You see in the companies that we work for that it is hard to change people. Everyone wants to change but no one wants to change and that's what what's blocking.”

Appendix E - Canvases for co-creation workshop

WHAT DO I DO?

actions

WHAT DO I WANT?

actions

2

WHY DO I DO IT?

motivations

WHAT IS STOPPING ME?

pains

→

WHAT CONVINCES ME?

values

WHAT OR WHO INFORMS ME?

values

3

WHERE AM I IN THE ORGANIZATIONAL STRUCTURE?

context

WHAT IS MY DAY-TO-DAY?

context

→

WHAT DO WE NEED TO VALIDATE TO ABLE TO PROGRESS?

gaps

WHAT DO WE NOT KNOW?

gaps

4

WHAT NOW?

next steps

Appendix F - Background information for roleplay workshop

DIGITAL ROADMAP

- The digital roadmap serves as a strategic blueprint designed to shape team composition for delivering digital solutions tailored to different domains, each associated with specific KPIs to measure success.
- Key business leaders and managers are actively engaged, ensuring alignment with the roadmap's goals and expected benefits.
- A comprehensive focus on enhancing capabilities includes developing talent, technology, and data resources essential for supporting the DT.
- Implementation of change management strategies is included to establish effective governance, accompanied by clear and measurable milestones to track progress.

TALENT STRATEGY

- The talent strategy maps out a comprehensive plan to transform DT solutions into specific employee requirements, identifying skill gaps and crafting action plans for recruitment, retention, and training.
- By focusing on aligning employee skills and capabilities with the organization's digital roadmap, the strategy ensures that the workforce is prepared to meet evolving technological needs.
- Teams are structured as cross-disciplinary groups of 5–10 members, each responsible for owning the design, development, and ongoing production of a specific digital product or service over an extended period.

DIGITAL LEARNING JOURNEY

- The educational journey is specifically structured to advance the skills of employees, emphasizing both the technical and behavioral aspects required in their roles.
- Learning journeys are customized for various skill families and are systematically categorized by different levels of proficiency.
- The primary goal is to cultivate deep and enduring expertise in a particular field through a detailed, multi-year development program.
- This holistic approach ensures continuous professional growth, aligning employee capabilities with the organization's long-term strategic needs.

"YOUR TEAM"

- Your team is affected by DT and it includes employees dedicated to developing digital solutions, structured to foster agility for quick innovation.
- Key roles within the team include a product owner, a scrum master, digital technologists, designers, and business experts, etc. each critical for the project's success.
- The agile setup of the team allows for close collaboration across different departments, enhancing the integration and effectiveness of digital initiatives.
- Certain roles, such as solution architects and agile coaches, may be shared across projects, reflecting the flexible and interconnected nature of the team's structure.

ROLE	EXPERIENCE	KEY-WORDS
1 Product owner	4 years	*visionary, decisive, accountable*
2-3 Software engineers	trainees	*analytical, innovative, technical*
1 Process analyst	6 months	*systematic, detail-oriented, efficient*
1 Scrum master	8 years	*facilitative, adaptive, supportive*
1-2 Change agents	1 year	*influential, proactive, transformative*
?	?	*?*

Appendix G - Roleplay workshop canvases (CMP)

Could you describe how your talent strategy aligns with your digital roadmap?

A talent strategy outlines the employee skills needed for digital transformation.

A digital roadmap identifies and prioritizes digital solutions to align with the company's strategic goals.

team engagement aligns roles through collaboration and accountability

Could you explain the role that cross-disciplinary expertise plays in the structure of your team?

Cross-disciplinary expertise allows a team to combine business, technology, and operational knowledge.

valuing mistakes for innovation enables **learning from failure**

1

capability building enhances skills adaptability and competitiveness

Digital capabilities are the necessary skills and technologies to effectively develop digital solutions.

Could you elaborate on the gaps that exist in your team's digital capabilities?

building agile infrastructure for efficient innovation to achieve **operational excellence**

A digital learning journey is an educational program that equips employees with digital skills.

Could you describe the digital learning journeys provided to your team?

→

Could you describe how you foster a culture of failing and learning within your team?

A culture of failing promotes experimentation, allows mistakes, and encourages continuous improvement.

learning from failure considers mistakes as crucial for continuous improvement and innovation

Can you describe how the responsibility for the results is shared within the team?

Responsibility is shared by assigning individual accountability for tasks and collective ownership of project goals.

empowering teams with accountability drives innovation and creates an **ownership culture**

2

operational excellence derives from building agile infrastructure that enhances innovation

Reporting progress and results involves using KPIs and metrics to track success and drive improvement.

Could you explain how your team reports progress and results?

allowing employees to make decisions enhances responsiveness, leading to **empower autonomy**

The team is encouraged to innovate independently by having the freedom to explore ideas and take initiative.

Could you describe the ways in which your team is encouraged to innovate independently?

Appendix H - Graduation Project Brief

7089

TU Delft

IDE Master Graduation Project

Project team, procedural checks and Personal Project Brief

In this document the agreements made between student and supervisory team about the student's IDE Master Graduation Project are set out. This document may also include involvement of an external client, however does not cover any legal matters student and client (might) agree upon. Next to that, this document facilitates the required procedural checks:

- Student defines the team, what the student is going to do/deliver and how that will come about
- Chair of the supervisory team signs, to formally approve the project's setup / Project brief
- SSC E&SA (Shared Service Centre, Education & Student Affairs) report on the student's registration and study progress
- IDE's Board of Examiners confirms the proposed supervisory team on their eligibility, and whether the student is allowed to start the Graduation Project

STUDENT DATA & MASTER PROGRAMME
Complete all fields and indicate which master(s) you are in

Family name	Benini
Initials	G
Given name	Gioia
Student number	5717922

IDE master(s) IPD ☐ DfI ☐ SPD ✔

2nd non-IDE master

Individual programme *(date of approval)*

Medisign ☐

HPM ☐

SUPERVISORY TEAM
Fill in he required information of supervisory team members. If applicable, company mentor is added as 2nd mentor

Chair	Giulia Calabretta	dept./section	DOS/MOD
mentor	Shahrokh Nikou	dept./section	DOS/RMCB
2nd mentor	Polle van Duuren		
client:	Innovation Boosters		
city:	Amsterdam	country:	The Netherlands
optional comments			

! Ensure a heterogeneous team. In case you wish to include team members from the same section, explain why.

! Chair should request the IDE Board of Examiners for approval when a non-IDE mentor is proposed. Include CV and motivation letter.

! 2nd mentor only applies when a client is involved.

APPROVAL OF CHAIR on PROJECT PROPOSAL / PROJECT BRIEF -> to be filled in **by the Chair** of the supervisory team

Sign for approval (Chair)

Name _____ Date _____ Signature G. Calabretta

Personal Project Brief – IDE Master Graduation Project

Name student Gioia Benini **Student number** 5,717,922

PROJECT TITLE, INTRODUCTION, PROBLEM DEFINITION and ASSIGNMENT
Complete all fields, keep information clear, specific and concise

Project title Digital transformation in traditional financial institutions: the value of design thinking.

Please state the title of your graduation project (above). Keep the title compact and simple. Do not use abbreviations. The remainder of this document allows you to define and clarify your graduation project.

Introduction

Describe the context of your project here; What is the domain in which your project takes place? Who are the main stakeholders and what interests are at stake? Describe the opportunities (and limitations) in this domain to better serve the stakeholder interests. (max 250 words)

The banking industry has undergone significant transformations since the inception of Banca Monte dei Paschi di Siena in 1472. Its scalable business model is now encountering new challenges due to the advancements in digital technology (Broby, 2021). As the competition in the banking sector intensifies and customer trust emerges as a necessity, the imperative for innovation has been highlighted (Broby, 2021; Niemand et al., 2021). Organizations are grappling with a myriad of challenges arising from the influence of digital transformation (Magistretti et al., 2021). Digital transformation is defined by Vial as *"a process that aims to improve an entity by triggering significant changes to its properties through combinations of information, computing, communication, and connectivity technologies"* (2019). Academic and practitioner interest is growing in understanding how human-centred approaches, particularly design thinking, can contribute to digital transformation (Micheli et al., 2019; Verganti, 2017). Design thinking is defined as a general human-centred approach to problem-solving, creativity and innovation (Brown, 2008). It has the potential to close the gap between an organization's aspirations for innovation and its capacity to carry it out by influencing the innovators' actual experiences (Liedtka, 2020).

The business-to-business (B2B) environment, where consulting firms operate, emerges as a compelling field for shedding light on the dynamic capability of design thinking in digital transformation. Dynamic capabilities are defined by Teece (2007) as *"the capacity of firms to dynamically create and combine resources to sense, seize and reconfigure opportunities during transformations"*. Consulting firms, in their role as mediators in innovation projects, are called upon by firms to manage the development of innovation initiatives. Simultaneously, as digital transformation has the potential to influence various stages of the innovation process in complex ways (Appio et al., 2021), transformations within one facet of organizations can initiate a cascade of changes across other parts (Kretschmer & Khashabi, 2020). Even though researchers have noted how design thinking is based on dynamic capabilities (Liedtka, 2020) and how dynamic capabilities are useful for digital transformation (Warner & Wäger, 2019), the role that dynamic capabilities in design thinking can have in the digital transformation process is still lacking and requires more research. Using a human-centred approach, the involvement of consulting firms in the digital transformation process within traditional financial institutions is addressed.

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Problem Definition

What problem do you want to solve in the context described in the introduction, and within the available time frame of 100 working days? (= Master Graduation Project of 30 EC). What opportunities do you see to create added value for the described stakeholders? Substantiate your choice.
(max 200 words)

First, the increasing influence of current technologies suggests that the impact of digital transformation on organization design is expected to accelerate soon, creating prospects for broader exploration implications (Kretschmer & Khashabi, 2020). The identified gap in the research lies in exploring how the digital transformation process internally impacts traditional financial institutions to create output and, eventually, their organization design. The impact falls internally within teams, thus affecting the communication, behaviour and relationships between people. Second, research in this domain has only focused on the application of human-centred approaches in innovation (Çetinkaya, et al., 2013; Liedtka, 2015; Micheli et al., 2019). This leaves a gap in understanding the role and value of design thinking, seen as a set of dynamic capabilities, in the process of digital transformation within traditional financial institutions (Magistretti et al., 2021).

The research aims to answer the following research questions:
- RQ1: What is the internal impact of the digital transformation process on organization design in traditional financial institutions?
- RQ2: What is the role and value that design thinking brings to the digital transformation process in traditional financial institutions?

Further or re-elaborated research questions will be formulated as a result of the literature review.

Assignment

This is the most important part of the project brief because it will give a clear direction of what you are heading for. Formulate an assignment to yourself regarding what you expect to deliver as result at the end of your project. (1 sentence) As you graduate as an industrial design engineer, your assignment will start with a verb (Design/Investigate/Validate/Create), and you may use the green text format:

Create a design framework to illustrate the organizational internal shifts of the digital transformation process for traditional institutions in financial services industries, resulting in better organizational alignment and smoother execution. The design outcome can be used by consulting companies to engage in meaningful conversations with clients, identifying communication and behavioural change within the organization's teams.

Then explain your project approach to carrying out your graduation project and what research and design methods you plan to use to generate your design solution (max 150 words)

The Double Diamond design approach will be used to carry out this graduation project (Figure 1). This approach is characterized by the alternation of divergent phases aimed at exploring possible alternatives, and convergent phases aimed at identifying the dominant alternative (Dell'Era et al., 2020). First, in the research stage, information will be collected, relevant to digital transformation, innovation practices and management in the traditional financial industry. A combination of primary research (e.g., 15 semi-structured interviews with company consultants and company clients) and secondary research (e.g., literature review, and identification of best practices) will be conducted. Second, the collected data will be analyzed and synthesised using the thematic content analysis method (Braun & Clarke, 2006). It will be a process of making sense of information, framing and understanding factors and needs, which will become inputs for identifying the design thinking value in digital transformation. Third, preliminary concepts will be created by following the value formulated. Preliminary versions of the design tool will be created. Lastly, in the validation stage, an evaluation will be conducted of the design tool, and iterations will consequently be implemented. Based on that, an additional design thinking framework will be given to the client for a later larger implementation stage.
In addition, the GANTT chart for this graduation project is attached (Figure 2).

Project planning and key moments

*To make visible how you plan to spend your time, you must make a planning for the full project. You are advised to use a Gantt chart format to show the different phases of your project, deliverables you have in mind, meetings and in-between deadlines. Keep in mind that all activities should fit within the given run time of 100 working days. Your planning should include a **kick-off meeting**, **mid-term evaluation meeting**, **green light meeting** and **graduation ceremony**. Please indicate periods of part-time activities and/or periods of not spending time on your graduation project, if any (for instance because of holidays or parallel course activities).*

Make sure to attach the full plan to this project brief.
The four key moment dates must be filled in below

Kick off meeting	13 Feb 2024
Mid-term evaluation	15 Apr 2024
Green light meeting	13 Giu 2024
Graduation ceremony	12 Lug 2024

In exceptional cases (part of) the Graduation Project may need to be scheduled part-time. Indicate here if such applies to your project

Part of project scheduled part-time	
For how many project weeks	
Number of project days per week	

Comments:

Motivation and personal ambitions

Explain why you wish to start this project, what competencies you want to prove or develop (e.g. competencies acquired in your MSc programme, electives, extra-curricular activities or other).

Optionally, describe whether you have some personal learning ambitions which you explicitly want to address in this project, on top of the learning objectives of the Graduation Project itself. You might think of e.g. acquiring in depth knowledge on a specific subject, broadening your competencies or experimenting with a specific tool or methodology. Personal learning ambitions are limited to a maximum number of five.
(200 words max)

The first and half years of the Strategic Product Design Master program have equipped me with valuable skills for my Graduation project. Through the SPD Research course, I acquired the necessary mindset for conducting research. In the Design Strategy Project, I proved my ability to conceptualize and solve problems within abstract and intricate contexts, gaining insight into value creation. The Design Roadmapping course taught me how to envision future scenarios and develop roadmaps to achieve them. Lastly, thanks to the Joint Interdisciplinary Project that I participated in during the last Q1, I learned how to manage projects in multidisciplinary environments. I hope to be able to prove all these skills with my Master's Thesis.

Moreover, there are also two personal learning ambitions behind this project. First I would like to get more in-depth knowledge in the financial sector. The Design Roadmapping course introduced me to this subject and I consider the opportunity to explore this industry as a relevant trajectory for my future professional practice. Second, I want to continuously improve my abilities in collaborating with a client company. After carrying out a 10-week project for KLM Royal Dutch Airlines I would like to develop further my skills in managing multistakeholder projects.

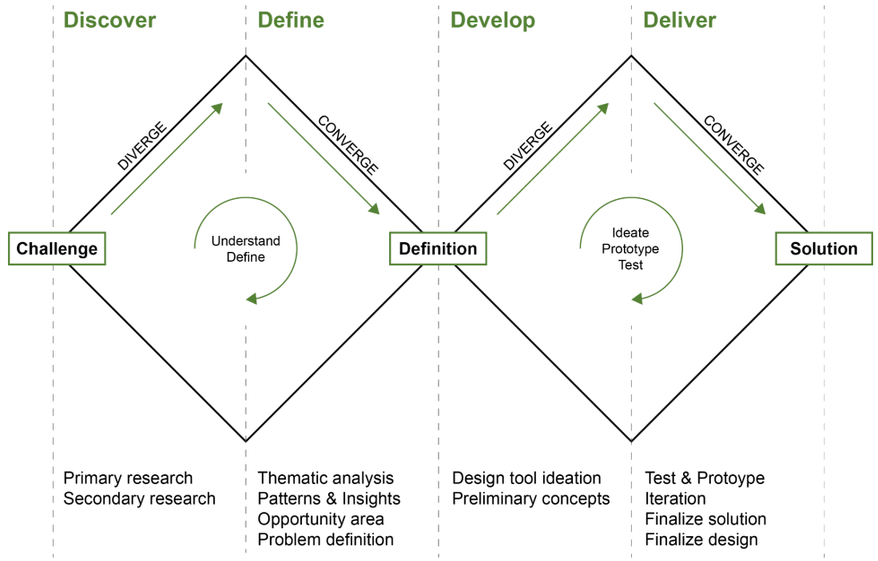

Figure 1. The Double Diamond approach for this graduation project.

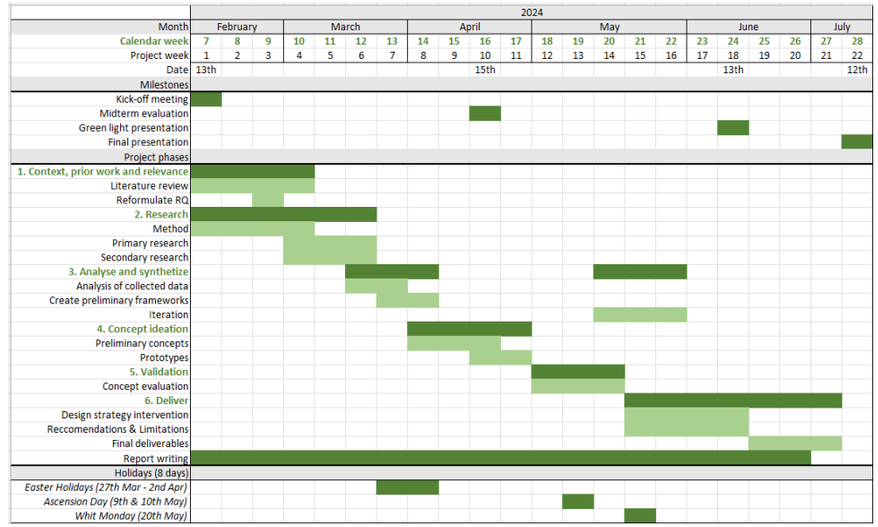

Figure 2. GANTT chart for this graduation project.

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JULY 2024