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Design Thinking for Competitive Intelligence in a Digital Business Transformation Context

Stoyan Tanev
Carleton University, Canada
stoyan.tanev@carleton.ca

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ABSTRACT This paper examines how Design Thinking (DTh) can enhance Competitive Intelligence (CI) practices in the context of businesses and organizations engaged in a Digital Transformation (DTr) journey. The objective of the paper is to summarize the key insights based on an extensive literature review and engage in a critical reflection that could open the possibility for future research focusing on the development of actionable frameworks that could help executive managers integrate DTh and CI practices in pursuing the DTr of their organization. One of its key contributions is the identification of the value proposition concept as an integrative construct that could help in bringing together the DTh and CI perspectives in designing and managing the DTr strategies of new or established firms. The insights formulated in this paper will be valuable to both scholars and practitioners.

KEYWORDS: Design thinking, frame creation, social technology, competitive intelligence, digital transformation, strategy development, value proposition

1. INTRODUCTION

This paper examines how Design Thinking (DTh) can enhance Competitive Intelligence (CI) practices in the context of businesses and organizations engaged in a Digital Transformation (DTr) journey. The link between DTh, CI, and DTr has several constitutive elements. First, this is the relation between DTh and CI which is a highly understudied area. There are just a few publications in this domain that open important questions about the value of adopting DTh as a new mindset for Competitive Intelligence Professionals (CIPs) (Madureira, 2019), and, vice versa, about how professional design teams could benefit from CI practices (Huber, 2021). Second, this is the relation between DTh and DTr – a research area of growing interest for both academics and practitioners which usually focuses on the unique potential of DTh practices to address the wicked problems of DTr initiatives (Dell'Era et al., 2020; Marx, 2022; Smith & Beretta, 2021; Vendraminelli et al., 2023). Third and perhaps most important, is the link between CI and DTr. DTr could be defined as "the integration of digital technology into all areas of a business resulting in fundamental changes to how businesses operate and how they deliver value to customers. … [I]t's a cultural change that requires organizations to continually challenge the status quo, experiment often, and get comfortable with failure."[1] Many incumbents today adopt AI and other digital technologies to embark on a DTr journey, which requires steering the process that goes from the exploration of digital opportunities to the selection of a set of projects to be designed and executed in a way that meets companies' strategic

[1] https://enterprisersproject.com/what-is-digital-transformation

objectives (Vendraminelli et al., 2023). There are several key aspects of the relationship between CI vs DTr that justify the purpose of this paper: a) the professional services of Competitive Intelligence Professionals (CIPs) will increasingly target businesses and organizations struggling with the competitive design and implementation of their DTr initiatives; b) business dealing with digital transformation are forced to transform not only their value propositions and value creation processes, but also the very foundations of their organizational logic (Rogers, 2023); c) managing the uncertainty and complexity of the open, complex, dynamic and networked problems of DTr initiatives goes beyond traditional management practices (Ross, Beath & Mocker, 2019) and CIPs will need to refine, adapt or transform their practices to address the specific needs of firms engaged in DTr; d) AI and digital technologies, and especially the booming of generative AI applications, are already affecting the way CIPs work (one can even claim that generative AI is disrupting the way CIPs create value). There is therefore a double urgency to examine how adopting DTh practices could help: a) organizations engaged in DTr initiatives; b) CIPs trying to help such organizations progress in their DTr endeavors.

The objective of this paper is to summarize the key insights based on an extensive literature review and engage in a critical reflection that could open the possibility for future research focusing on the development of actionable frameworks that could help executive managers integrate DTh and CI practices in pursuing the DTr of their organization.

One of the key challenges of meeting this objective is that scholars and practitioners operating within each of these three domains – DTh, CI, and DTr – have been involved in a continuous process of re-examining the "raison d'être", the constitutive elements, the actionable frameworks, and the ultimate practical relevance of their specific domains. In this sense, examining the potential synergy between their corresponding practices should focus on the most recent developments in these domains. The paper will therefore provide a summary of insights from a review of recent publications in the three domains. A particular focus will be placed on actionable frameworks and insights emerging on the intersection between the DTh and DTr research streams that could be practically valuable to CIPs.

2. LITERATURE REVIEW

2.1. The Growing Interest in Design Thinking and the Challenges Associated with Its Adoption

The growing attention of businesses to the value of DTh has become evident from the recent acquisition activities of large strategy and innovation consultancies (Dell'Era, Magistretti, Cautela, Verganti & Zurlo, 2020, p. 325). Accenture, Deloitte, IBM, KPMG, McKinsey, and PricewaterhouseCoopers have all acquired design agencies to renew their offers and revive their innovation services. In addition, such organizations started sharing details about their DTh practices to demonstrate and promote their innovation expertise. For example, in 2018 IBM Design open-sourced its Enterprise Design Thinking framework to the public.[2] Today we can not but agree with Dell'Era et al. (2020) that "Design thinking is booming, especially in industries where digital transformation requires new competencies and capabilities to develop effective customer experiences" (p. 325).
At the same time, the adoption of DTh faces multiple challenges. Verganti et al. (2021) point out that DTh practices should be considered as part of positivistic problem-solving approaches with a strong user perspective. The problem however is that the ongoing dramatic transitions in society and businesses have affected how we see, identify, and conceptualize problems (Verganti et al., 2021). Today's business problems have become open, complex, dynamic, and networked (Dorst, 2015ab). This, unfortunately, leads to challenges that

[2] Learn the Enterprise Design Thinking Framework - Enterprise Design Thinking (ibm.com)

are less likely to be addressed from within the usual DTh problem-solving perspective. DTh, with its intrinsic path-dependent nature and user-focused optics, remains trapped in its dominant logic: "The more it focuses on the existing problems and digs in deeper, the more it remains trapped in an incremental design trajectory: it tends to solve the problems of the past, rather than imagining a new future" (Verganti et al., 2021, p. 618). Another key struggle for DTh today is that it was not intended to be used in multiple-stakeholder and multiple-framework contexts: "Actually, we need to accept that its extreme 'userism' has handed us a world that is not more sustainable than 20 years ago. With Design Thinking, design has come close to business but maybe at the expense of its attention to society and a long-term sustainable vision" (p. 618).

On the other hand, Dunne (2018) believes that one of the key challenges in adopting DTh practices is related to the emerging tensions in organizations trying to adopt such practices. Dunne (2018) identified three such tensions: a) the tension of *Inclusion* which refers to the distance from the day-to-day pressures and politics in organizations (too much distance can lead to isolation); b) the tension of *Disruption* which refers to the troubles design thinkers may have when pursuing disruptive innovations while, at the same time, trying to meet the everyday demands for incremental innovations; c) the tension of *Perspective* which refers to the fact that innovations and valuable change are embedded in complex systems inside and outside the organization which makes it difficult to take both a user-centered view and a systems view at the same time.

According to Carlgren et al. (2016), there are at least three different ways of describing the DTh models discussed in the literature: a) as a process (data gathering, idea generation, and testing); b) as a common set of tools (Liedtka, 2015); c) as a prescribed way of thinking (e.g., the Stanford d.school approach, Auernhammer & Roth, 2021; abductive reasoning for frame innovation, Dorst, 2015ab; the social technology perspective, Liedtka, 2020; innovation of meaning, Dell'Era, Magistretti, Cautela, Verganti & Zurlo, 2020). Taken together, these different accounts only illustrate the ambiguity that characterizes the discourse around DTh. The ambiguity is threefold. "First, there is inconsistency between the descriptions (despite similar definitions). Second, there is varying emphasis related to the level of detail, normativity, and elements of DT. Third, it is unclear how the views of the different authors interrelate" (Carlgren et al., 2016).

2.2. Two Perspectives on Design Thinking

The unprecedented adoption of digital technologies by larger businesses, and of generative AI in particular, is driving the continuous re-conceptualization of DTh models and practices. There have been numerous important contributions to this domain in the last ten years (Baker III & Moukhliss, 2020; Buchanan, 2019; Cash, Gonçalves & Dorst, 2023; Dell'Era, Magistretti, Cautela, Verganti & Zurlo, 2020; Dorst, 2015ab, 2006; Dunne, 2018; Jaskyte & Liedtka, 2022; Kolko, 2018; Liedtka & Locatelli, 2023; Liedtka, 2020; Magistretti, Bianchi, Calabretta, Candi, Dell'Era, Stigliani & Verganti, 2022; Micheli, Wilner, Bhatti, Mura & Beverland, 2019; Rodgers, Innella & Bremner, 2017; Verganti, Dell'Era & Swan, 2021; Weedon, 2019). A common trend in these publications is the attempt to reclaim the unique benefits of DTh as part of the arsenal of managerial approaches used by business leaders in today's digital age, and not just by design professionals. In this section, we will briefly review two DTh perspectives that could prove valuable in the context of CI.

2.2.1. Liedtka's View on Design Thinking as a Social Technology

Jeanne Liedtka has contributed significantly to DTh theory and practice including several insightful publications in the last five years (Liedtka & Locatelli, 2023; Liedtka, Hold & Eldridge, 2021; Liedtka, 2020; Jaskyte & Liedtka, 2022). For example, Liedtka (2020) examines the constitutive elements of DTh and how they combine to form a valuable social technology – one that creates a set of strategically valuable dynamic capabilities critical for innovation and adaptation. According to Liedtka, "Achieving innovation and adaptation is one of the primary operational challenges facing organizations

today" (p. 55). This is especially true for organizations that have engaged in DTr initiatives (Smith & Beretta, 2021). The social technology lens focuses on innovation as a shared process grounded in how people interact to make innovative solutions happen. Liedtka (2020) refers to social technology in a broader sense which is "more akin to the original sociological definition of the term as applying knowledge and techniques from the social sphere to address practical problems", arguing that "DT[h] offers tools and processes to foster enhanced learning, collaboration, and productivity among the human beings who produce innovation" (Liedtka, 2020, p. 54). In this sense, the role of social technology in a DTh context is "to provide a set of teachable, scalable tools and methods to expedite, in a human-centered way, the development of practical innovation skills" (p. 55). Social technology includes immersion, alignment, emergence, and learning in action: a) *immersion* in users' lives to build empathy, emotional commitment, and ability to see and share new possibilities; b) dialogue-based conversations from diverse perspectives to reach *alignment* about highly relevant ideas; c) co-creation enabling the *emergence* of new and higher-order ideas, articulation of the critical assumptions behind those ideas, and visualization to translate abstract ideas into clear and concrete prototypes that can solicit more accurate feedback; d) *learning in action* which enables change through the shaping of experiments. Defined in such a way, such DTh-based social technology enables the facilitation and development of dynamic capabilities needed to meet the challenges of adaptation and innovation in a VUCA (Volatility, Uncertainty, Complexity, and Ambiguity) world, where conditions are seen as too novel or chaotic for accurate prediction and control. According to Liedtka, a key distinctive feature of DTh that is central to its efficacy as a problem-solving process is "its capacity to deal intelligently with uncertainty, when existing data are inadequate and the ability to make predictions is suspect" (p. 55). The dynamic capabilities of a firm are conceptualized based on Teece's framework (Teece, Peteraf & Leih, 2016): a) *sensing* – the ability to sense and generate options for growth before they become apparent to all; b) *seizing* – making choices, moving from analysis to action; and c) *reconfiguring* or transforming – transforming through the reconfiguration of assets.

One of Liedtka's (2020) key points is that the integrated DTh tools, methods, and mindset "not only produce tangible outputs that enhance the quality and creativity of designs, they also create social and emotional experiences that help overcome psychological barriers that impede dynamic capability building" (Liedtka, 2020, p. 55). Her findings are based on an empirical study that identified five main common elements across the DTh methodologies used in 22 cases, which included the key aspects of social technology - immersion, alignment, emergence, and learning in action. Two types of DTh practices (elements) were identified: first-order, and second-order. The first-order practices are: the development of a deep empathic understanding of user needs and context; the inclusion of diverse perspectives; and the generation of multiple solutions made tangible through prototyping and prioritized through experimentation. The second-order practices are dialogue-based conversations focusing on problem definition first and only then on the new solutions, and the presence of a larger infrastructure that encompasses tools, processes, and mindsets.

The three first-order practices align thematically with the findings of Carlgren, Rauth, and Elmquist (2016) who identified five emerging DTh themes – user focus, problem framing, visualization, experimentation, and diversity – sharing a high-level process focused on data gathering, idea generation, and testing, and a common set of tools. However, Liedtka's analysis identified some key facets of DTh that other researchers have not focused on – the prominent role of dialogue and the degree of structure employed. These less-recognized second-order factors play a critical role in enabling the first-order factors to produce the transformational outcomes made possible by employing the DTh methodology. Liedtka suggests that the absence of these enabling elements may cause the failure of sporadic implementation of individual tools to produce significant outcomes. Thus,

examined individually, DTh's familiar elements—its ethnographic toolkit, emphasis on problem reframing, prototyping, and implementation by diverse teams working collaboratively—are not unique to DTh. But these practices, enabled by DTh's emphasis on dialogue and infrastructure, are uniquely valuable when linked together.

Jaskyte and Liedtka (2022) offer an analysis of the potential outcomes of DTh practices. Their empirical findings demonstrate that DTh practices are associated with multiple positive intermediate outcomes—not only for those for whom things are being designed, but also for the innovators engaged in the designer's role, their teams and organizations, and even the larger ecosystems in which they operate. The intermediate outcomes are improved implementation and adaptation; individual psychological benefits; network capability and resource enhancement; increased solution quality; and trust-building. There were however interesting differences in the usage of different DTh practices. The most prevalent practices are as follows: a human-centered process focusing on user problem definition; using ethnographic research methods; generating a diverse set of ideas; and getting feedback from users. Prototyping and conducting experiments were the least used practices found in the study. Four practices emerged as "super practices" since they were significantly related to multiple outcomes: formation of diverse teams; execution of real-world experiments, and generation of diverse ideas. In other words, the human interactions that the DTh process triggers around diversity in team formation and dialogue (active listening to achieve a shared meaning) were found to be central. Interestingly, the practices that were not significantly related to any of the outcomes were ethnographic research and prototyping. Thus, the DTh practices that were most emphasized in both literature and practice were not significant predictors of DTh's intermediate outcomes, i.e., the research suggests that it takes more than the most popular practices alone to benefit from DTh's potential. According to the authors, the practices that make the difference in their sample are among the least explored and utilized aspects of DTh—its social technology aspects and its hypothesis testing approach.

Jeanne Liedtka, Karen Hold, and Jessica Eldridge have recently published the book *Experiencing Design* (2021), suggesting a transformational framework based on the difference between Doing, Experiencing, and Becoming. The framework provides actionable insights into the transformational journey of teams and individuals who engage more deeply with DTh. The key starting point is that the usual DTh focus of organizations is on the visible outcomes – the graphical outputs, the templates, the workshops, and the innovations sought, but the real transformational impact of DTh is on the innovators who are changed by the activities – what they have experienced and what they have become. DTh practices include activities like gathering data, identifying insights, establishing design criteria, generating ideas, prototyping, and experimenting but each of these activities results in a design team's experience of sense-making, alignment, and emergence. Thus, the team members become more empathetic and confident, collaborative, comfortable with co-creation and difference, able to bring ideas to life, resilient, and adaptive. According to the authors, this is the most valuable outcome of DTh. One of their key contributions is introducing the concept of 'minimum viable competency' or the specific level of competencies (novice, intermediate, or expert) innovators need to acquire to maximize the benefits of adopting DTh practices. They found that achieving DTh impact requires getting innovators' skills beyond the threshold of novice and reaching over into the intermediate threshold of expertise. Thus, it was found that the novice and the expert levels do not contribute significantly to the DTh outcomes. "The sweet spot—the most powerful accelerator of improved outcomes—is right in the middle. We call this the minimum viable competency (MVC) that innovators need to reach in order to optimize the use of DT(h)." Liedtka, Hold & Eldridge, 2021, p. 27).

Liedtka & Locatelli (2023) have also used DTh principles, tools, and techniques to, as they claim, "humanize" complex project management practices by promoting the inclusion of all relevant stakeholders, including non-market stakeholders such as

local communities with diverse goals and interests, and aligning them with a common purpose. According to them DTh "offers concrete, teachable, and scalable tools and processes that can be ideal in planning and delivering complex projects – tools to engage non-market stakeholders in projects such as ethnographic observation and interviewing, Job-to-be-done analysis, journey mapping, persona development and guidance on the Design and execution of experiments" (Liedtka & Locatelli, 2023, p. 6). It also offers a concrete process and adds structure to project activities that often seem abstract and uncomfortably ambiguous, increasing managers' creative confidence and willingness to take risks (Jaskyte & Liedtka, 2022; Liedtka & Locatelli, 2023). The key contribution Liedtka's team research is the integration of perspectives from strategy, innovation, and design "to demonstrate how DT(h)'s promise goes beyond creating better products and experiences; it contributes to the critical work of building dynamic capabilities essential for ongoing strategic adaptation" (Liedtka, 2020, p. 54).

2.2.2. Kees Dorst's Frame Creation Approach

Kees Dorst is a key representative of another DTh perspective that seems to have addressed Verganti's concerns about the narrowness of the user-centredness of traditional DTh practices and correlates with Liedtka's emphasis on the social and multiple stakeholder aspects of DTh. It appears to be highly relevant for the multiple-stakeholder context and the open, complex, dynamic, and networked nature of digital transformation initiatives. What is interesting is that, like the other two DTh perspectives considered above, Dorst discusses the expansion of design practices to other domains by reflecting on the unique benefits of adopting DTh.

Dorst (2015ab) asks "What key design practices are particularly relevant to the problems of today's society?" According to Dorst, two features distinguish DTh as uniquely valuable in addressing the type of problems faced by organizations in today's digital world. The first one is its ability to deal with wicked problems. Dorst avoids using the qualifier "wicked" and refers to Open, Complex, Dynamic, and Networked (OCDN) problems (Dorst, 2015ab). In addition, he has contributed to the conceptualization of design problems by characterizing a problem through a set of paradoxes (Dorst, 2006; Weedon, 2019). Dorst describes paradoxes as complex statements that consist of two or more conflicting statements; all the statements that make up a paradox might be true and valid, but they cannot coexist and be combined (Dorst, 2006, p. 14; Weedon, 2019, p. 427). The way to approach a seemingly irresolvable paradox is to account for the different stakeholders and conflicting discourses inherent within the initial problem situation by suggesting a higher-level, meta-discourse that frames the paradox in such a way that the conflicts can be approached from new, illuminating, and engaging perspectives. This brings in the second distinctive feature which, according to Dorst, characterizes the DTh potential to address OCDN problems in domains other than the professional design practice – the practice of problem framing or frame creation: "Problem framing emerges as a key design practice that can be adopted and adapted to other fields and one which provides a valuable alternative to conventional types of problem-solving." Based on these two distinctive features Dorst suggested a frame creation model which is grounded in the practice of abductive reasoning: "In design abduction, the starting point is that we only know about the nature of the outcome and the desired value we want to achieve. So, the challenge is to figure out 'what' to create, while there is no known or chosen 'how,' that we can trust to lead to the desired outcome" (Dorst, 2015a, p. 25). Thus, to propose a new frame a designer needs to propose both a 'what,' and a 'how' and test them in conjunction, concerning their ability to shape a new discourse that could potentially engage all relevant parties involved in the initial problem situation.

The core frame creation model suggested by Dorst was instrumentalized in a nine-step process that addresses OCDN problems by creating a new, broader context for the initial problems, and then concentrating on the emergence of underlying themes that lead to the identification of a set of frames that could enable stakeholder engagement and interaction. The nine steps are as follows: 1)

Problem archeology, focusing on analyzing the history of the problem owner and the initial problem formulation; 2) *Problem paradox*, focusing on analyzing the problem situation, i.e. what makes it hard to deal with; 3) *Context*, focusing on analyzing the inner circle of stakeholders; 4) *Field*, focusing on exploring the broader field of issues and stakeholders going beyond the ones considered in the Context step; 5) *Themes*, focusing on investigating the themes that emerge in the broader field; 6) *Frames*, focusing on identifying patterns between themes to create frames in the sense that was described above; 7) *Futures*, focusing on exploring the possible outcomes and value propositions for the various stakeholders identified in the Context and Field steps; 8) *Transformation*, focusing on investigating the changes that need to be made in stakeholders' strategies and practices required as part of the shaping of specific value propositions and implementation of specific futures; 9) *Integration*, focusing on drawing lessons from the new approach and identifying new opportunities within the emerging network of key players.

Dorst has directly participated in driving and documenting a variety of design projects that have adopted the frame creation approach (Dorst, 2015ab; Dorst, 2016). Based on these cases Dorst and his research colleagues conceptualized "the kinds of problems to which frame creation, as a design-based approach to problem solving, can be fruitfully applied, what the parameters are for its successful application, and how partner organizations can be helped to successfully adopt Frame Creation as part of their problem-solving repertoire" (Dorst, 2015a, p. 29). "The success of these projects and programs demonstrates how a core design practice can be transplanted and adopted far beyond the remit of the design disciplines" (*Ibid*).

Dorst's frame creation approach has been constructively critiqued by Matthews, Doherty, Worthy, and Reid (2023). They agree with Dorst that a key part of 'wickedness' is the existence, even before any design intervention, of multiple competing frames of the problem situation. According to them, however, "while human-centered research and reframing practices are just as essential in generating possibilities to address these kinds of problems, they are also insufficient" (p. 179). The key issue in expanding core design practices is not the conceptual limitation in stakeholders which does not allow them to identify new frames through codesign activities, "it is a socio-political reality with respect to their resistance in accepting a(ny) new framing of the problem, or how they are likely to interpret human experiences uncovered through research" (ibid). This has to do with how designers facilitate participation with stakeholders *in addition* to the concepts that are generated as design propositions in the frame creation and selection process. "In politically charged domains, any externally imposed design recommendations, however brilliant they may be, are in as much danger of alienating stakeholders as they are of convincing them that change is desirable."

The key point here is that presenting framing as the essence of design suggests that wicked problems are fundamentally conceptual and that resolutions will emerge only if the problems are properly and effectively reframed. "But wicked problems in complex domains are not purely conceptual. They do not exist only on account of a lack of imagination or ingenuity, or a reticence to see the problem space differently. An equally challenging issue has to do with mobilizing publics, and collectively generating the political will to take concrete steps towards any new conceptual reality" (Matthews et al., 2023, p. 180).

2.3. Design Thinking and Strategy Development

2.3.1. Dorst's Approach to Design for Strategy

In his (2015a) article, after describing the application of his frame creation DTh approach to a specific case, Dorst makes a very interesting point about design and strategy: "Please note that while this is an example of strategic thinking, it is not the traditional strategy-formulation process that a business school would teach: the frame creation approach, as all of design, remains firmly grounded on content, and is always situated. The properties and requirements of the content in the problem situation shape the activities, not the other way around" (p. 29). The essence of this point is not so much

about the specific project described in Dorst's article; it is about the challenges of expanding design practices into the domain of strategy development. Dorst has explicitly this expansion in one of his most recent works (Dorst & Watson, 2023). The challenge he sees in exploring the relationship between design and strategy is that: "Design interventions are often aimed at immediate success ('a solution'), but to see to what extent the design intervention 'changed the game' we need to follow the twists and turns of strategic impact as it unfolds over time. This gives us the chance to focus on the real strategic impact of the design intervention (as opposed to the formulation of a strategy that may or may not be acted upon" (Dorst & Watson, 2023, p. 2, referring to Micheli & Boardroom, 2014).

Dorst & Watson (2023) have approached the development of an explicit relationship between design and strategy as a 'movement', suggesting three ways to connect design and strategy, by: (1) extending design; (2) creating a middle ground; or (3) using design in the context of strategy development. *Extending design into the strategic space* requires defining the core elements that need to be always present for a practice to be validly called a designerly practice. Dorst and Watson propose the following core elements: a) the presence of an underlying abductive logic and hence the co-evolution of problem and solution which is really how designers think; b) the presence of abilities, skills, and practices that are normally associated with a designerly way of thinking such as the combination of creativity, human centredness, and quick prototyping (iteration), complemented by some more general practices such as futuring and visualization; c) the presence of social dynamics that could enable dialectic (the art of investigating or discussing the truth of opinions)[3] with the broader environment together with internal dialogue and discussion involving all associated communities of practice. Thus, Dorst and Watson (2023) believe that adopting these practices could help strategy by shaping a dialectic process and potentially driving strategic change. However, according to them, the human-centredness of design may overemphasize the search for better outcomes within the existing problem frame effectively achieving incremental, rather than strategic innovation and impact.

The second way to connect design and strategy discussed by Dorst and Watson (2023) is by creating a middle ground between the two, i.e. shaping a hybrid praxis that will combine design-as-practice with strategy-as-practice. Here they refer to the works by Sobel and Schweitzer (2022), and by Liedtka, Salzman, and Azer (2017). Sobel and Schweitzer (2022) explore the rise of DTh in strategy development and examine the opportunities within strategic management through a strategy-as-practice lens. According to them, it is time to critically reconsider the role of DTh in the context of strategy development and establish strategic design as a strategy practice. "Strategy practice that incorporates design practice is under-researched and there is a need to understand the way methods as extrapolated from DT[h] and traditional design practice are potentially inspiring strategy practices in new ways" (p. 15). Liedtka, Salzman, and Azer (2017) discussed the key elements of DTh that make it successful in the strategic arena: a) creating immersion in the specific context; b) instilling a flow from research to implementation; c) building in buy-in with team members and stakeholders by making them part of the creation and development of solutions; d) enabling a playfulness that facilitates emergence through prototyping. Thus, the strategic impact of design is created by engaging people in a journey, "moulding the problem situation and taking it away from the original discussion arena in a dialogical process" (p. 6).

The third 'movement' discussed by Dorst and Watson (2023) focuses on directly harnessing design practices for strategy development. Here they refer to Carlopio (2010), according to whom: "the vast majority of strategy development texts, the way to formulate strategy is to do extensive analyses of the external and internal environments, set your mission, and vision, then position your organisation in relation to those findings, create some scenarios to capture the outcomes, and incrementally adjust your existing strategy accordingly." In other

[3] https://en.wikipedia.org/wiki/Dialectic

words, "This practice doesn't include a way of creating new strategies" (p. 5). This striking realization is additionally enhanced by Gary Hamel's point that within strategy development, there is no articulation of a creative process that can lead to new strategies: "Anyone who claims to be a strategist should be intensely embarrassed by the fact that the strategy industry doesn't have a theory of strategy creation!" (Hamel, 1998, p. 10).

The case study discussed by Dorst & Watson (2023) allowed them to conclude that "to be truly 'strategic', design needs to move beyond the role in which it is conventionally cast" (p. 11), i.e. for a newly designed solution to 'change the game' it needs to have an impact beyond the scope of the design project; it needs to impact the practices in the organizations involved, as well as the strategy, the processes, and the structures of the focal organization. Thus, the focal organization needs to shape a bottom-up learning cycle, where a design project enables a follow-up reflection that generates insights and helps in envisaging new project approaches. This continuous learning loop then informs new organizational practices and influences organizational strategy, which in turn influences the organization's structure. According to Dorst and Watson, however, the learning loop may deteriorate because of the potential blockage between practices and strategy, i.e. when project-based design interventions (bottom-up) are kept away from strategic impact by the top-down approach to strategy formulation.

The Game Changers model of the relationship between DTh and strategy development suggested by Dorst and Watson (2023) builds on the above insights by refining the notion of a 'Field' (the fourth step in the Frame creation model that was described earlier) in a way that "bypasses the top-down/bottom-up blockage by connecting the insights that are sparked by design projects directly to the Field. While changing the perception on the Field level is not normally seen as a core attribute of design practice, yet for strategic impact to occur, it can be crucial" (p. 14).

2.3.2. Claude Diderich's Design Thinking for Strategy Approach

Claude Diderich (2020) has offered what is probably the only systematic treatment of DTh as an approach that can be used to develop and validate business strategies that are: a) desirable, i.e. customers are interested in companies' value propositions and offerings, b) feasible, i.e. firms can deliver upon the promises made with their value propositions, c) viable, i.e. firms can generate a sustainable profit from their operations, and d) competitive, i.e. customers understand the differentiating value offered relative to alternative competitive offers. This is a hands-on approach to strategy that can be applied in both start-up and corporate environments. Diderich sees three major approaches to conceptualizing strategy: a) identifying and subsequently exploiting competitive advantages (Porter, 1985); b) exploiting a firm's resources and related internal strengths to exploit environmental opportunities and neutralize external threats (Barney, 2001); c) streamlining of managerial decisions and actions, which are sometimes deliberate and at other times emergent, where strategic decisions are mostly based on managerial intuition and creativity, rather than analytical thinking (Mintzberg, 1994). According to Diderich (2020, p. 6), "[a] commonality of these definitions of strategy is that they fail to include customers and their needs as a central element. Satisfying customer needs is seen as a consequence of strategic decisions rather than their driver." In contrast to other approaches to strategy, design thinking focuses on generating value for the customers in a differentiated and sustainable way. That is why some of the largest companies have turned to design thinking as a better way to deal with disruption and sustained competitiveness (Mootee 2013).

Diderich defines strategy as the combination of a strategic focus (a differentiating value creator), a business model describing how a firm aims at delivering value to customers and other stakeholders, and an approach to differentiate, focusing on the competitive positioning of the firm in the business environment:

strategy = strategic focus + business model + competitive positioning.

The strategic focus defines the big picture or the foundation. The business model considers how a firm creates and delivers value by addressing customer Jobs-to-be-done relying on capabilities and resources and collaborating with partners and suppliers. Competitive positioning addresses the competitive environment and defines how the firm intends to use its competitive advantages to succeed. The definition does not specifically emphasize the role of firms' portfolio of value propositions as a link between strategic focus and business models. It is however implied by referring to customers' Jobs-to-be-done. Interestingly, Diderich (2020, p. 10) specifically emphasizes that strategy design is a typical wicked problem since it exhibits Dorst's (2015) four traits of openness, complexity, dynamism, and networking, as discussed earlier. The strategy design problem is an open problem, as its borders are unclear and permeable, and there is no existing single best solution to it. It is complex since it consists of many interrelated elements (customers, competitors, suppliers, innovation partners, employees, investors, regulators, etc.). The articulation of a strategy needs to be dynamic and able to adapt to fast-changing environments such as the ones characterizing businesses engaged in a digital transformation journey. More importantly, addressing the strategy design challenge requires considering all relevant stakeholders. Integrating stakeholders throughout the strategy design process is key to success.

How is DTh valuable to strategy design? According to Diderich (Diderich, 2020, p. 16), there are four key DTh traits valuable to strategy design (see Table 1):

- Design thinking is customer- and human-centric
- Design thinking is iterative in nature
- Design thinking is based on prototyping and validating ideas

Design thinking combines the best of the two worlds of analytical and intuitive thinking, resulting in an abductive reasoning approach.

Table 1. How key design thinking traits are valuable to strategy design.

	Design thinking trait	Value to strategy development
(1)	*Customer-centric approach*, putting customers at the forefront	– Ensuring customer needs are identified and met, their pains addressed, sought-after gains provided, and their jobs get done – Creating unique and appreciated added value for customers – Securing a willingness to pay
(2)	*Iterative process*, based on observing, learning, designing, and validating, supported by divergent and convergent thinking	– Well-defined systematic process leading to validated results – Focused approach avoiding non-value-adding data gathering and analysis – Agile, just-in-time, process due to its iterative nature
(3)	*Prototyped options*, designed and validated jointly with stakeholders	– Ensuring that the designed strategic options are aligned with stakeholder expectations – Ascertaining that identified needs are met
(4)	Approach combining *analytical and intuitive thinking*, focusing on those insights that matter most	– Conscious use of resources (time and money) – Constantly (re-)aligning efforts with set priorities – Following "fail fast to succeed faster"

Diderich adopts a double-phase approach to strategy development: a) understanding the past by looking backward which includes two steps – observing and learning, and b) designing the future by looking forward which includes two other steps – designing and validating. Each of the four steps of the design thinking-based strategy design process (observing, learning, designing, and validating) has its own corresponding outcome: insights, knowledge, prototyped ideas, and validated strategy.

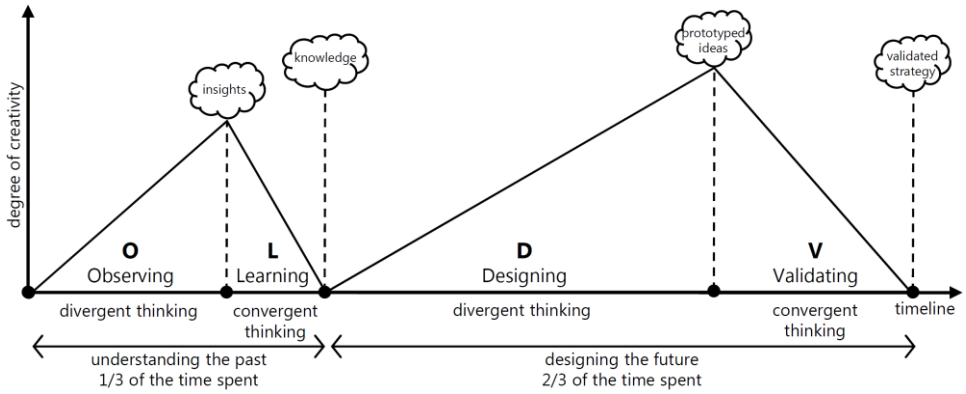

Figure 1. The four steps of the design thinking-based strategy design process (Source: Diderich, 2020, p. 25)

Diderich suggested a Design Thinking for Strategy ("DTS") approach which integrates the four steps above with the three layers of strategy – foundational layer, business model layer, and competition layer. The foundation layer focuses on observations that could provide a high-level understanding of the industry and the competition. The learnings are used in shaping the foundation of the firm's strategy, i.e. its strategic focus which specifies the main business model components – target customers, offerings, capabilities, and financials. The business model layer focuses on the details of the target business model which is designed and validated based on multiple iterations and in-depth observations of customers, innovation capabilities, skills, and financial expertise. The competition layer positions the new business model within the perspective of the specific industry. Such positioning may require a refinement of both the business model and the strategic focus. Lastly, the strategy is communicated to initiate the process of its implementation.

Diderich emphasizes that strategy development and implementation are two different phases requiring different skill sets. In addition, the transition from development to implementation is not linear and may require adjustments in the development phase regarding the specificities of the business model. Diderich describes his DTS approach in a highly comprehensive manner to the extent that it could be seen as somewhat overwhelming from a managerial point of view. It is not directly related to the DTr context and may need to be adjusted to the context of companies engaged in a DTr journey.

2.4. Design Thinking for Digital Transformation

There has been a growing interest by both scholars and practitioners in adopting DTh approaches to conceptualizing and managing DTr initiatives in existing firms (Diderich, 2022; Govers & van Amelsvoort, 2023; Jiao, Luo, Malmqvist & Summers, 2022; Lamba & Jain, 2022; Magistretti, Pham & Dell'Era, 2021; Marx, 2022; Oliveira, Zancul & Salerno, 2024; Toppenberg & Mehta, 2019; Vendraminelli, Macchion, Nosella & Vinelli, 2023; Wang, 2022). An important question in this stream of research focuses on defining the unique DTr challenges that make a DTh approach necessary or, rather, what makes DTh and DTr able to help each other in the context of existing firms willing to enhance their competitiveness in the digital age.

2.4.1. Digital Transformation is a Wicked Problem

Several studies point out that what makes DTh valuable to DTr is DTh's ability to deal with wicked problems (Diderich, 2022;

Fountain, 2020; Toppenberg & Mehta, 2019; Vendraminelli, Macchion, Nosella & Vinelli, 2023). According to Fountain (2020) wicked problems are defined as highly interdependent, multicausal, unstable, and socially complex. Such problems challenge leaders to engage multiple stakeholders at various levels with competing perspectives and develop management strategies to handle high uncertainty, ambiguity, unexpected, and dynamic developments. More importantly, "to grasp how digital transformation fundamentally disrupts traditional management practices and how best to move forward, leaders should view it as a wicked problem."[4] Digitalization as a wicked problem calls for experimentation, pilot projects, rapid monitoring of intermediate results, and feedback aiming at questioning and refining the initial problem definition – all of these being core practices of DTh as discussed in the previous sections. Toppenberg and Mehta (2019) published a three-part *Executive Update* elaborating on "how the two concepts — design thinking and digital transformation — intersect, how they impact many different types of organizations, and how executives can leverage design thinking concepts at different stages to change their approach to decision making and the implementation of new, innovative ideas" (p. 1). According to them, "to discover these new opportunities and reshape their organizations for digital transformation, many companies have turned away from traditional analytical thinking toward design thinking, a method that does not immediately consider a solution up front, but instead examines both present and future conditions and the parameters of the problem, ultimately exploring alternative solutions." Toppenberg and Mehta (2019) point out that approaching problem framing as a core DTh practice requires changing the lens on how we view DTr: "We choose to see the elements of digital transformation as what Horst Rittel and C. West Churchman in the 1960s referred to as a 'wicked problem'" (p. 3). They refer to Conklin (2005) in defining six characteristics of wicked problems that they associate with DTr initiatives: a) the problem is not understood until after the formulation of a solution; b) wicked problems have no stopping rule; c) solutions to wicked problems are not right or wrong; d) very wicked problem is essentially novel and unique; e) every solution to a wicked problem is a "one-shot operation"; f) wicked problems have no given alternative solutions.

According to Vendraminelli, Macchion, Nosella and Vinelli (2023) the design of a DTr strategy is a wicked problem for managers because of its inherent complexity and uncertainty (interestingly, Camillus (2008) claims that the development of any strategy is a wicked problem). They emphasize that one of the key reasons for the complexity is the involvement of diverse stakeholders with differences in values and priorities, unique problems to deal with, and resistance to change. A DTr process "is often transversal to the traditional organizational structures, and this makes it knotty to synthesize stakeholders' differences in a common operative strategy" (p. 1). The multiplicity of stakeholders leads to incomprehension and tensions due to the differences in culture and backgrounds, the difficulty of solving disputes, leveraging a hierarchical authority, and dealing with political negotiations, trade-offs, and mere compromises. The uncertainty of DTr processes is associated with the multiplicity of ways of combining digital technologies and the need for multiple in-depth and complex redesigns of firms' operations. "Thus, learning by trial and error is very problematic because every digital transformation process is unique, and the rapidly changing dynamics of technological and social evolution prevent companies to stick to long-range plans" (p. 1). Vendraminelli et al. (2023) affirm that, given the context of complexity and uncertainty, DTh helps organizations plan and execute DTr strategies. It enables them to deal with stakeholders' misalignment by proceeding with small incremental iterations instead of drawing long-term plans. The authors emphasize that the necessity to deal with the solution of complex problems with uncertain outcomes is not new to management theory and practice. They believe however that DTh

[4] The Wicked Nature of Digital Transformation: A Policy Perspective (dubaipolicyreview.ae)

practices "provide precious assets to solve them, recommending a different mindset from analytical thinking, and a set of tools to be used in practice" (p. 1).

2.4.2. A Paradox-based Perspective on Digital Transformation

A second common ground between the DTh and DTr research streams is the fact that they both incorporate the necessity to deal with paradoxes. DTh has benefited from defining design problems in terms of paradoxes (Dorst, 2006; Dorst, 2015ab). At the same time, it could be characterized by its own multiple paradoxes (Rodgers, Innella & Bremner, 2017; Verganti et al., 2021). The paradox lens to management theory and practice enables to unfold the complexity and ambiguity of organizing, where dynamic and conflicting forces often exist. Paradoxes are defined as "contradictory yet interrelated elements that exist simultaneously and persist over time. Such elements seem logical when considered in isolation but irrational, inconsistent, and even absurd when juxtaposed" (Smith and Lewis, 2011, p. 386). Michael Raynor (2007) points out that a paradoxical perspective on management is unavoidable since every organization with a genuine strategic intent needs to deal with the so-called Strategy paradox which refers to the tension between commitment and uncertainty. According to Raynor, the real issue is that managers need to make choices with far-reaching consequences in real time but must base those choices on assumptions about a future they cannot predict. Because of that, most managers avoid making bold commitments that success seems to demand, choosing instead modest and unremarkable strategies that jeopardize the chances for success. This is an example of a paradox that emerges from the co-existence of competing demands that should be met in parallel and not exclude each other. DTr is one of the exemplary contexts that is naturally associated with the existence of such competing demands (Danneels & Viaene, 2022; Qin, 2023; Smith & Beretta, 2021; Volpentesta, Spahiu & De Giovanni, 2023; Wimelius, Mathiassen, Holmström & Keil, 2021). For example, DTr requires organizations to balance exploration and exploitation, as well as to focus concurrently on speed, experimentation, and stability (Danneels & Viaene, 2022). A growing body of research studies focuses on organizational paradoxes and the managerial responses in DTr, emphasizing the need for a "both/and" approach to decision-making (Qin, 2023; Smith & Beretta, 2021; Volpentesta, Spahiu & De Giovanni, 2023; Wimelius et al. 2021).

Smith and Beretta (2021) explored the complexities of DTr of incumbents by investigating how firms attempted to deal with the paradox of balancing separation (creating a separate digital unit to drive the transformation of the whole organization) and integration (conducting digital activities within existing firm structures). The use of a paradox lens was found highly valuable in displaying the tensions that emerged as a result of the newly introduced organizing model and how it affected the DTr. The study provides substantial empirical insights into the nature of paradoxes related to organizing for digital innovation, and how and why they emerge and develop over time. Second, it examines DTr across different levels of analysis providing empirical evidence that paradoxes inherent in the organizing efforts are highly interrelated. Third, it provides a more refined understanding of the dynamic evolution of DTr at the organizational and strategic levels. Finally, the study contributes to the ambidexterity literature emphasizing the dynamic and interdependent relationship between conflicting demands and contradictory elements inherent in DTr organizing efforts (Smith & Beretta, 2021).

Wimelius et al. (2021) consolidated insights from previous research to conceptualize technology renewal as an inherently paradoxical DTr process in which organizations must simultaneously remove their technological foundation and build on the practices that depend on it to implement a new technological foundation. Their study suggests that technology renewal is driven by three paradoxical tensions: (a) established vs renewed technology usage, (b) deliberate vs emergent renewal practices, and (c) inner vs outer renewal contexts. This threefold framing was then applied to a longitudinal case study illustrating how an organization's responses to manifestations of these tensions eventually led to a vicious cycle of continued investments over nine years into two

overlapping and largely incompatible digital platforms. The results show that organizations may respond to tensions through combinations of accommodating the opposite poles of a tension (integrating), choosing one of the opposites of a tension (splitting), articulating a solution to a tension without committing to consequential actions (pretending), and not addressing a tension (avoiding). At the same time, organizational responses to tensions appearing in the context of technology renewal may reinforce virtuous and vicious cycles. Reinforcing a virtuous cycle requires persistent patterns of integrating and splitting responses. In contrast, persistent patterns of pretending and avoiding responses will reinforce a vicious cycle and increase the likelihood of failure (Wimelius et al., 2021).

2.4.3. DTh and DTr Operate in a Multiple Stakeholder Context

A third common ground between DTh and DTr is the fact that they both need to address the needs and align the preferences and potential contributions of a variety of stakeholders. The growing body of literature on DTr seems to overemphasize its organizational aspects (Dunne, 2018; Heavin & Power, 2018; Kretschsmer & Khashabi, 2020; Smith & Beretta, 2021; Toppenberg & Mehta, 2019; Volpentesta, Spahiu & De Giovanni, 2023). The problem is in the hidden assumption that DTr should be approached from a predominantly single organizational perspective. First, no firm operates alone and there is no reason to ignore existing and new organizational partners, suppliers, and even competitors when engaging in DTr initiatives. More importantly, shaping new digitally enabled value propositions (and, as a matter of fact, any value proposition) is an inherently collaborative activity that requires the alignment and the reciprocal engagement of all relevant stakeholders (Bailetti, Tanev & Keen, 2020; Tanev, Keen, Bailetti & Hudson, 2024).

Second, the majority of existing companies engaging in a DTr journey acquire digital technologies from external providers who become a key factor in defining and sustaining the logic of the operation of the newly acquired technologies. As Wagner (2020) pointed out, "with the arrival of Artificial Intelligence (AI), the nature of the firm is changing" (p. 1). Interpreting AI as a new and highly relevant agent or actor makes it possible to identify the multiple interrelated changes that AI brings to the institution of the firm, such as: a) AI intensifies the effects of economic rationality on the firm; b) AI introduces a new type of information asymmetry between the firm, the developer of the AI system and the AI system itself; c) AI can perforate the boundaries of the firm; d) AI can create triangular agency relationships between the AI system vendor, the AI system itself and the focal firm; and e) AI has the potential to remove traditional limits of integration. Thus, the collaborative or distributed nature of the adoption of AI systems and other digital technologies requires companies to engage in more elaborate examinations of the multiple-actor agency (including the agency of non-human factors) present in DTr initiatives. In this sense, adopting an actor-network theoretical perspective could be highly beneficial (Russo Spena & Cristina, 2020).

2.5. Design Thinking and Strategy Development in a Digital Transformation Context

2.5.1. A Logical Incrementalist Design Thinking Approach to Digital Strategy

Vendraminelli et al. (2023) explored the use of DTh in the planning and execution of a DTr strategy, building on the insights developed by Fraser (2007), Holloway (2009), and Golsby-Smith (2007). The suggested digital transformation process focuses on prioritizing and acting on a set of digital opportunities and integrating them within the business operations of a focal firm. Pursuing the selected digital opportunities requires transforming the operating model from its initial state (A) to a new one (B). This change of state is framed as a three-phase process (Fraser, 2007): a) Problem framing, focusing on representing the current reality; b) Ideation, focusing on designing a digital transformation strategy; and c) Development and release, focusing on turning the digital transformation strategy into digital projects. The process starts with one or several

brainstorming sessions resulting in an articulation of the current corporate strategy (to make sure that the digital transformation activities will align to it), a map of the actual operating model of the firm, and a list of digital projects to be implemented as part of the digital transformation strategy. The development of actionable insights for these steps is based on interviews with the executive managers of the firm and, eventually, with external partners. The interviews address explicit requests from the diverse stakeholders referring to the problems they were facing in their routine. A second series of brainstorming sessions focuses on discussing any problematic issues aiming at convergence on a list of needs that future digital projects are expected to address. The third phase (turning the digital transformation strategy into a portfolio of projects to be executed) is key to the entire process. For each key strategic goal, the company assigns a specific group of employees to run a design sprint (Magistretti et al., 2020) to design one digital solution for each strategic goal to be implemented as part of the allocated digital transformation budget. The investment decision is based on the potential fit with the initially designed digital transformation strategy and the resources required by each proposed project. The DTr strategy implementation process suggested by Vendraminelli et al. (2023) is designed as a refinement of the existing corporate strategy. It is inspired by the Logical incrementalism theory of strategy-making, where the role of the executives is to build on their existing corporate strategy by shaping a new direction for the organization to be followed, allowing tangible plans to emerge in a later stage (Quinn, 1978). It is expected therefore that such a process might not be best suited for situations where a company is engaging in a fully transformative digital transformation journey.

2.5.2. Constructivist Approaches to Digital Strategy Development

According to Jeanne Ross: "Traditionally, in large organizations, senior executives and their boards spend a lot of time defining strategy. And the success of the company depends a great deal on having a great strategy. Interestingly, in the digital world, strategy is less important. You should gasp now. Because, traditionally, we didn't think anything was more important than strategy, but the reality is in the digital economy, what we can do, what technologies make possible, and what our customers want changes every day. So our strategy is constantly evolving. Our success depends on being able to recognize when the existing strategy is not quite right and then pivot it to something that will really hum. That kind of thinking is what digital startups do and I would argue it is what every successful digital company will do. So, we want to focus on not how you define your strategy, but rather how you design yourself so that you can see these opportunities and then quickly deliver on them. Because that will be the thing that will trip you up. Most companies are designed to do what they do really, really well, not to change really, really fast."[5] Interestingly, Ross' view on the nature of digital strategy is not unique to the context of companies engaged in digital transformation initiatives (Foss et al., 2022; Spender, 2014). For example, Spender (2014) takes a more constructivist, knowledge management perspective on strategy by emphasizing that strategic work can not be understood "without a complementary understanding of the entity being managed—the private sector firm—and the knowledge absences that characterize it" (p. viii). Such an approach avoids defining the firm in strictly deterministic terms: "From management's point of view, a firm is defined more by its practical capabilities and potentials than by its charter or the tangible resources shown on its balance sheet. These capabilities change all the time because people learn by doing – so strategic work is continuous and dynamic, and an ongoing challenge in a changing world" (p. viii). For Spender,

5 https://www.youtube.com/watch?v=TLmbgkviXrI&t=30s

strategic work does not start with presumptions about what firms are, but with shifting the analysis onto the practice of constructing them: "Contrary to the popular view, I do not presume a firm's strategy is determined by its markets, competition, technology, or any similar external features of its situation, even though these 'facts' clearly constrain the strategist. Strategic work is the process of bringing an entrepreneurial idea into a particular socioeconomic context (where it appears as a 'business model'). The entrepreneur identifies and chooses the markets, competitors, and situations to engage in. The resulting business model must answer the questions that arise as the firm's entrepreneur/s look out at their context from within their business model—with their chosen goals in mind: 'What does it mean to us? What do we do now?'" (p. ix). Spender's internal value-creation view stands against the conventional outsider's perspective that considers strategy as determined by external circumstances. For him, strategy and business model development frameworks are not about adopting a common language but about the ability of a firm to construct and deploy its own language that ultimately provides its identity. "A firm without a 'local' language to describe itself and its context, and thereby capture its uniqueness, has no strategy" (p. xii). This is a more generic approach to strategy that fits very well Ross' digital strategic perspective and offers another ground for the constructive adoption of DTh practices un and DTr initiatives.

2.5.3. David Rogers' Digital Transformation (DX) Roadmap

Rogers (2023) suggested an approach to strategy development in the context of existing businesses engaged in DTr (Rogers uses the acronym DX). Although it does not explicitly refer to DTh, it was designed to address some of the top barriers to DX success related to the absence of key DTh elements. One of these barriers is the excessive emphasis on planning over experimentation where "the focus is on meticulous planning and execution, following a stage-gate approach to carry each project through to a predefined solution" (p. 8). Rogers points out that this approach is directly opposed to the model of rapid experimentation typical of DTh practices. "And though legacy firms may adopt the trappings of experimentation—rolling out agile software teams and enrolling in design thinking classes—they squeeze these iterative methods into a planning-heavy management model" (*Ibid*). In such an approach, executives keep looking for best practices rather than validating new ideas directly with customers, teams are assigned to build solutions rather than to solve problems, and lack of flexibility in changing direction leads to costly failures and risk avoidance. As a result, digital ventures have no impact on the business. Another key barrier to DX success is the lack of flexibility in governance. "Companies lack processes for iterative funding or for allocating resources beyond the core. They are unable to stand up multifunctional teams to move fast on new opportunities. In short, they have no repeatable process for managing and scaling growth" (Rogers, 2023, p. 9).

Rogers' DX roadmap approach is not about adapting the business strategy of an existing organization by leveraging the capabilities of digital technological resources and assets. It requires a combination of digital strategy and organizational transformation which could be illustrated symbolically as a formula: DX = D strategy + organizational X. For Rogers, the real challenge is in dealing with the "organizational X" component. This view aligns with Jeanne Ross' understating of digital strategy design – it is all about redesigning your organizations to see the emerging digitally enabled opportunities and then quickly deliver on them. According to Rogers (2023, p. 12), "this means rethinking strategy for the digital era across five domains: your customers, your competition, your data, your process of innovation, and your value proposition."

Table 1 shows a visual representation of Rogers' five-step DX roadmap. We can see here a more intuitive understanding of strategy which explicitly incorporates a focus on new value proposition development. The first three steps of Rogers' DX approach focus on shaping new value propositions (or new ventures incorporating the new value propositions). The first step is to define a shared vision of where the company is going, why it must go there, and why its

organization is uniquely suited to this journey.

Table 1. Rogers' Digital Transformation Roadmap (Source: Rogers, 2023, p. 13).

Rogers' Digital Transformation Roadmap Steps		**Key concepts**
Vision	Define a shared vision	• Future landscape – where are your world and business context going • Right to win – unique strengths and limits of your organization • North Star impact – the impact do you seek to achieve in the long term, and why • Business theory – a causal theory that doing X will lead to Y
Priorities	Pick problems that matter the most	• Problem/Opportunity statement • Problem/Opportunity matrix – problem/opportunity vs customer/business • Venture backlog – list of ideas for innovations to pursue
Experimentation	Validate new ventures	• Four stages of validation – problem, solution, product & business • Growth navigator – visually map progress through the four stages of validation • Illustrative vs functional minimum viable products (MVPs)
Governance	Manage growth at scale	• Teams and boards • Iterative funding process • Three paths to growth – manage ventures having different levels of uncertainty as well as ventures near and far from core • Corporate innovation stack
Capabilities	Grow tech, talent and culture	• Technology and talent map • Modular architecture • Culture-Process map

The first step includes four elements that are the answers to four different questions:

- *Future landscape:* Where do you see your world and your business context going (customer preferences, technology, competition, and non-business structural trends)?
- *Right to win:* What are the unique strengths and limits of your organization that will define the role you play (unique advantages and strategic constraints)?
- *North Star impact:* What impact do you seek to achieve in the long term, and why?
- *Business theory:* How do you expect to capture value and recover the investments made for the future (a causal theory that doing X will lead to Y)?

The second step of the DX Roadmap focuses on defining the strategic priorities that will guide the company's digital growth agenda. It starts with examining strategy through the double lens of problems to solve and opportunities to pursue. This step uses customer journey mapping and interviews to identify the most valuable problems and opportunities for the business. In addition, it uses problem/opportunity statements to define strategy and shape ideas for digital innovation at every level of the organization. It enables the company to engage the various teams across the organization by focusing the digital efforts on solving problems and not just on adopting technologies, accelerating change, and enabling growth with new ventures at every level and in every department.

The third step of the DX Roadmap focuses on rapidly testing new digital ventures to validate which ones will create value for customers, key stakeholders, and the firm itself. It starts with defining hypotheses and designing experiments to test the key business assumptions behind them. It uses iterative prototypes and minimum viable products (MVPs) to answer specific design questions and uses a Four Stages Validation model (problem, solution, product, and business) to enable learning and guide any new venture on its path from

a new idea to business at scale. This step enables the company to test many new ideas and learn which works best, make decisions based on data from customers, keep failures cheap, and iterate quickly to shape the new digitally enabled value propositions. The last two roadmap steps focus on governing growth and capability development. Rogers' DX roadmap approach provides a basis for shaping an actionable framework incorporating the interplay between DTh, CI, and Dtr.

2.6. Design Thinking and Competitive Intelligence

Cavalo et al. (2021), following Calof et al. (2017) and Bulger (2016, p. 63), refer to CI as: "… the robust integration of insights from 'intelligence pools' that are identified across the business environment and in collaboration with other functional areas and disciplines that are synthesized to gain a comprehensive picture of a market in its current state and in its probable future state." The outcome of such integrated intelligence efforts is critical decision-making, which is required to drive and gain a competitive advantage for an organization. CI can be classified as tactical intelligence or long-term focused strategic intelligence.[6]

The link between DTh and CI is significantly understudied. Its discussion contributes to the never-ending conceptualization of the CI domain and core practices (Cavallo et al., 2021; Madureira et al., 2021). Madureira (2019) has addressed the topic in somewhat apologetic terms, promoting the need for DTh in CI and pointing out that DTh can support the cultural change an organization must endure to become truly customer-centric. According to him, by adopting a DTh mindset CIPs will better help businesses create and retain value in a digitally empowered world, leading to their increased capacity to deal with complexity via improved sense-making, non-linear thinking, and abductive reasoning. "Design Thinking is a 'team sport' in problem-solving that helps to align the CI function with the organization at large. The mandatory inclusion of different perspectives from different functions, represented by different people in the organization helps build a common view of the problem, thus aligning towards a better solution" (p. 8). In addition, Madureira explains why abductive reasoning could be highly valuable for CIPs. "One can understand abductive reasoning as 'inference to the best explanation.' … Despite many possible explanations for any physical process that we observe, we tend to adduce a single explanation (or a few explanations) for this process in the expectation that we can better orient ourselves in our surroundings and disregard some possibilities. The added value should be obvious to any Competitive Intelligence Professionals, as well as Innovators, focused on integrating data points to come up with better and novel insights and solutions that at first sight were impossible to develop. Most importantly, to be able to see what others do not, or developing new products and services no one thought of before" (p. 11).

According to Madureira, the most popular DTh framework (Empathize, Define, Ideate, Prototype, Test) resonates with the typical intelligence cycle (planning, data collection, analysis, communication, decision-making, and evaluation). For example, empathetic knowledge enhances the logical approach of CIPs, enables a better alignment with the internal client, and can improve both primary and secondary information collection. But more importantly, DTh promotes the change from internal to external focus, leading to the emergence of a customer-centric organization. Last but not least, DTh allows prioritizing the delivery of quick wins and updating the decision-making process with incrementally added value intelligence as the CIP iterates the interplay between problem and solution. It will make Intelligence more flexible and adaptable to the environment, helping the CI discipline fit the agility of modern organizations.

Huber (2021) has addressed the link between DTh and CI in the opposite way (CI → DTh) which could also be used to inform the

6 https://www.investopedia.com/terms/c/competitive-intelligence.asp

present discussion. He points out that creating exceptional user experiences continues to be a trillion-dollar industry for companies that can design and develop new winning products. "To make products that win in the market, you have to be looking not just at what the competition is doing, but how they're delivering it through their user experience. However, evaluating and analyzing a competitor's user experience is not a prevalent practice for design teams or competitive intelligence teams, leaving a big gap in most organizations." Huber believes that CI practices should become part of the professional toolkit of UX design teams and developed a CI framework including six elements: 1) Audit your product: What part of the experience are you going to improve? 2) Identify your direct and indirect competition. 3) Audit the competition: What's working, what's not? 4) Prioritize strengths and weaknesses. 5) Turn the findings into insights. 6) Turn insights into action. According to him, CI helps design teams in several ways: it saves time; improves outcomes; and adds a missing perspective that is necessary in highly competitive markets.

2.7. Competitive Intelligence and Business Strategy

Recent research studies have focused on discussing CI practices in relation to business strategy (Madureira et al., 2023; Maluleka & Chummun, 2023; Cavallo et al., 2021; Fahey, 2007). In this section, we will focus on the insights developed by Fahey (2007) and Cavallo et al. (2021).

As early as 2007 Fahey defined two key questions executives should ask to assess the strategic relevance of the CI practices of their organization: a) Does it support collaborative inquiries that drive a relationship between strategy and intelligence? b) Does intelligence about changes in the marketplace stimulate strategic thinking and discussion? According to Fahey, the negative answers to these two questions are likely due to two possible factors. *First*, executives do not understand the role and contribution of intelligence to the strategy dialogue and, as a result, do not know the specific questions they need to pose to their intelligence team. *Second*, the CI team fails to see strategy-making as integral to their job and, as a result, does not challenge managers' long-held perspectives, viewpoints, and assumptions. Thus, they lack the capacity to anticipate the emerging and future world in which strategy must win. To be able to do that, CI professionals need to: a) know and understand the firm's current strategy; b) be familiar with future strategy possibilities; c) be comfortable in the language and conversations associated with strategy; d) perform strategy analysis and intelligence work as being the same thing (Fahey, 2007, p. 5). These four elements are based on five strategy inputs: marketplace opportunities, competitor threats, competitive risks, key vulnerabilities, and core assumptions. Each of these inputs enables the management team to engage in a more intelligent dialogue around the firm's competitive strategy.

More recently Cavallo et al. (2021) defined CI as a multidisciplinary practice that can deeply contribute to the various stages of a company's strategic formulation process and its capacity to gain competitive advantage. However, "[d]espite the increased awareness over the strategic relevance of CI and few early valuable extant contributions, the state-of-the-art research yet partially fails to capture the positioning of CI in the overall strategy of companies and within the strategy formulation process" (p. 255). There is still an ongoing debate about whether CI can play a role in strategic planning or at a more tactical level by supporting and driving shorter-time-oriented decisions: "Although extant literature encompasses an extensive body of research on strategic analysis and strategy formulation, the current debate still lacks of research that can provide the basis for integrating CI into the overall strategy of a company" (p. 251, referring to Calof et al., 2017). At the same time, the need and relevance of linking CI and the strategic formulation process "becomes an even more urgent issue in a networked and digital economy" (Cavallo et al., 2021, p. 255).

Cavallo et al. (2021) contributed to the debate by examining the literature to identify previous insights on how CI may support the strategic formulation process. Previous literature refers to:

- Describing the current competitive environment and predicting its future (Porter, 1980).
- Focusing on internal analysis to identify and compensate for exposed weaknesses (Barney, 1991).
- Challenging the underlying assumptions of the current strategy by considering emerging patterns influenced by external circumstances (Mintzberg & Waters, 1985).
- Using intelligence to implement and adjust strategy to the changing competitive environment, creating contingency plans to generate alternative strategies (Armstrong, 1982).
- Monitoring the strategy viability, determining when the strategy is no longer sustainable, i.e. assisting the controlling stage by learning from what went wrong (Lorange, 1980).

The authors conducted a cross-case analysis of four exemplar companies operating in different settings to capture their CI activities and their relationship with the strategy formulation process. The cross-case analysis allowed them to formulate and support a set of propositions based on previous relevant literature findings. The propositions are as follows.

P1. *The evermore global, networked, and turbulent competitive environment requires the development of CI practices.*

P2. *CI can have a role at every step of the process from setting strategic objectives to strategy monitoring, and at the various strategic levels – strategic, tactical, and operational*. While there is agreement about the strategic relevance of CI in a dynamic and turbulent world, CI units focus predominantly on customer value analysis, understanding their clients' needs in specific market segments, leaving less attention to the longer-term strategy. In other words, companies leverage CI practices mostly for tactical and operational reasons, and CI units contribute little to defining strategic objectives and strategy formulation.

P3. *The higher the turbulence and uncertainty perceived by companies, the more strategic will be the use of CI.* Evidence suggests that CI may play a major role in the strategy formulation process in turbulent high-uncertainty times which are typical of new companies.

P4. *No matter the level of sophistication of the CI practices, these include, planning, data collection, analysis, and dissemination*. Companies engage in all main activities of the intelligence cycle above, irrelevant to the levels of complexity and the number of employees at hand. They use a variety of data sources such as internal databases, internet websites, public databases, publications about industry trends, conferences, and industry expert opinions. Client data and clients are emphasized as extremely valuable while data is increasingly collected online through open social platforms.

P5. *Individual and organizational contextual factors influence how CI practices are executed*. Many companies use analytics to drive decision-making and better understand their businesses, markets, and customers. Organizational structure, culture, and openness to data sharing could be both inhibitors or facilitators. Company size and distance from strategic decision-making may weaken the effectiveness of CI practices. However, company size positively affects the availability of resources that could help the success of CI practices.

3. DESIGN THINKING AND COMPETITIVE INTELLIGENCE IN A Digital Transformation Context

3.1. Summary of Key Insights from the Literature Review

The objective of the rather extensive literature review was multifold. It started with reviewing the recent DTh literature to identify emerging trends in its most recent 'reincarnations'. The literature indicates not only its capacity to address the wicked problems of DTr initiatives but also the need for its self-transformation which is required by the high demands of the present digital age. According to Verganti et al. (2021) DTh has remained trapped in a positivistic, user-centric, and incremental dominant logic, and still struggles when dealing with multiple-stakeholder and multiple-framework contexts. We have reviewed two

representative DTh approaches that address some of Verganti et al.'s concerns and could prove valuable to the DTr context. These were Liedtka's DTh social technology approach (Liedtka & Locatelli 2023; Liedtka, Hold & Eldridge, 2021; Liedtka, 2020; Liedtka, 2015) and Dorst's frame creation approach (Dorst, 2016, 2015ab; Dorst & Watson, 2023).

We have also reviewed the most recent research focusing on the application of DTh to strategy development. The focus on this application area of DTh was motivated by the assumption that the strategy perspective could be used as a bridge between the integration of DTh and CI practices. In addition, this is an emerging research stream with a high relevance for the DTr context. Interestingly, both Liedtka and Dorst have discussed the application of DTh to strategy development and have made complementary contributions to this field. Liedtka's social technology perspective emphasizes the need for self-organizational design and design team transformation in approaching the complex problem areas of today's organizations. It integrates perspectives from strategy, innovation, and design to demonstrate that DTh goes beyond creating better products and experiences, contributing to the development of dynamic capabilities that are essential for the reconceptualization and adaptation of a firm's strategy (Liedtka, 2020, p. 54). On the other hand, Dorst's frame creation approach makes an important difference between the open, complex, dynamic, and networked problems of society and industry at large and the problems of specific stakeholders affected by these problems in their specific context. Dorst's approach focuses on shaping innovative multiple-stakeholder value propositions to address complex issues that have not been able to be addressed before. It allows for distinguishing between the strategic and the innovation project-focused aspects of a business. Dorst and Watson (2023) have explicitly pointed out that to enhance its strategic impact design needs to move beyond the role in which it was initially conceptualized as a project-focused activity; it needs to impact the practices in the organizations involved, as well as the strategy, the processes, and the structures of the focal organization. Finally, Claude Diderich (2020) suggested a comprehensive design-for-strategy framework that could be integrated with a more systematic CI approach. However, it is not directly related to the DTr and needs to be adapted to this context.

The literature on DTh for DTr has focused on explaining the wicked nature of DTr problems to emphasize the potential of DTh to address the DTr context (Diderich, 2022; Fountain, 2020; Toppenberg & Mehta, 2019; Vendraminelli et al., 2023). We have also identified the paradox-based and multiple stakeholder perspectives as common to both DTh and DTr (Danneels & Viaene, 2022; Qin, 2023; Smith & Beretta, 2021; Volpentesta et al., 2023; Wimelius et al., 2021; Dorst, 2006; Dorst, 2015ab). More importantly, this stream of research discusses the role of DTh in shaping DTr strategies. Vendraminelli et al. (2023) suggested a logical incrementalist approach to the design and implementation of DTr strategies. Their approach assumes the existence of a business strategy and provides a process for its refinement and adaptation through the adoption of digital technologies. In this sense, it does not appear as truly transformative in its ability to shape new digitally enabled value propositions. The strategic perspectives discussed by Jeanne Ross[7], Spender (2014), and Foss et al. (2022) promote an alternative constructivist perspective on strategy that could be more suitable to the DTr context. Ross' digital strategy perspective provides two important insights. First, the design of a transformative digital strategy starts with redesigning the organization itself, i.e. strategic design about self-design[8]. This insight resonates with Liedtka's understanding of DTh as a social technology and its transformative impact on the design team or the entire organization (Liedtka et al., 2021). Second, it suggests the need to conceptualize digital strategy as an

[7] https://www.youtube.com/watch?v=TLmbgkviXrI&t=30s

[8] See Groys, B. (2008). The Obligation to Self-Design: https://www.e-flux.com/journal/00/68457/the-obligation-to-self-design/.

emerging and proactively dynamic corporate attitude, which is continuously reshaped based on the engagement of and the feedback from the multiple stakeholders associated with a business – customers, employees, partners, competitors, investors, etc. The strategic perspectives of Spender (2014) and Foss et al. (2022) complement this view and offer a basis for its conceptualization in specific DTr contexts.

The Digital Transformation (DX) roadmap approach proposed by Rogers (2023) is unique since it was tailored towards businesses engaged in a DTr journey but, at the same time, it is generic enough to be applied in a broader context extending beyond the digital business transformation realm. This makes it quite integrative in its ability to incorporate insights and practices from Liedtka's social technology and Dorst's frame creation DTh frameworks. Its comprehensiveness is similar to Diderich's Design-to-Strategy approach (Diderich, 2020), but it appears to be more intuitive and specifically designed for DTr initiatives. Another similarity between Rogers' and Diderich's perspectives is their explicit focus on value proposition development (new venture projects in the case of Rogers) and business model innovation (in the case of Diderich which incorporates the value proposition element) as a bridge between business strategy and competitive positioning. This similarity opens an opportunity to consider new digitally enabled value propositions as an integrative construct operating between DTh, business strategy, and CI in a DTr context.

There is still the question of how all the above is related to CI practices. The summary of the insights from the very little research on the relation between DTh and CI emphasizes the potential of DTh for CI (Madureira, 2019). For example, DTh can:

- enhance the capacity of the organization to deal with complexity via improved sense-making through non-linear thinking and abductive reasoning
- align the CI function with the organization at large
- help the emergence of a customer-centric organization
- prioritize the delivery of quick wins
- enhance the decision-making process with incrementally added value intelligence seeking a better problem-solution fit.

The discussion about the potential role of DTh in CI practices requires a discussion of the relationship between CI and business strategy. Fahey (2007) emphasized the urgency of enabling a more productive dialogue about strategy-making between executives, CI professionals, and managers in other functional areas. The problem he sees in 2007 is that CIPs fail to see strategy-making as integral to their job. Almost 15 years later, Cavallo et al. (2021) have addressed this issue again by pointing out that current research "fails to capture the positioning of CI in the overall strategy of companies and within the strategy formulation process" (p. 255). Their empirical research indicates that:

- Companies are aware that the globally networked and turbulent competitive environment requires the development of CI practices
- CI can play a major role in the strategy formulation process in turbulent high-uncertainty times typical of new companies
- CI can help every step of the strategy development process at all strategic levels – strategic, tactical, and operational
- CI practices tend to focus on customer value analysis and understanding customer needs in specific market segments, leaving less attention to the articulation of a longer-term strategy
- Companies leverage CI practices mostly for tactical and operational reasons
- CI units contribute little to defining strategic objectives and strategy formulation
- Organizational structure, culture, and openness to data sharing could be both inhibitors or facilitators of CI practices.

The findings of Cavallo et al. (2021) suggest that the potential of CI in strategy development is significantly underutilized. Companies do not seem to appreciate the value of longer-term strategic (foresight-driven) analysis or, probably, fail to make the difference between CI and foresight (Calof et al., 2017). In addition, the adoption of CI practices seems to have been associated with

a problem similar to the traditional application of DTh driven by an incrementally-oriented project-driven logic. Finally, companies may find it challenging to adopt CI practices in a truly strategic context by working with high-level strategy concepts such as environmental scanning, competitive landscape, etc. This is where a focus on value propositions could help by creating a more tangible link between CI and strategy.

3.2. Value propositions as a link between strategy, business model design, and competitive positioning

DTh and DTr share the challenge of aligning strategic (competitive business landscape and strategic partnerships), business modeling, operational, and competitive positioning concerns. The question about the best possible way of dealing with this challenge is open. In this paper, we propose using a company's digitally enabled value proposition(s) as an integrative construct in aligning firms' digital strategy, business model implementation, and business operations. The proposal aligns with research studies considering the value proposition as "a strategic tool that is used by a company to communicate how it aims to provide value to customers" (f.e., Payne et al., 2017, p. 467), claiming that it should be company's single most important organizing principle (Webster, 2002) and, thus, one of the company's most valuable resources (Bailetti et al., 2020; Tanev et al., 2024). Shaping the value propositions of a firm is always relative to existing competitive alternatives, i.e. this is how a firm conceptualizes its strategic positioning and the ways of making sense in the world. A carefully designed value proposition should influence all key aspects of a business such as its competitive positioning and differentiation, acquisition of complementary resources as part of its value creation process, operations management, and interactions with all relevant internal and external stakeholders. Thus, it should be one of the main concerns of a company's DTh practices.

Unfortunately, most of the extant literature appears to miss the important link between a company's portfolio of value propositions and its business strategy (Bailetti et al., 2020; Tanev et al., 2024; Nambisan et al., 2019; Onetti et al., 2012). Onetti et al. (2012) make a clear distinction between the business model and the strategy concepts and claim that business model definitions should not include the concept of value proposition which, according to them, should be part of the higher-order or strategic elements of a business (Winter, 2003). Amit and Zott (2021) also point out that early definitions of the value proposition construct emphasize the link to a firm's strategy and performance by observing that a winning strategy is always rooted in a superior value proposition (Lanning & Michaels, 1988). Value propositions should be therefore examined from a strategic point of view since every focal firm needs to shape an explicitly articulated value proposition not only to customers but also to all other stakeholders involved in the design and operationalization of its business model (Tanev et al., 2024; Amit & Zott, 2021; Bailetti et al., 2020; Nambisan et al., 2019).

In a recent article Michael Lanning (2020), the inventor of the term VP, has also emphasized the strategic aspect of VPs. According to Lanning, "the strategic point of a VP should be to deliver it: choose, then both *provide* it (actually make it happen in the experiences of customers) and, of course, *communicate* it. Thus, a business should be understood and managed as a 'value delivery system'" (p. 306, Lanning's italic). For him the context for VPs is the concept of value delivery system. This concept "was meant to help re-focus how managers think about business strategy (a suggestion which I still think appropriate though not fully appreciated today). Rather than deciding what product (or service) a business should invent, produce and market (and how), strategy should instead design what VP to provide and communicate to customers (and how)" (p. 307).

The key point here is about the integrative role of the portfolio of aligned value propositions in general but, more importantly, in the specific context of the DTr initiatives based on a DTh approach. Value proposition design shares all the common grounds between DTh and DTr discussed earlier, i.e. dealing with the challenges of addressing open, complex,

dynamic, and networked problems (Dorst, 2015ab; Dorst, 2006); the paradox of integrating the broader business landscape and the user perspectives (Verganti et al., 2021); the strategy paradox (Dorst & Watson, 2023; Raynor, 2007) the multiple stakeholder nature of DTr initiatives (Dorst, 2015ab, 2023; Liedtka, 2020; Verganti et al., 2021; Bailetti, Tanev & Keen, 2020; Tanev et al., 2024). It fits very well the DTh Frame creation approach proposed by Dorst (2015ab) (complemented with its strategic refinement by Dorst & Watson, 2023), in which the last 3 of the 9 steps (Futures, Transformation, and Integration) are fundamentally related to exploring the value propositions for the various stakeholders identified in the previous Frame creation steps. Finally, the competitive aspects of shaping and refining value propositions have already been discussed in the literature, and there is a systematic competitor value proposition deconstruction approach that could be used as part of a more structured DTh approach to business strategy. Payne and Frow (2014) developed a process for value proposition deconstruction that can help organizations transform their value propositions to gain a competitive position in the marketplace. It is applied to a preliminary selected exemplar organization that could be an innovation leader or a successful competitor adopting the business system concept as an exploratory framework to identify the key value-adding elements that comprise this organization's value proposition. Payne and Frow's study shows how a structured approach to the deconstruction of competitor value propositions can provide a more comprehensive and transparent understanding of the differentiating and cost-based elements of a superior value offering to customers and other relevant stakeholders.

3.3. Putting some of the key perspectives together

There are at least two possible ways to link DTh, CI, and DTr. One of them would be to consider it as the adoption of CI practices in enhancing the application of DTh to managing DTr initiatives. The other way would be to adopt DTh practices in developing CI in the context of DTr initiatives. Whatever these ways, we need to integrate different perspectives into an actionable framework that could synergize DTh and CI practice in designing and managing the DTr strategy of new or established firms. The literature review suggests that such integration could be based on Rogers' (2023) Digital Transformation (DX) Roadmap, Dorst's frame creation (2015ab), Liedtka, Hold & Eldridge's (2021) DTh social technology perspective, Payne & Frow's (2014) value proposition deconstruction approach, and the constructivist approach to strategy discussed by Spender (2014) and Foss (2022), including CI-for-strategy insights from Cavallo et al. (2021) and Fahey (2007), and DTh-for-strategy insights from Diderich (2020). As general as this claim could appear, it provides a basis for future research focusing on developing an explicit and tangible actionable framework for executives interested in synergizing DTh and CI practices in pursuing their DTr strategy.

4. CONCLUSION

The paper summarizes the results of an extensive literature review linking several research streams – DTh, CI, and DTr. It provides a critical reflection on the current status of the three research streams and formulates insights about the fundamental building blocks that could help the development of an actionable DTr framework integrating DTh and CI practices. One of its key contributions is the identification of the value proposition as an integrative construct that could help in aligning DTh and CI practices in the pursuit of DTr journeys. The insights will be valuable to both scholars and practitioners.

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