



Fostering Competitive Advantage: Design Thinking as Organizational Culture

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Honor Pledge

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Abstract

Design Thinking has risen in popularity among scholars in recent years. It is a problem-solving approach centered on creativity, collaboration, and empathy, aiming to address complex issues through iterative stages of empathizing, defining, ideating, prototyping, testing, and implementing innovative solutions. However, Design Thinking has the potential to transcend these boundaries. Recent studies have shown that Design Thinking can be used in an organizational context to solve complex problems, drive innovation, and enhance organizational processes. Organizations are using it to achieve continuous innovation and create a competitive advantage.

In the always-evolving business world in which we live, organizations must regularly adapt to customers' needs, technology advancements, and shifting market dynamics. Innovation is the bedrock of an organization's success, both as a driver for growth and a critical factor in the survivability of the organization. Design Thinking can help organizations achieve a competitive advantage by embedding it into their culture and embracing the Design Thinking mindset. A model is introduced to help organizations integrate a Design Thinking mindset into their culture, ensuring they can effectively harness the power of this approach. This model aims to simplify the transformation process, enabling organizations to adopt and benefit from the Design Thinking approach efficiently.

Keywords: Design Thinking, Organizations, Innovation, Culture, Mindset

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Index

Honor Pledge	i
Abstract	ii
Acknowledgments.....	iii
Index of Tables	v
Index of Figures	vi
Chapter 1. Introduction	1
1.1. Motivation	1
1.2. Scope of the Work.....	1
1.3. Background	2
1.4. Research Methodology.....	2
1.5. Structure.....	3
Chapter 2. Literature Review	3
2.1. Search Results	4
2.2. Prisma Diagram Flow	6
2.3. Table of Literature Review.....	7
2.3.1. Introduction to Design Thinking.....	13
2.3.2. Design Thinking – Definition and Characteristic	13
2.3.3. Design Thinking in Organizations.....	15
2.3.4. Design Thinking Mindset.....	17
2.3.5. Design Thinking Culture	19
Chapter 3. Methodology.....	20
3.1. Research Question	20
3.2. Design Science Approach.....	21
Chapter 4. Design Thinking Implementation Model.....	22
Chapter 5. Assessment and Discussion of the Model	27
5.1. Assessment	27
5.2. Discussion	28
5.3. Model Update.....	32
5.4. Limitations	34
5.5. Recommendations	35
Chapter 6. Conclusions.....	35
References	36
Annexes.....	38

Index of Tables

Table 1. Representation of the Search Trials	4
Table 2. Literature Contributions.....	7
Table 3. The 11 Design Thinking Mindsets (Schweitzer, Sobel, & Groeger, 2016)..	19

Index of Figures

Figure 1. Prisma Diagram Flow	6
Figure 2. Design Science in Information Systems Research.....	21
Figure 3. Design Thinking Implementation Model by the author	22
Figure 4. Ways to Grow (Brown, 2019).....	38

Chapter 1. Introduction

An organization that exhibits adaptability can reconstitute itself to ensure its survival. Design Thinking is pivotal in enabling organizations to remain agile and responsive to market fluctuations and technological advancements.

1.1. Motivation

The motivation for conducting this research into DT and Design Thinking in Organizations is a mixture of passion and personal experience. During my time at university, I had the opportunity to explore the world of Design Thinking, and that experience was truly captivating. DT's human-centered approach, creativity, and problem-solving ability made me passionate about the field.

This passion was the fuel that drove me to investigate further how the Design Thinking method can be applied in the business context. Furthermore, innovation plays a fundamental role in the success of companies in a constantly changing business environment. Thus, my research aims to understand how DT can help organizations drive innovation. With this objective in mind, I developed a model to aid the implementation of Design Thinking into an organization's DNA.

Personal motivation is driven by a desire to make a concrete difference in business. The aim is to contribute to academic knowledge and business practice by providing valuable guidance for companies wishing to adopt DT as a critical part of their innovation strategy. The ambition is to make DT more accessible and practical for organizations, enabling them to reach their full potential in innovation, competitive advantage, and survivability.

1.2. Scope of the Work

The scope of work revolves around developing a comprehensive model to facilitate adopting and integrating a DT culture and mindset within organizations. To achieve this, it was explored the definition, principles, and practices of Design Thinking, how Design Thinking

is applied within organizational contexts, and Design Thinking as a mindset and culture. The research question guiding this study is: “How can the culture of Design Thinking and its mindset be implemented in organizations?”.

1.3. Background

Organizations crave new strategies and visions to achieve adaptability. An organization that can adapt to new trends and customers' needs has the potential to survive in highly competitive markets. Many organizations need to change and evolve. They think they do not need to innovate because what they are doing now is working. This is where most organizations collapse because they lose their market share to a competitor or an emerging organization.

The dissertation aims to provide organizations seeking new strategies and visions with a model for effectively implementing the Design Thinking mindset as part of their organizational culture. The goal is to create a risk-taking, user-centric, collaborative, and learning culture to achieve continuous innovation and a competitive advantage.

1.4. Research Methodology

This study's methodological approach combines qualitative meta-synthesis techniques to investigate and create a thorough understanding of the concept; the techniques used in this study are literature search and integration. By methodically gathering, analyzing, and synthesizing qualitative data from several studies, qualitative meta-synthesis provides a solid method for synthesizing the results of qualitative research and producing new knowledge (Sandelowski, Barroso, & Voils, 2007). This research seeks to synthesize and integrate the findings of previous qualitative studies through meta-data analysis (analyzing the findings of studies) to create a cohesive model to support organizations that want to apply Design Thinking as a culture and mindset, thus fostering competitive advantage. A series of three interviews was meticulously organized to validate the proposed model. The initial participant, characterized as a promising entrepreneur and founder with foundational ties to Design Thinking, was deliberately chosen to capture a distinct viewpoint. This selection aimed to explore the intrigue non-designers might have towards integrating the Design Thinking

mindset within their organizational culture. Subsequently, the second and third participants were selected based on their profound knowledge and comprehensive experience in Design Thinking. Their inclusion was intended to furnish the study with invaluable insights and innovative contributions towards the refinement of the model.

1.5. Structure

The dissertation is divided into six chapters. The first chapter introduces the dissertation, which consists of the motivation, scope of the work, background, research methodology, and structure. The second chapter is the literature review; it consists of the search results, a Prisma Diagram Flow (Moher et al., 2009), and a table representing the literature review. The third chapter describes the methodological approach of this dissertation, which consists of the research question and Design Science approach. The fourth chapter presents the proposed model, which results from the literature review. The fifth chapter is the assessment, which consists of the assessment of the model with interviews, discussion, limitations, and recommendations. The sixth and last chapter is the conclusion of the dissertation.

Chapter 2. Literature Review

The following chapter follows a systematic approach guided by the PRISMA Diagram Flow (Moher et al., 2009). All the research was conducted based on Design Thinking and Design Thinking in Organizations. The search was conducted using SCOPUS and Web of Science databases. The tool VOSviewer was also employed to gain a deeper understanding of the results from each search. Furthermore, it introduces Design Thinking, the definition and characteristics of Design Thinking, Design Thinking in Organizations, Design Thinking mindset, and Design Thinking culture.

2.1. Search Results

The results of the searches are presented in a table with five columns: the first column displays the number of the search; the second column, the search string; the third column, how many papers were found in each search; the fourth column the name of the file and date; and finally, the fifth column represents an assessment of each research results.

Table 1. Representation of the Search Trials

	Search String	Number of Papers	Name of the File/Date	Assessment of the Results
<i>Scopus</i>				
1st Search	(KEY (design AND thinking) AND KEY (organization*))	479	SCOPUS1 16-05-2024	The first search presented many records, numerous of which were irrelevant to the research question. A large part of the results focuses on health, a small part on education, and another small part on organizations. Even though only a tiny part focuses on organizations, the papers offered in this search are of great relevance and importance.
2nd Search	(KEY (design AND thinking) AND KEY (organization*) AND KEY (innovation))	125	SCOPUS2 16-05-2024	The second search presented records focused more on Design Thinking in innovation, papers focused on health, and few focused on the area of Design Thinking in Organizations. The few relevant papers were duplicates from the first search.
3rd Search	(KEY (design AND thinking)	1,309	SCOPUS3 16-05-2024	The third search, as expected, provided a

	Search String	Number of Papers	Name of the File/Date	Assessment of the Results
	AND KEY (innovation))			vast number of records since innovation always connects to Design Thinking. Even with this extensive number of records, only a few are related to the research since several areas are irrelevant to the research question within Design Thinking and innovation.

WOS

1st search	(AUTHOR KEYWORDS (design AND thinking) AND AUTHOR KEYWORDS (organization*))	76	WOS1 16-05-2024	The first search in WOS provided records focused on Design Thinking in organizations; this research was fundamental because it proved relevant and meaningful for the future of this research as themes such as organizational change, organizational culture, organizational learning, and even frameworks for Design Thinking in organizations are present in this research.
2nd search	(AUTHOR KEYWORDS (design AND thinking) AND AUTHOR KEYWORDS (organization*) AND AUTHOR KEYWORDS (innovation))	29	WOS2 16-05-2024	The second search was irrelevant; only 28 documents were found, and the ones that proved relevant were duplicates from the previous search.

To conclude this section, utilizing WOS and SCOPUS with various keywords was essential to determine which searches were most relevant to the research question. While the initial search string in SCOPUS yielded essential documents, other keywords were also tested, and the results were analyzed.

2.2. Prisma Diagram Flow

The following section presents the PRISMA 2009 Flow diagram (Moher et al., 2009). This flow diagram exhibits the flow of information through the different phases of a systematic review. It maps out the number of records identified, included, and excluded and the reasons for the exclusions.

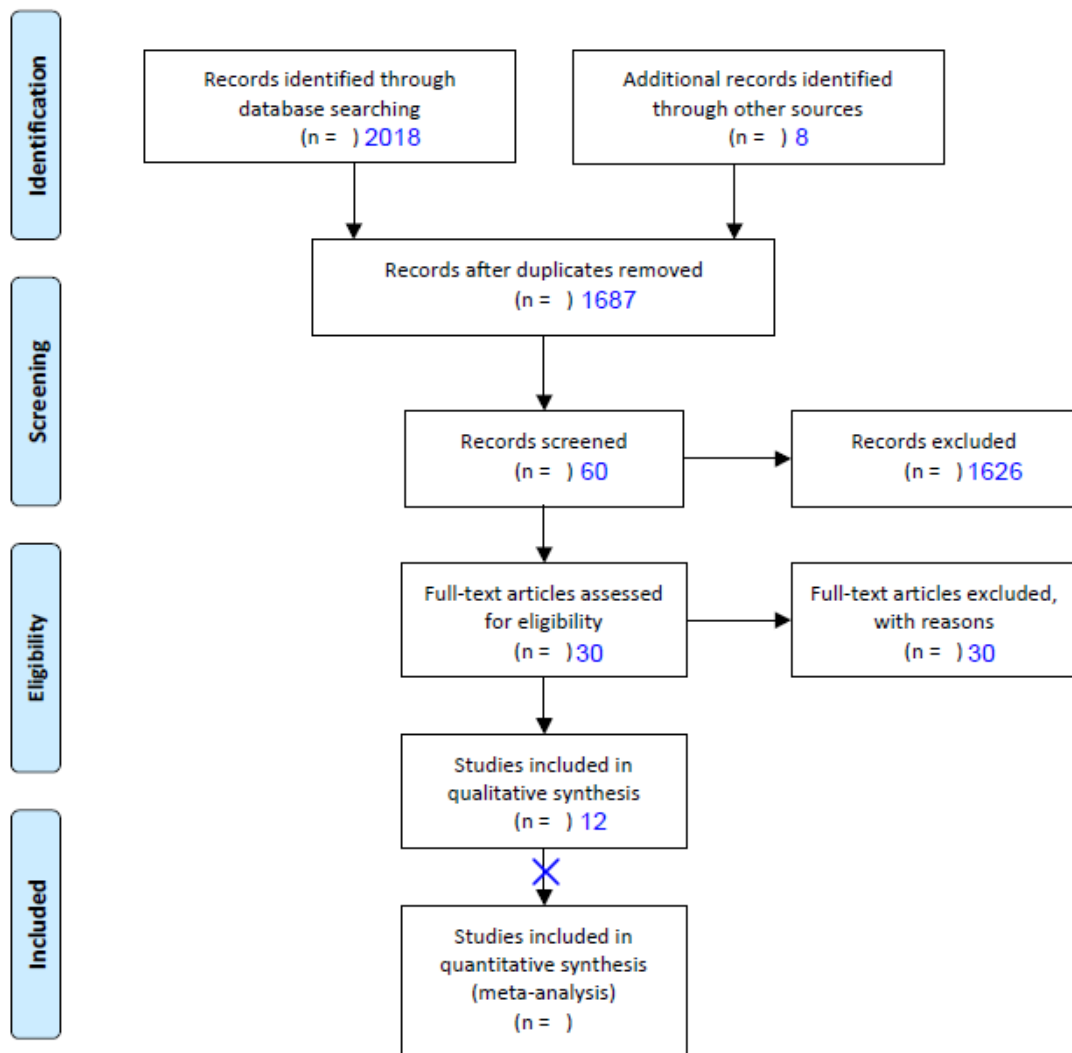


Figure 1. Prisma Diagram Flow (Moher et al., 2009)

After searching the SCOPUS and WOS databases with the abovementioned keywords, 2018 records presented themselves; additionally, after further research in Research Gate, Google Scholar, and Taylor and Francis Online, eight records were recorded. Using an Excel sheet, 339 duplicate documents were discerned and removed, resulting in 1687 records. Upon reviewing the title and its relevance to the research question, 60 records were screened, resulting in 1626 records being excluded. After reading the introduction and conclusion of these 60 records, 30 were chosen based on their importance to the research question, excluding 30 full-text articles. After thoroughly reading the 30 records, 12 were selected based on the significance of the research question and model creation.

2.3. Table of Literature Review

The following section introduces a table of the literature review; the table below presents five columns: the first column refers to the author of the article, the second column refers to the type, the third column refers to the model, the fourth column refers to what is the contribution of the paper to the research question and the fifth column refers to possible future research/limitations of the article.

Table 2. Literature Contributions

Paper	Type	Model	Contribution of Paper	Future Research/Limitations
(Todd & Stewart, 2023)	General Review	No	The reviewed record significantly contributes to the literature by providing actionable insights and recommendations for organizations implementing effective Design Thinking training programs. Through its comprehensive synthesis of existing literature, the paper	The limitations of this record include the inclusion and exclusion criteria applied and the specific databases accessed, which may have led to the exclusion of crucial data on Design Thinking training. Future research could address this issue by utilizing more databases and resources. Despite

Paper	Type	Model	Contribution of Paper	Future Research/Limitations
			offers practical guidance on structuring training content, selecting delivery formats, garnering support from supervisors and organizational leaders, and evaluating training effectiveness.	using literature review guidelines, multiple reviewers, and a review template to reduce bias, some subjectivity in interpreting the data is unavoidable. Future research could apply different methodologies to verify the accuracy of the DT training topics.
(Dunne, 2018)	Qualitative	No	The reviewed record contributes significantly to the literature on implementing Design Thinking within organizations. It comprehensively analyzes challenges and organizational models. Through empirical data, it highlights the importance of cultural factors and collaborative alliances in fostering innovation.	The limitations of this record are the small sample size and the fact that the sample only consisted of existing Design labs, and terminated labs were excluded. Furthermore, the fast adoption of Design Thinking in large organizations has surpassed the existing research. Future research must develop robust evaluation measures aligned with different program goals. It should aim to catch up with the rapid adoption of Design Thinking in large organizations by investigating its suitability and effectiveness within these environments.
(Wrigley, Nusem, & Straker, 2020)	Qualitative	No	The reviewed record significantly contributes to the literature by identifying four essential organizational conditions for integrating Design Thinking and illustrating their practical implications	The limitation of this record is that concerns may arise regarding the generalizability of the findings due to the sample size and diversity. For future research, seek to validate the four conditions identified across a broader range of organizations,

Paper	Type	Model	Contribution of Paper	Future Research/Limitations
			through real-world cases. By bridging theory and practice, it offers valuable insights into fostering effective Design Integration within organizations.	investigate how the conditions can be adapted to suit the cultural and contextual differences across organizations and regions, and use a more extensive and diverse sample.
(Elsbach & Stigliani, 2018)	Literature Review	Yes	The reviewed record contributes significantly to the literature by exploring the intersection of Design Thinking and organizational culture. Synthesizing recent empirical research elucidates how using Design Thinking tools influences organizational cultures and vice versa. The paper emphasizes the experiential nature of Design Thinking practices and cultures, demonstrating their mutual support. It also proposes a framework for organizing future research in this area, contributing to a deeper understanding of Design Thinking's role in organizations.	The limitations of this record are the time frame needed to assess the long-term impact of Design Thinking on culture. Establishing a causal relationship between Design Thinking and organizational culture can take too long. For future research, the long-term impact of Design Thinking on the culture of the organizations and cross-cultural studies needs to be assessed to explore how organizations with different cultures adapt to Design Thinking.
(Eradatifam, Heydarabadi, & Shahbazi, 2020)	Empirical Research	No	The reviewed record significantly contributes to the literature review by thoroughly examining the impact of Design Thinking on innovation within organizations. It synthesizes findings from various studies to highlight the	The limitation of this record is that there is the possibility of a geographical bias in the study since it focuses only on Iran, and the results might only partially reflect national or even international viewpoints regarding the connection between innovation and Design

Paper	Type	Model	Contribution of Paper	Future Research/Limitations
			positive effects of Design Thinking on product, process, and organizational innovation. The record utilized data from 95 organizations in the Tehran Science Park, Iran, to provide empirical evidence.	Thinking. For future research on the cross-cultural application of Design Thinking, investigate how Design Thinking applies to different cultural contexts. Also, examine the long-term impact and sustainability, exploring if the continuous use of Design Thinking leads to nonstop innovation or if the benefits gradually fade.
(Quaiser & Pandey, 2023)	Literature Review	No	The reviewed record significantly contributes to the literature review by discussing the growing popularity of Design Thinking in several industries. It also aims to analyze which industries Design Thinking is most dominant in, and Design Thinking in innovation is the industry that most articles discuss. Furthermore, it examines how different authors see Design Thinking about the essential steps. To fully understand the meaning of Design Thinking in innovation, the author compares the top five globally cited papers where Design Thinking meets innovation.	The limitation of the record is that the study recognizes an upsurge in research on Design Thinking. However, there may be a potential publication bias, as positive results may be more likely to be published than negative or neutral findings. Future research can study other industries to observe if Design thinking is applied similarly and if the implementation outcome is identical. Conduct long-term studies after implementing Design Thinking to measure its success and explore if Design Thinking influences organizational culture, competitiveness, and adaptability over time.
(Brown, 2019)	Book	No	The reviewed book significantly	

Paper	Type	Model	Contribution of Paper	Future Research/Limitations
			<p>contributes to the literature review by explaining what Design Thinking is and its principles. Furthermore, it discusses Design Thinking in organizations and how it can drive innovation; it also presents a model defining four types of innovation and how organizations can use the model to measure their innovation portfolio.</p>	
(Martin, 2009)	Book	No	<p>The reviewed book significantly contributes to the literature review by explaining the stages of the knowledge funnel and how they interact with organizations. It also presents several possible roadblocks for organizations to introduce Design Thinking.</p>	
(Dosi, Rosati, & Vignoli, 2018)	Research Article	No	<p>The reviewed record significantly contributes to the literature review by clearly defining the Design Thinking mindset. By developing and verifying a questionnaire, 22 distinct constructs define the Design Thinking mindset.</p>	<p>The limitations of the record are the study's sample size and the fact that the people who responded to the questionnaire have limited experience in Design Thinking. Future research should validate the questionnaire with confirmatory factor analysis and experiment with people with a more elevated experience in Design Thinking to compare</p>

Paper	Type	Model	Contribution of Paper	Future Research/Limitations
				whether metacognitive awareness of Design Thinking mindset attributes differs depending on the working experience.
(Tschimmel, 2012)	General Review	No	The reviewed paper significantly contributes to the literature review by providing a clear definition of Design Thinking, starting with the emergence and evolution of the concept and providing the main characteristics of Design Thinking. It also presents several Design Thinking models and explains each of them. Furthermore, it classifies the Design Thinking tools into categories.	Future research needs to be done on an extensive empirical scale to test the emerging mindsets of Design Thinking and study the relationship between Design Thinking mindsets and leadership behavior.
(Schweitzer, Sobel, & Groeger, 2016)	Research Article	No	The reviewed paper significantly contributes to the literature review by providing eleven Design Thinking mindsets and their definitions. Additionally, it identifies organizational limitations in translating reasoning into actions.	The limitation of this study is a possible sampling bias; the study relies on interviews with innovation managers, which may introduce a bias towards perspectives that are more favorable or knowledgeable about Design Thinking. This could limit the generalizability of findings to other organizational roles or contexts. Future research needs to enhance the evolving framework of Design Thinking mindsets and validate them

Paper	Type	Model	Contribution of Paper	Future Research/Limitations
				empirically on a broad scale.

To conclude this section, following the literature review, it becomes evident that there is a clear need for further research on implementing Design Thinking in organizations. This dissertation will address this gap by developing a comprehensive model. The goal is to help organizations implement a Design Thinking mindset, delving into their culture and driving continuous innovation, allowing them to keep up with market trends and customers' needs.

2.3.1. Introduction to Design Thinking

Design Thinking, rooted in Design principles, prioritizes empathy, creativity, collaboration, and iterative prototyping to spur innovation across sectors (Quaiser & Pandey, 2023). It leans on understanding end users' needs and reshaping problems to craft impactful solutions, often yielding innovative outcomes missed by traditional approaches (Brown, 2019).

In organizations, Design Thinking fosters a culture of experimentation and iteration by encouraging teams to tackle complex challenges with creativity and empathy (Brown, 2019). Organizations can better understand stakeholder needs and craft products and services tailored to their target market, offering a sustainable competitive advantage (Martin, 2009). DT enables companies to predict market trends, innovate proactively, and stand out as industry leaders.

DT provides a robust basis for driving innovation and achieving competitive advantage in today's business landscape (Dunne, 2018). Incorporating the principles and mindset of DT into organizational culture allows organizations to unlock new opportunities for growth and success and, most importantly, the ability for constant innovation (Elsbach & Stigliani, 2018).

2.3.2. Design Thinking – Definition and Characteristic

Today, DT stands as a widely recognized concept across all industries. One of the best examples is Nike, which took a DT approach intending to break new ground in innovation to create products capable of improving athletic performance while looking fashionable and

focusing on the customers' needs and desires (Segran, 2017). Another big company that took a DT approach is Apple; after facing some struggles in the 80s and '90s, Steve Jobs focused on addressing people's needs and desires, prioritizing empathy, and considering Design elements of form and function, with a greater emphasis on simplicity over the prevailing complexity often associated with technology during that period. (Elmansy, 2016)

However, before, it was primarily understood and studied as a cognitive process within the domain of Designers. Numerous studies conducted by an international research group aimed to delineate the fundamental attributes of Design creativity, mainly focusing on the essential cognitive methodologies designers employ during project work (Tschimmel, 2012).

While a broad definition of DT suggests thinking akin to a designer's mindset, its scope has recently expanded beyond its conventional boundaries. Tim Brown of IDEO characterizes it as "a discipline that uses the designer's sensibility and methods to match people's needs with what is technologically feasible and what a viable business strategy can convert into customer value and market opportunity." (Brown, 2019). An individual or entity imbued with such discipline consistently strives for harmonious stability between reliability and validity, the intersection of art and science, intuition and analytics, and exploration and exploitation. (Martin, 2009)

It is possible to define what DT means. However, it is impossible to provide a recipe that ensures every project will succeed by applying the DT method. There is no single correct path to navigate through the process; instead, there exist beneficial entry points and guiding milestones. Viewing the spectrum of innovation as a network of interconnected realms is more apt than perceiving it as a linear progression of distinct stages. Key procedural stages include empathy and inspiration, constituting a pivotal stage where identifying problems or opportunities propels the quest for solutions. During ideation, the focus lies on the iterative process of generating, refining, and experimenting with ideas. Ultimately, implementation is the transformative phase that bridges the gap between conceptualization and real-world application, bringing the project to the market. (Brown, 2019). A critical step in the overall process is to sketch, draw, and create material models; this allows to explore the project's issue and resolution hand in hand; it is an essential step because visual perception plays a significant role among other senses, perception within images and through them holds a unique significance in the realm of DT (Tschimmel, 2012). Early prototyping is also essential; it allows the creation of something visible to experiment with an idea and identify gaps and pitfalls quickly. Usually, for low-fidelity prototyping, the material used during this prototype

is paper or low-cost material like cardboard; this allows for early failure and several failures since the investment in these prototypes is small.

Another crucial characteristic is prioritizing people; a human-centered Design underscores the significance of crafting products, services, and experiences with a profound comprehension of human behavior and preferences at its core (Brown, 2019). By centering on the human narrative, DT ensures solutions are attuned to genuine problems and positively affect the user's life (Quaiser & Pandey, 2023). This involvement with the users also has the potential to reveal insights leading to a market opportunity that is more engaging, promising, and financially rewarding (Brown, 2019). Fundamentally, the users are involved in the overall process; instead of designing for users, DT designs with users. (Tschimmel, 2012)

DT fundamentally relies on the designer's capacity to consider simultaneously human needs and new visions of living well, available material and technical resources, and limitations and possibilities within a project or business. Integrating these three dimensions requires designers to demonstrate a nuanced skill set, balancing analytical precision with empathetic understanding, rational decision-making alongside emotional intelligence, and methodical planning with intuitive problem-solving while navigating predetermined plans and constraints with adaptability and spontaneity. DT challenges designers to blend emotional sensitivity with rational thought seamlessly. It demands that designers possess the ability to engage both their hearts and minds, navigating the complexities of human needs, resources, and project constraints with a delicate balance of empathy and logic. (Tschimmel, 2012)

In conclusion, DT has evolved from its origins as a cognitive process within the realm of designers to become a widely recognized concept and transdisciplinary method across all industries, as exemplified by companies like Nike and Apple. DT has separated itself from Design, creating this complex and non-linear mindset that mainly focuses on developing solutions that positively impact the end user. As the concept evolves, the DT principles offer a robust framework for driving innovation and addressing complex challenges.

2.3.3. Design Thinking in Organizations

Design Thinking has emerged as a robust method for problem-solving and innovation in organizations across various sectors. DT offers companies and public sector organizations a way to Design new and innovative products and services that respond to the underlying

needs of the users/customers. DT is perceived as a competitive advantage (Wrigley, Nusem, & Straker, 2020), a way of innovating and dealing with organizational change during rapidly changing customer demand, supply chains, and intense competition. It also helps to solve complex and challenging issues, known as “wicked” problems. (Dunne, 2018)

Nokia was a dominant cell phone brand in the 1990s; everyone remembers how this company was successful. However, Nokia has changed from a cell phone manufacturer to a service provider due to a shift in consumer behavior; consumers were more interested in the services they provided because of the upcoming popularity of the internet. Nokia studied how consumers communicated, shared information, and entertained themselves by sending technologists, anthropologists, and designers to immerse themselves in the real-world experiences of consumers to gain a deep understanding of their behaviors, needs, and preferences. The result of this study was pivoting the company to a service provider. However, it was already too late; the competition was several steps ahead of Nokia, and later, in 2014, the company was sold to Microsoft. The idea behind this story is to show that companies cannot rely only on their core products or services; they need to think beyond and ultimately understand what people want. (Brown, 2019)

One significant symbiotic relationship is between DT and Business Thinking; it is essential to leverage sophisticated analytical tools from the business sector to enhance the effectiveness of Design solutions. Business thinking also introduces a heightened awareness of the constraints, while DT encourages exploration and innovation; business realities, such as budget limitations or revenue generation strategies, impose constraints that affect the Design solution. However, instead of perceiving constraints as obstacles, they are seen as parameters that can ignite innovative problem-solving. (Brown, 2019)

For organizations to be able to evaluate their design-based innovation portfolio, Diego Rodriguez and Ryan Jacoby designed a tool named “Ways to Grow.” (Annex 1). This matrix assesses the innovation endeavors within an organization. The vertical axis illustrates existing to new offerings, and the horizontal axis illustrates existing to new users; organizations can map their innovation efforts alongside the axis. Projects in the bottom left quadrant, close to existing offers and existing users, are considered incremental. Incremental projects are essential, and most of the company's efforts regarding innovation fall into this category, which can include exploring avenues for extending the reach of the established brand through diversification or by introducing new iterations of the current product line. A perfect example of incremental innovation is the vast amount of toothpaste flavors on supermarket

shelves; it is the same product but with a handful of improvements. While incremental projects secure a company's base, companies must engage in evolutionary initiatives that push the company into unexplored paths. These projects are close to new users in the tool's bottom right quadrant; the strategy to achieve this involves either expanding current offerings to address the unfulfilled needs of current customers or tailoring them to appeal to new customers or markets. A suitable example of evolutionary innovation is Toyota; with the PRIUS model, it managed to grasp the emerging need for energy-efficient personal transportation while the competition pursued the trend of large SUVs. Evolutionary innovation, located in the top left quadrant, close to new offerings, involves adjusting an existing product to reduce production costs, thus making it available to a larger audience. A perfect example of evolutionary innovation is the Nano, a micro-car designed by Tata Motors. Microcars have been around since the 50s, but due to the high price, this product was still out of reach of the Indian market. The car engineered by Tata Motor's offers nearly all the expected features consumers desire but at a significantly reduced price of \$2,000, enabling access to a market previously out of reach for car manufacturers. The riskiest type of innovation is the revolutionary, where the product and the users are new, creating new markets. However, this is very rare due to the high risk that comes with it; Sony managed to attain this accomplishment with the Walkman and Apple with the iPod. (Brown, 2019)

As mentioned above, in the case of Nokia, companies tend to focus on incremental projects, which leaves companies vulnerable to unforeseeable events; there is a need to explore other opportunities and manage innovation to keep the company successful, implementing a culture of experimentation to encourage creativity and risk-taking and embrace failure as a learning opportunity for continuous improvement. A company's most effective strategy is to safeguard itself by spreading investments across all four quadrants of the innovation matrix. (Brown, 2019)

2.3.4. Design Thinking Mindset

Nineteen factors define the DT mindset: 1. tolerance for/ being comfortable with ambiguity and uncertainty, 2. embracing risk, 3. human centeredness, 4. empathy, 5. mindfulness and awareness of the process, 6. holistic view/considering the problem as a whole, 7. problem reframing, 8. team working, 9. multi-/ inter-/ cross-disciplinary collaborative teams, 10. open to different perspectives /diversity, 11. learning-oriented, 12. experimentation or learn from

mistakes or failure, 13. experiential intelligence/ bias toward action, 14. critical questioning, 15. abductive thinking, 16. envisioning new things, 17. creative confidence, 18. desire to make a difference, and 19. optimism to have an impact. (Dosi, Rosati, & Vignoli, 2018)

Furthermore, Schweitzer, Sobel, and Groeger identify 11 DT mindsets, as shown in Table 3. The first mindset is empathy towards people's needs and context, meaning using a human-centered approach, creating empathy with people, and seeing things through the eyes of others to create value. The second mindset is collaborative-gear and embraces diversity, meaning having multi-disciplinary teams; these teams unlock the ability to look at problems from different perspectives, resulting in rapid problem-solving and the blooming of new ideas. The third mindset is inquisitive and open to new perspectives and learning, meaning being eager and curious to explore new ideas, understand other viewpoints, and search for knowledge. The fourth mindset is mindful of process and thinking methods, meaning having the ability to identify at what stage the Design team is and what to expect. The fifth mindset is experiential intelligence, meaning transforming an idea into something tangible so the concept can be tested and experienced. The sixth mindset is taking action deliberately and overtly, meaning having an attitude of experimentation, being "biased towards action," to move into the world to engage with users. The seventh mindset is consciously creative, meaning having an innovative attitude to work and encouraging others to pursue inspiration and creativity. The eighth mindset is accepting uncertainty and being open to risk, meaning accepting failure and uncertainty during long periods since innovative ideas can take several iterations and long periods. The ninth mindset is modeling behavior, which transpires positivity and attitudes since DT practitioners are seen as "advocates for creativity and Design. The tenth mindset is desire and determination to make a difference, meaning that apart from modeling behavior, DT practitioners want to change the world, accomplish ideas, and improve situations. The last mindset is critical questioning, which means being able to take opinions, interact with stakeholders, debate with working teams, build on the ideas of others, and overall keep an open mind to other possibilities and ideas. (Schweitzer, Sobel, & Groeger, 2016)

Table 3. The 11 Design Thinking Mindsets (Schweitzer, Sobel, & Groeger, 2016)

Design Thinking Mindset
Empathy towards people's needs and context
Collaborative-gearred and embraces diversity
Inquisitive and open to new perspectives and learning
Mindful of process and thinking methods
Experiential Intelligence
Taking action deliberately and overtly
Consciously creative
Accepting uncertainty and being open to risk
Modeling behavior
Desire and determination to make a difference
Critical questioning

2.3.5. Design Thinking Culture

Organizations' challenges connected to DT include integrating designers' creative problem-solving skills into broader strategic initiatives and involving many workers in DT processes. Designing an organization for a culture of innovation, experimentation, and human-centricity achieves better goals than focusing only on designing products or services. (Brown, 2019)

Organizations have two models to create value: analytical thinking and intuitive thinking; organizations that choose analytical thinking are designed to operate consistently in the same way, causing them to be structurally resistant to the concept of dynamic self-design and redesign of their business over time. However, they have the benefit of being capable of building size and scale. On the other hand, innovation is swift in organizations hogged by intuitive thinking, but the downside is that growth and longevity are enormous challenges. Moreover, intuitive thinking organizations rely heavily on individual leaders and their instincts rather than systematic processes. (Martin, 2009)

The two models, however, are not enough for organizations; there needs to be a conciliation between them, and according to Martin Roger, DT balances analytical mastery and intuitive originality. Companies that master DT have a long-term competitive advantage (Martin, 2009). DT in organizations can be used to solve “wicked problems” and to better take advantage of it, Design should be embedded in the organization culture. (Elsbach & Stigliani, 2018)

Furthermore, DT tools are directly connected to organizational culture; an organization that efficiently controls DT tools is often called a DT organization, which means that the use of DT tools and the development of DT cultures in organizations support each other. This relation creates a user-centric, collaborative, risk-taking, and learning culture. (Elsbach & Stigliani, 2018)

DT organizations often redesign their business; they do it to create progress in the innovation and efficiency of the organization. This combination of goals produces the most powerful competitive advantage, and from these organizations, breakthroughs will emerge that will move the world forward. (Martin, 2009)

To conclude this section, the systematic search provided a comprehensive set of records on Design Thinking, covering its definition, characteristics, applications in organizations, mindset, and culture.

Chapter 3. Methodology

The following chapter presents the research question, frames it in the research GAP, and provides a Design Science Approach (Hevner et al., 2004) to propose a model and how to validate it.

3.1. Research Question

The foundation of this research effort is developing a coherent and purposeful research question that guides the investigation and bridges a gap in the current literature. The main research question is: “How can the culture of DT and its mindset be implemented in organizations?”

Putting this research question in the broader context of the current state of knowledge, it becomes evident that a noticeable gap exists in understanding how to implement the DT mindset as a cultural element within organizations.

3.2. Design Science Approach

The following section presents an Information Systems Research Framework (Hevner et al., 2004). This framework aims to display how the artifact of a model on how to introduce DT in organizations will be constructed.

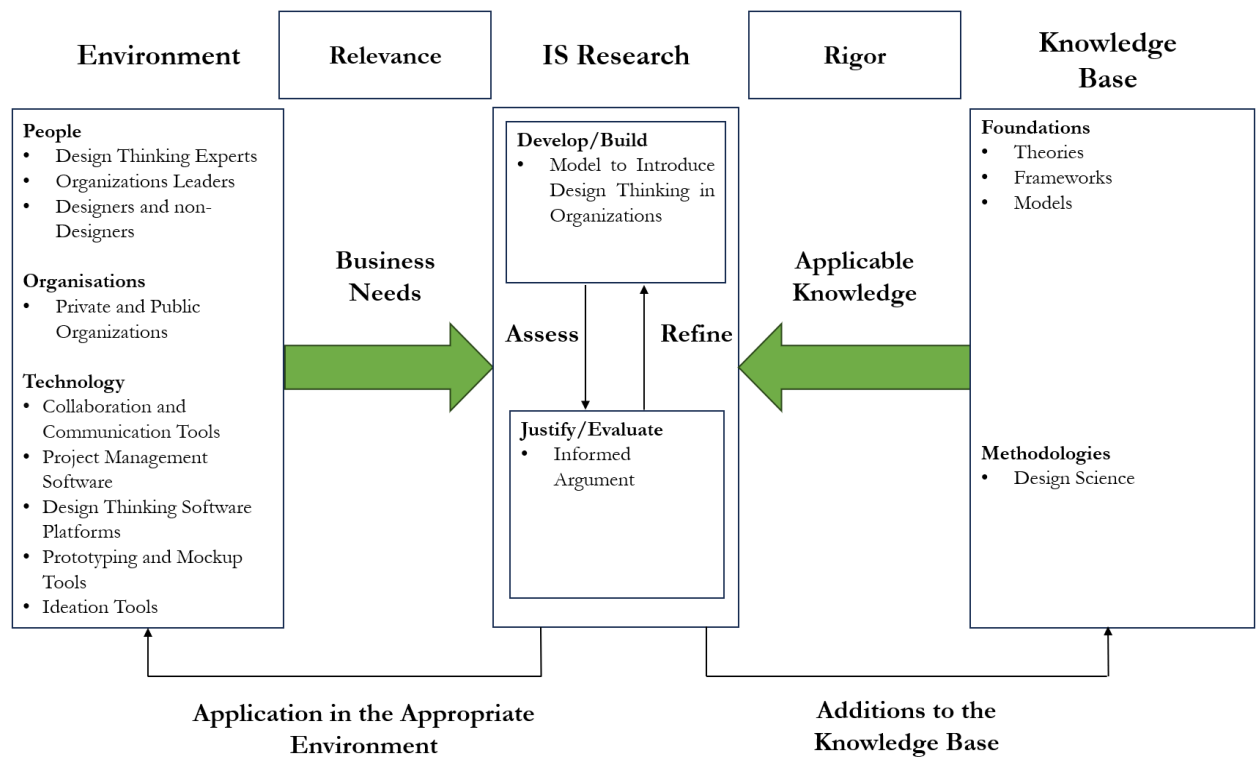


Figure 2. Design Science in Information Systems Research

To conclude this chapter, this proposal will create an artifact, in this context, a model for implementing DT in organizations. Informed arguments are used to justify and evaluate the artifact. On the right side of the diagram, it is possible to see what foundations are present (Theories, Frameworks, and Models) to create the knowledge base and the methodologies

used (Design Science). On the left side of the diagram, regarding the environment, in the section people, DT experts, organization leaders, and designers and non-designers; in the section organization, private and public organizations; and finally, in technology, collaboration, and communication tools, project management software, DT software platforms, prototyping and mockup tools and ideation tools.

Chapter 4. Design Thinking Implementation Model

The following chapter introduces the model and provides a detailed explanation of each step.



Figure 3. Design Thinking Implementation Model by the author

1st Step – Implementation

Organizations must choose how to implement DT; according to David Dunne, there are four models: centralized, distributed, hybrid, and collaborative.

The **centralized model** is where a clearly defined and separate Design lab develops initial ideas for implementation in operating departments. In many instances, these labs offered internal training programs. Centralization aimed to shield innovators from daily operational concerns and promote outside-of-the-box thinking. The labs have dedicated staff and a physical office, typically in a distinct location, and the staff is often constituted of designers and non-designers. The physical offices were designed to promote an environment of

creation and creativity for teams to think about a topic and use the tools available in the office to start elaborating ideas, for example, whiteboards and post-its.

The **distributed model** in which the Design program is distributed among the operating departments involves recruiting and supporting Design Thinkers throughout the organization.

The **hybrid model** is a mixture of the centralized model and the distributed model; the Design programs are continuous and operate as an internal consultancy, supplying operational departments with solutions, and with a distributed approach, the role is to enable innovation in operational departments and to provide training in DT.

The **collaborative model** involves different organizations to share facilities, ideas, and technology. These collaborations can be with competitors or organizations across other industries; the goal is to facilitate innovation and creativity. (Dunne, 2018)

2nd Step – Challenges

This step identifies and explains challenges organizations encounter when implementing DT; according to David Dunne, the challenges are misunderstanding, the relationship with the rest of the organization, isolation, assimilation, and the tendency toward incrementalism, implementation, and systems.

Misunderstanding refers to when leaders support DT but only partially, specifically, the iterative process and the flexible definition of problems in the early stages of innovation. Management always prefers not to “waste” time with unfinished products; instead of taking time to prototype, reframe, and go through interactions, management wants to finish the product as soon as possible and move on.

Relationship with the rest of the organization refers to how the rest perceive DT interventions. The programs may also face resistance or skepticism from existing departments and may need to find ways to integrate and collaborate effectively within the organizational structure.

Design programs often have their studio but are far from the corporate offices; the idea behind this is to enable independent thinking. However, this can result in the unit being **isolated** from the rest of the organization. On the other hand, there is a risk of **assimilation**, getting too ingrained in the organizational culture, and preventing the development of new ideas.

DT in private-sector organizations offered the potential for new and innovative perspectives that could lead to groundbreaking or disruptive innovation. This creates a **tendency for incremental innovation** projects to develop success stories and risks the team being overwhelmed with incremental projects. Organizations often focus on short-term metrics to evaluate the lab, primarily financial, pushing it toward incremental innovation.

Implementing Design programs poses a significant challenge for efficiency-focused organizations. Design teams often encounter difficulties implementing their ideas due to their separation from the implementation departments. Additionally, teams under pressure to demonstrate their value to the organization can face obstacles when operational departments cannot execute their ideas, negatively impacting the team. As a result, teams are compelled to become involved in the implementation process and apply Design methods to the implementation itself.

The **systems** of public and private sectors are different; private prioritize user insights, and private-sector Design teams aim to create solutions that would effectively address user needs and drive business success. However, the public sector is much bigger; several internal and external stakeholders are involved in the process, and the public sector is more interested in the system Design. (Dunne, 2018)

3rd Step – Design Thinking Training Recommendations

This step aims to provide recommendations on DT training to facilitate its implementation and success.

An important point is that the organization's current staff should be trained in DT principles instead of recruiting designers. (Brown, 2019)

Training in DT should adhere to a **process-based** approach, following the DT process model. This is an excellent approach for creativity training and similar skills. Furthermore, when introducing a new process, it is essential to review previous DT processes so trainees understand how they are interconnected and complement each other.

The **training activities and content** during the training are crucial to motivate and capture the trainees' attention. Activities like group work, roleplay, active discussion, and games support the process of DT training. The activities must be learning by doing and experimenting, not watching a PowerPoint presentation. Also, DT training cannot be rushed; it needs to be given time for the trainees to have more intensive and prolonged activities to understand the DT processes fully.

A **skill-based approach** is recommended during the DT training, specifically in training complex skills, such as scanning and sensemaking. Furthermore, training other complex skills relevant to implementing DT is essential. For example, skills in information gathering, constraint analysis, and causal analysis can enhance individuals' ability to empathize with the user more effectively. On the other hand, training in creative problem-solving helps with idea generation and prototyping. Training complex skills to make DT more approachable for the trainees is crucial.

When providing DT training, it is crucial to consider the **delivery format**. Face-to-face learning provides a deeper and more complex understanding of DT than online learning. Online learning can be used in an introductory phase to introduce learners to DT.

Support during training is directly connected to the successful implementation of DT; as mentioned above, organizations must fully support it to flourish in their culture. Beyond that, support from a supervisor or Design Thinker expert during training is also essential for learners to have someone to refer them to when they need help or further explanation.

To facilitate the **evaluation** of the DT training, it is essential to identify the desired outcomes and determine how to measure them during training development. The content of the training is directly connected to the desired outcomes. (Todd & Stewart, 2023)

4th Step – Organizational Conditions

This step defines the four conditions that must be addressed to implement DT in Organizations; according to Wrigley, Nusem, and Straker, the conditions are strategic vision, facilities, cultural capital, and directives.

The concept of **strategic vision** pertains to an organization's long-term strategic goals, encapsulated in its strategic direction and value proposition. An organization's strategic vision is shaped by its level of risk aversion and its willingness to embrace change, pursue growth, and foster innovation. The organization should maintain current operations and embrace future opportunities and challenges. The existence of such a vision can be confirmed by asking the following questions:

- Does the organization have a strategic vision for the future (an aim or mission)?
- Does the organization have an appetite for growth, change, or innovation?
- If present, is the organization's strategic vision clearly understood by its people?

An organization without a vision tends to react to market changes rather than proactively defining them.

The concept of **facilities** pertains to the physical spaces and resources allocated for Design initiatives within the organization. Creating the right physical environment is paramount for the success of DT implementation. However, the challenge is integrating Design into existing organizational structures and transforming practices within the organization to embrace Design. Factors concerning the organization's environment can be identified by asking the following questions:

- Is Design given an appropriate space within the organization?
- Are the resources required for Design provided by the organization?

Without adequate facilities, an organization cannot effectively integrate Design and is likely to foster a short-term focus with temporary engagement, prioritizing immediate outcomes over long-term success.

The concept of **cultural capital** pertains to the organization's people, specifically their understanding of Design's value and capability to practice it. To be competent in a particular skill, an organization's personnel must be capable of executing the skill and recognizing its significance. Pilot studies are usually used to foster understanding, as a Design catalyst showcases the value of Design through a focused project. At the same time, capability is developed through a series of intensive training workshops. Understanding and capability within an organization can be assessed using the following questions:

- Do the organization's people know how to practice Design?
- Do the organization's people understand the value Design offers?

An organization that wants to practice Design must ensure that employees understand the purpose and value of Design and how they can effectively utilize it.

The concept of **directives** pertains to using them to mandate the organization's people to practice Design; transitioning new ideas into practice and institutionalizing innovation relies heavily on the clarity and effectiveness of the directives set by leadership. The existence of directives can be assessed by considering the following questions:

- Are the organization's people accountable to practice Design?
- Are there KPIs that detail Design practice?
- Are there role descriptors in the organization that reflect Design practice?

Directives act as instructions or guidelines to ensure that staff activities align with the organization's vision and to hold employees accountable for their actions. They also inform the organization's staff that Design is essential to their roles and responsibilities. (Wrigley, Nusem, & Straker, 2020)

5th Step - Continuous Training and Leadership Retention

In order to maintain/implement the DT mindset into the organization's culture, it is vital to keep providing DT training, retain and develop Design Thinker leaders within the organization, ensure knowledge transfer and succession planning, and exhibit an organizational commitment to sustaining a DT mindset.

To conclude this chapter, the idea behind this model is to provide organizations with a formula for implementing DT and its mindset in the organization and its culture. The model does not give the “right” recipe for success; instead, it offers an idea of how organizations can implement DT. For DT to have a large-scale and long-term impact, it needs to be coded into the DNA of a company, creating a culture of innovation. (Brown, 2019)

Chapter 5. Assessment and Discussion of the Model

The following chapter details the model assessment process, interview discussions, limitations, and dissertation recommendations.

5.1. Assessment

To assess my dissertation model, I conducted in-depth interviews with individuals from the business department, including designers and non-designers. These interviews served dual purposes: to understand their perspectives on Design Thinking and to gather feedback on the proposed model's applicability in organizational contexts.

The interviews started with foundational questions to establish their baseline knowledge and experience with Design Thinking:

1. How familiar are you with the concept of Design Thinking?
2. What does the term "Design Thinking" mean to you?

3. Have you had any experience with Design Thinking in your work or personal projects?
4. In your opinion, what are the key principles or elements of Design Thinking?
5. How do you think Design Thinking could benefit organizations?

Following this initial assessment, I introduced my dissertation model and invited feedback from the interviewees. Additionally, participants were asked a concluding question:

- Would you implement this model in your company to obtain a competitive advantage?

5.2. Discussion

The first interviewee, Jorge Boabaid, co-founder of PLANT'Z, is unfamiliar with the concept of Design Thinking. His only experience with Design Thinking was during his time at university. He recalls some Design Thinking models and the process of those models and defines Design Thinking as an empathetic approach with elements of ideation and experimentation. Jorge Boabaid claims that Design Thinking can benefit organizations by fostering innovation, introducing a new way of thinking, and increasing efficiency. He also mentions that he would be open to implementing Design Thinking and its mindset into his company's organizational culture, as he likes to follow defined processes. Apart from solving issues related to products/services, Design Thinking has the power to solve logistic issues. Furthermore, Jorge Boabaid says that Design Thinking can solve small and big organizational problems.

Regarding the model, Jorge Boabaid says it is hard to bring the mindset of Design Thinking into organizations since it is a “modern” way of thinking. He understands and enjoys this mindset but acknowledges that it is not the case for every organization leader, as not everyone is open to failure. He notes that big organizations are often too closed and allow new start-ups to steal their market. Having a mindset of curiosity and testing would be a competitive advantage for organizations because often, big organizations keep doing something they do not even realize is wrong. It would protect organizations from falling in the future. The most critical steps for him are the training and the retention. He also mentions that continuous Design Thinking training is essential not to let people “forget” Design Thinking and help

them solve any questions regarding Design Thinking; this is the biggest challenge, in his opinion.

The second interviewee, Arne van Oosterom, works in Under Armour as a Design Thinking lead and coach, founder of Future Skills Academy, and Associate Creative Director at Design Thinkers Academy London. He offers training in Design Thinking in large organizations to understand Design Thinking and build a toolkit. He is one of the pioneers of the concept of Design Thinking in business; he defines Design Thinking in two ways: cognitive flexibility, which allows one to ask questions first and to understand what he is trying to solve and use tools and methodologies to solve the problems identified. He also addresses that Design Thinking is a mindset, a way of thinking, starting with the phrase “I do not know” and that Design Thinking is an approach to solving real problems. The most essential part of Design thinking for Arne van Oosterom is what is referred to before, starting with “I do not know.” Other essential Elements are collaboration, co-creation, empathy, and critical thinking. He says that business organizations are still organized in a way we recognize from the early Industrial Revolution, implying they need to be very efficient. This makes collaboration in organizations extremely difficult because there is much hierarchy, and people are siloed. Design Thinking can solve this problem and break these walls, create creative, safe spaces, and help organizations with innovation, as innovation is necessary nowadays. Furthermore, the most significant benefit is that it can help organizations create a different business structure and culture that can adapt to nature and the planet, help the ecosystem we live in, and not only focus on the growth of the business.

Regarding the model, Arne van Oosterom adds that there are different types of training: training that is given the amount of time the trainees have, training that lasts two days, and training that is provided throughout the year and guides them on specific projects. He says that people who do the training often return to the organization, and after two weeks, they forget what they learned. After all, they cannot apply it because the system they are a part of pushes them into certain behaviors. To avoid this, he started coaching on the job and using real projects; furthermore, he underlined the importance of teaching the language of Design Thinking so everyone speaks the same language and understands what the terms or tools mean. He defends that Design Thinking is not rocket science or hard to understand; it is all about behavioral change. Everyone in an organization is a problem solver, so the language and the culture are critical; language creates reality. There is a need for KPIs and incentives to measure and incentivize Design Thinking behavior, and it is up to the organization's

leaders to implement that. He also underlines that the model for any change is having a learning organization. Arne van Oosterom states that the most crucial step is retaining people in the organization. This step is a massive problem because nobody has worked for a company for forty years anymore; it is an old mentality. Nowadays, people like to explore different things, so keeping people in the organization will not happen. Maintaining relationships with people who have knowledge but do not work for the organization is essential. Instead of perceiving them as enemies, the organization needs to look at them as a community, creating a community-based business where the core is small and an ecosystem of small teams working together, which already exists in organizations; it is what we call departments. This is important because people nowadays are looking for a way to escape the traditional business, where there is a billionaire on top sucking all the value of the business, and employees are just perceived as human resources. He criticizes that organizations still use the mentality of the Industrial Revolution, where there is a top layer of society ruling the bottom layer of society. There are cracks in this mentality, but it takes a long time to negatively affect organizations, so the Design Thinking mentality will take a very long time to make a difference in organizations. Arne van Oosterom also mentions how hard it is to shift an organization's culture and the behavior people have inside it; organizations need to plant little seeds and let those seeds grow to see a change.

Another crucial point mentioned is that middle managers are the ones who must solve problems and connect the top and bottom of the business, so they are the ones who often look for new skills for themselves and their people. However, the top management of organizations comes up with organizational strategies and visions. However, they have no clue what they are doing, and people make the mistake of thinking they do. So, it is vital to make them understand new visions and strategies, having leaders that understand how to do things differently and communicate it to middle management, so they can communicate to the people of the organization this new way of thinking that we call Design Thinking. In summary, it is essential that both the leaders of the organization and middle managers fully understand Design Thinking.

Arne van Oosterom also defends that this change to a more humanized, user-centric, risk-taking, and learning system in organizations is bound to happen because organizations must adopt this new way of working and thinking to avoid collapsing and falling. Organizations are desperate for new stuff, as they have no clue what the future holds. Nowadays, the market

is so competitive that organizations never know when a competitor might emerge and blow up the entire market.

The third interviewee, Dragos Gravilescu, co-founder and CEO of Design Thinking Society, has seven years of experience in Design Thinking, ranging from projects to training. Dragos Gravilescu Design Thinking is an approach to solving complex problems and a more structured way of trial and error. He describes that the main principles of Design Thinking are human-centric, creating possibilities and not solutions, finding and solving the right problem, and empathy. The main element is that Design Thinking continues when you achieve a prototype; it takes you until the product's launch in the market; another element is that, by nature, Design Thinking always brings something new into the world.

He expresses that Design Thinking also solves complex problems in organizations; instead of reaching one solution, it offers the capability of achieving several solutions and testing them all with low-cost prototyping. Design Thinking can also reduce waste within organizations; often, organizations define the problem poorly and then work on solutions for the wrong problem, wasting money and time. Another benefit is the increase in revenue because Design Thinking focuses on the customer. This philosophy brings more value to the customer and, subsequently, to the organization. The main goal should be something other than coming up with disruptive innovation but creating innovation that fits the customer's needs. Another benefit is the collaboration that Design Thinking provides; cross-function teams are more effective and efficient and develop better solutions. The last and most important benefit is that when teams bring something new to the world, the feeling they experience is addictive, and they want more; this creates entrepreneurs in the organization, creating an unstoppable organization. One example is Google, which launched a program that lets employees work on their projects twice a week.

Dragos Gravilescu identified another significant challenge regarding the model: leaders must undergo a Design Thinking training program. Understanding Design Thinking intellectually is insufficient; they need to experience it firsthand. He also recommended three new Design Thinking training recommendations: To truly engage trainees in Design Thinking and transform the training from a theoretical lesson into an immersive experience. Instead of merely teaching the principles of Design Thinking, make the trainees live the process. For example, take the problem of "redesigning music festivals." Invite eight students who have attended music festivals in the past six months to give this challenge real-world relevance.

These students will share their firsthand experiences, providing invaluable insights. Begin by teaching the trainees how to conduct compelling interviews. Then, have them perform these interviews with the invited students. This hands-on approach will deepen their understanding and push them out of their comfort zones, fostering a more profound and impactful learning experience. The goal is to ensure the training is dynamic and transformative, enabling trainees to grasp and fully apply the principles of Design Thinking. Another recommendation is that it is vital to teach Design thinking tools; designers develop the tools for designers to use, so people with no experience will have difficulty understanding them. A further recommendation is to have two senior facilitators, one junior facilitator, and a maximum of 16 trainees during the training. Facilitators must know all the Design Thinking tools and be able to explain them, as well as how to do group management. The facilitator's role is to focus on the process of Design Thinking, while trainers focus on the content/training project.

Lastly, he states that people looking for this type of model are looking for the new, people who are okay with risk and volatility because implementing the new does not bring revenue. He also affirms that organizations must test the model to assess its effectiveness.

To conclude this section, the first interview with Jorge Boabaid served a great purpose: even organization leaders with little experience are open to the Design Thinking mindset and culture. The other two interviews with interviewees who work in Design Thinking provided new information, allowing for a more prosperous and deeper model.

5.3. Model Update

With the in-depth interviews, some changes were made to the model based on the feedback received. Specifically, in step two, two more challenges were added to the model:

- **Organizational Rigidity and Aversion to Failure:** Jorge Boabaid highlights the difficulty of introducing the Design Thinking mindset into organizations because it represents a "modern" way of thinking. He enjoys and understands this mindset but acknowledges that not all organization leaders are open to failure, a critical aspect of Design Thinking. He observes that large organizations are often too closed to innovative approaches, allowing new start-ups to steal their market share. This

resistance to embracing a mindset that tolerates failure and encourages experimentation can hinder the successful implementation of Design Thinking in such environments. Arne van Oosterom also criticizes the fact that organizations still use the mentality of the Industrial Revolution.

- **Leadership and Middle Management:** Dragos Gravilescu emphasized a critical challenge: leaders must undergo a Design Thinking training program that goes beyond intellectual understanding. Hands-on experience is essential for leaders to fully grasp and effectively implement Design Thinking principles within their organizations. Arne van Oosterom defends that it is crucial that both the leaders of the organization and middle managers fully understand Design Thinking so that they can communicate this new way of thinking to the organization's people.

In step three, five more recommendations were added:

- **On-the-Job Coaching and Real Projects:** Arne van Oosterom started coaching on the job and using real projects to ensure practical application of Design Thinking principles. This approach helps employees internalize the concepts by working on their challenges.
- **Importance of a Common Language:** He also emphasized the importance of teaching the language of Design Thinking so everyone in the organization speaks the same language and understands the terms and tools. According to him, Design Thinking is not rocket science; it is about behavioral change. A shared language and culture are critical since everyone in an organization is a problem solver. This shared language helps create an everyday reality within the organization, facilitating better communication and collaboration.
- **Immersive Learning Experience:** Dragos Gravilescu prioritizes transforming training sessions from theoretical lessons into immersive experiences to engage trainees in Design Thinking effectively. Rather than solely teaching Design Thinking principles, trainees should be allowed to participate and actively apply these principles in real-world scenarios. This hands-on approach fosters a more profound understanding and practical skill development in Design Thinking methodologies.
- **Teaching Design Thinking Tools:** Dragos Gravilescu states that it is essential to incorporate thorough training on Design Thinking tools during training sessions. Designers typically develop these tools for other designers, which may pose challenges for individuals without prior experience. Comprehensive instruction on

these tools ensures that all trainees understand their purpose, application, and effective utilization in Design Thinking processes.

- **Optimal Facilitator Ratio and Expertise:** He also suggests employing two senior facilitators, one junior facilitator, and a maximum of 16 trainees per training session. Facilitators should possess comprehensive knowledge of Design Thinking tools and be proficient in explaining them, along with skilled group management abilities. Their primary responsibility is to guide participants through the Design Thinking process, ensuring effective facilitation and engagement. Meanwhile, trainers should focus on delivering content and managing the overall training project to maximize learning outcomes.

In step five, the definition changed to:

- To effectively embed and sustain a Design Thinking (DT) mindset in the organization's culture, it is crucial to adapt based on insights from Arne van Oosterom, who emphasizes the challenge of retaining talent in modern organizations. Long-term employment is increasingly rare as individuals seek diverse experiences and opportunities. Therefore, shifting focus towards creating a community-based business model is essential. This involves fostering a culture where relationships with former employees who possess valuable knowledge are maintained and valued as part of a broader ecosystem. Rather than viewing them as adversaries, these individuals can contribute to ongoing knowledge transfer and innovation.

5.4. Limitations

Regarding the limitations, it is essential to note that the dissertation's interview sample size was intentionally selected rather than random. A more extensive, more diverse sample size could provide deeper insights into the validity of the model and its practical application. Another limitation is the inherent difficulty in measuring the impact and success of the model on organizational culture and outcomes. Design Thinking interventions often require significant time to manifest changes in large organizations, particularly in shifting established organizational cultures.

5.5. Recommendations

For recommendations, a larger sample size is required for the interviews to have a more diverse range of perspectives from different organizations or roles. Also, the interview participants should be diversified, and various stakeholders, including employees at different levels, managers, and leaders, should be identified to capture a broader perspective of insights. For the last recommendation, a longitudinal study should be performed to track the implementation of the model over time and assess its impact on organizational culture and innovation within the organization.

Chapter 6. Conclusions

This dissertation aimed to develop a model capable of helping organizations that want to implement the Design Thinking mindset into their culture. In summary, the findings indicate an explosion of Design Thinking in organizations. However, a knowledge gap exists in the implementation of the Design Thinking mindset into the company culture. This dissertation seeks to contribute to bridge that gap. Having said that, the proposed implementation model of DT must be tested in organizations to show its effectiveness and prove that it can contribute to adopting Design Thinking. In conclusion, this research underscores the importance of organizations adapting to new visions and strategies to remain competitive in rapidly evolving markets. It highlights the necessity for embracing innovation and fostering a culture that supports continuous learning and adaptation; as organizations navigate the complexities of modern business environments, embracing new visions and strategies becomes advantageous and essential for long-term sustainability, growth, and obtaining a competitive advantage. Design Thinking has the power to offer this to organizations. However, organization leaders must adapt sooner rather than later to avoid losing their market to emerging and more modern organizations.

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Annexes

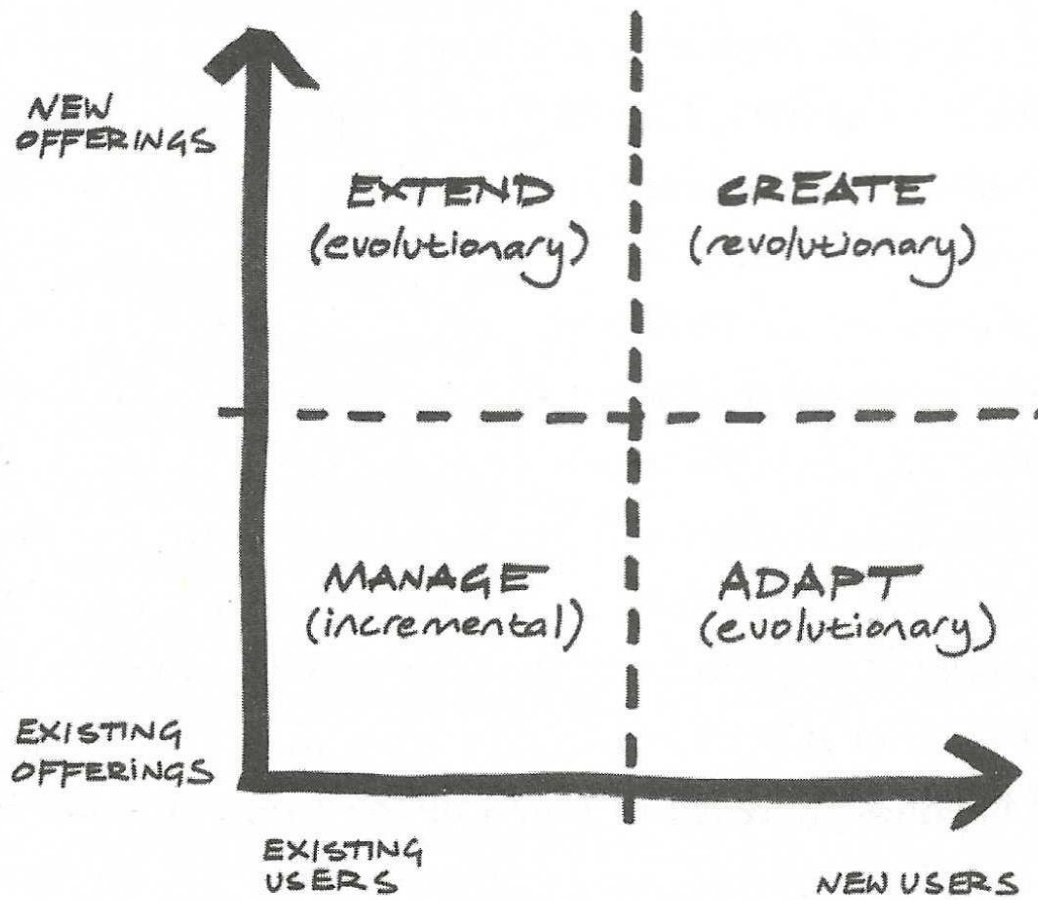


Figure 4. Ways to Grow (Brown, 2019)