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ICT in Business and the Public Sector

The role of Design Thinking in digital transformation during pandemic times: a case study

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"In the midst of every crisis lies great opportunity"

Albert Einstein

"The greatest danger, in times of turbulence, is not turbulence itself, but to act with yesterday's logic"

Peter Drucker. (1980). Managing in Turbulent Times

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This master thesis terminates my MSc programme in Leiden. Mainly due to the COVID, this experience unfortunately did not go as imagined when I moved to the Netherlands. Despite this, these two years have been incredibly formative, giving me the confidence to face, with the right determination and with the proper mindset, the challenges that I will find ahead of me in the future.

Abstract

The COVID-19 pandemic, and government policy responses that followed in its wake, have raised new challenges for many organisations and an increased concern for digital transformation. Examples of these challenges include the sudden shift of the workforce from offices to private residences and the need to adapt systems and operations to manage the rapidly changing business environment. This thesis investigates the actual, and potential, role of Design Thinking (DT) in meeting these challenges. Here, the focus is on the (re)design of business processes and their related information systems, concerned with providing corporate support (including IT-support) services, also referred to as Enterprise Service Management (ESM). First existing views on the role of DT in the ESM domain are investigated by an extensive literature review. Following this, a case study is performed at a leading consultancy firm, using empirical data from two projects, that dealt with the redesign of business processes and their related information systems in the ESM domain, initiated with the explicit aim to mitigate some of the consequences of the pandemic. The data is analysed using the Grounded Theory methodology. The study shows how DT was used as a framework for organising the redesign process and mobilising project resources to implement the required changes. A set of DT's aspects, such as collaboration, feedback collection and validation, experimentation, the adoption of user-centricity and holistic thinking, found a concrete application in the case studies analysed. Their influence is discussed on several aspects of the investigated projects, including project organisation, project lifecycle management, requirements acquisition and change management. From this discussion we learn that DT was firmly entrenched in the redesign process, and it was valued by the interviewees as a useful guideline, particularly in the challenging environment created by the pandemic.

Key words: Enterprise Service Management, Design Thinking, COVID-19, Digital Transformation, Business Process Reengineering, Process Innovation, Service Design.

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1. Introduction

1.1. Problem definition

1.1.1. COVID as an accelerator

2020 has been a year that had a great impact on our society (Finsterwalder and Kuppelwieser, 2020). The world has witnessed the health and social emergency caused by the COVID-19 pandemic. It is still uncertain how COVID-19 will reshape our society in the future, but what is known is that the pandemic accelerated and pushed innovations and advancements, especially in digital environments (Kang, 2021). It accelerated innovation mainly because organizations were forced to respond to the crisis (Heinonen & Strandvik, 2020). In fact, measures have been taken by governments to prevent the spreading of the virus (Tian, 2020). As a consequence of these measures, companies had to redeploy their workforce from business offices to their private residences. Because of this, a significant demand of digital services has been generated by the employees to face this new situation and, in general, this "rush to digital" in the recent months has prompted a greater need of services and processes digitalization.

Digital transformation was already a concern for most organizations before the pandemic, but since the advent of COVID-19 it has become even more crucial (Pandey & Pal, 2020). According to a survey conducted by the North Carolina State University, the legacy technology infrastructure and the existing operations pose a risk to companies that are not able to transform quickly enough to compete against digital native companies (Sun, 2018). From the same survey, it is estimated that $1300 billion were spent on digital transformations during 2018, but 70% of these initiatives did not reach their set goals, with a waste of roughly $900 billion (Tabrizi et al., 2019). Given the urgency to respond to the challenges posed by the COVID-19, organisations cannot afford to waste their resources anymore.

1.1.2. Challenges within Enterprise Service Management

Digital transformation can be still a quite broad term. Mazzone (2014) defines it as the ongoing digital evolution of a company, business models, processes, or methodologies, both strategically and tactically. Westerman et al. (2011) described digital transformation as a way of using technology to radically improve the performance of enterprises: "executives are using the latest technologies and digital advances, to change customer relationships, internal processes and value propositions". Related to this, the phenomenon of digitalizing services and processes has started several decades ago. Originally there was the IT department, a supporting organisational unit, which was responsible of providing assistance to other business units. Throughout time, Information Technology gradually embraced every aspect of organizations. From a practical perspective, this can be observed in the rise of concepts such as Enterprise Service Management (ESM), which will be the focus area of this research.

ESM is the practice of applying the IT Service Management (ITSM) best practices and principles in other areas of an organization, so not just within the IT department, but also in other functions, such as HR, Customer Service, Finance, Legal and Facilities Management (Watts, 2020). More specifically, ESM aims to provide customer-oriented services especially to the internal customers, usually relying on a single digital platform that orchestrates the workflow across the different departments. For instance, a company's IT service desk is an example of an IT-related process that can be designed and managed using the ITSM discipline. On the other hand, the onboarding process of a new employee is an HR-related process that can be designed and managed using ESM principles, as the workflow goes across different departments (HR, Finance and Legal).

ESM originated mainly because many ITSM requests were not limited to IT (such as opening a ticket as the user cannot access the server with his laptop), but were related to aspects within the other different supporting functions (opening a ticket as the user did not receive the

monthly salary). Therefore, ESM is also a way of managing support business processes. According to the ESM practices, the different requests of the employees should be accessed and managed using a common digital workflow management solution. Another example is providing a centralized way for managing contracts, so employees have a common portal where the requests to begin the contract review process can be submitted. Without ESM, these requests would have been addressed using emails, for instance.

Within the ESM domain, there were already some challenges also before the advent of COVID-19. One of them is related to organisational silos (Edmondson et al., 2019). In business terms, having organisational silos implies the difficulty to coordinate (and at worst, even communicate) across the different departments within an organisation (Serrat, 2017). According to the results of a survey published by McKinsey (De Smet et al., 2020), 61% of the respondents identified business silos as the first barrier to get the work done. One concrete outcome of this can be described through the example of "Swiss Re", provided by ServiceNow (2019). The Swiss reinsurance company throughout the years accumulated a set of different in-house and off-the-shelf apps, each of them addressing a specific service for the internal customers. These isolated solutions made really challenging to structure consistent processes within the organisation.

These silos bring two consequences. The first one is a lack of standardisation of the processes within the business units. The second one is a lack of automation, so the users need to manually carry out some activities throughout the process. This can usually imply also the repetition of these manual activities, due to the information misalignment (Solis, 2020). For example, in the HR department recruiters often spend administrative time in manual tasks in such as reconciling email records, necessary to link the records of email contact to the candidate. When doing this, it is highly possible to leave out crucial emails: leaving out pieces

of information can prompt of asking them to the candidate again, losing essential time (Smith, 2018).

One strategy to bypass them is through business process workarounds, so employees intentionally decide to deviate from the required procedures to speed up the process or to get around some obstacles. For example, the lack of automation and standardisation can be observed through the transmission of information using different inconsistent ways, such as spreadsheets, emails and phone calls, as previously written. However, these practices have a negative impact on the overall process. The aspects mentioned above can be caused also by a poor design of process's workflow, which can result unstructured, or because organisations do not have a central system for tracking progresses of customers' requests or for sharing information. The consequences of these issues are commonly:

- Lack of visibility of the progresses of the user's request
- Longer waiting times for customers to see their requests fulfilled
- Unfulfilled requests
- Time wasted by the employees

Thus, while the first point has mainly an impact on the customers' experience and satisfaction, the latest three ones not only affect these two just-mentioned aspects, but they have a direct impact on the organisational efficiency, as employees are less productive due to the time wasted. Furthermore, the processes' inefficiencies bring to a greater usage of resources and consequently an increasing of costs.

Related to this, the second example one also comes from ServiceNow (2019) and it is about "Car.com", an American car company. This organisation used centrally-stored spreadsheets to manage different business processes. While spreadsheets can be useful tool for

personal use, when it comes to collaboration, they present several disadvantages. Even if this company used to store the spreadsheets in centralized repositories, the information alignment and version control became an issue, making it difficult to ensure a clear visibility information to the necessary users. The last example is about a cybersecurity firm based in France, which needed to redesign its customer service management platform after a merger (ServiceNow, 2019). In particular, customers were complaining about the poor user experience coming from the different self-service solutions. The personnel were frustrated by the isolated service functions, by the legacy systems and by the lack of visibility into customer service agreements.

In addition to the inefficiencies explained, there are other aspects that are affecting the ESM domain:

- According to a survey conducted by ManageEngine among 519 IT professionals about the state of digital services in the COVID-19 pandemic, it emerged that one third of participants answered to question 'What do you think is the greatest challenge in offering remote IT support?' with 'communication and collaboration' (Mann, 2020).

- Furthermore, according to Doheny et al. (2020) in a paper that points out the critical capabilities for Service Management, 'collaboration' and 'process and workflow design' have been addressed as crucial. In this context, collaboration is understood as the ability to connect IT resources, customers and external providers across multiple channels, to achieve the desired outcomes (Doheny et al., 2020). More specifically, it is the process that users adopt to retrieve by themselves what they need, accessing to specific knowledge management self-service platforms, with the purpose to reduce the burden on the IT side.

- In another paper from Gartner, "Critical Capabilities for Digital Experience Platforms", the importance of collaboration and knowledge sharing capabilities emerges (Guseva, 2021).

This shows the concept previously mentioned, about the difficulty of coordination across the different departments within an organisation and, in general, the need of collaboration especially in this domain. Within organisations, there were already some trends related to digital services, such as:

- Customer centricity, so bringing to customers valuable and meaningful services that meet their requirements.
- Pursuing operational excellence, to gain efficiency and reduce costs.

Now, due to COVID-19, the associated disruption of IT demand and increased uncertainty forced a sudden redesign and reassessment of digital services, aggravating the extant challenges related to them (Kabadayi et al., 2020; Carnevale and Hatak, 2020). The pandemic pushed legacy processes and online services beyond their peak capacity, exposing their inefficiencies and reliance on manual processing (Solis, 2020). This means that if the above-mentioned problems were already present in a company before the pandemic, especially in non-digital-native ones, the lack of customer experience and the loss productivity have been increased even more by COVID-19. Two examples follow:

The first one is an institution that approves subsidies and loans to businesses that are facing economic problems. Before COVID, the clerks working in this institution used to manually check if the business, that sent the request for funds, met all the requirements to obtain the money. It was done using different spreadsheets, to compare the characteristics of the business in troubles with the	The second example is from the healthcare industry. In particular, it is known that nurse tend to spend several hours on paperwork, or manage appointments with patients (McDaniel, 2020). Since COVID, the management of appointments became more challenging, given the increased number of patients requesting an appointment. Relying just on phone calls or spreadsheets is not

requirements established by the institution. Since COVID started, the institution started to receive a great number of requests, so the clerks could not manage all of them manually anymore. This translated into very long waiting times.	feasible anymore. In fact, many hospitals started leveraging automation to ensure nurses spend more time in the caretaking and less in doing repetitive administrative tasks.

Table 1: Examples of the amplied effects of the business process inefficiencies, due to COVID

1.1.3. Facing these challenges with digital service design

Technologies are playing a vital role during this pandemic and they will also be crucial in the post-pandemic world, especially the ones capable of reducing the workload for humans, managing the organization and ensuring business continuity (Siderska, 2021). Because of the pandemic, a demand for fast and tailor-made digital services has increased even more in every industry and will define the future of services in the next years (Ramsey, 2020). Furthermore, as emphasized by Amis (2020), organizational success will depend if companies will be able to gain insights on customers' needs, as well as there must be a willingness to engage rapidly with new ideas.

Within a context of change, organizational differentiation and growth, service innovation has typically been considered a key factor (Feng et al., 2020; Helkkula et al., 2018; Kowalkowski and Witell, 2020). On the other hand, digitalization, which has had a profound effect on how people communicate, connect and collaborate with others, has been recognized as particularly valuable because of its capability to engage customers (Hennig-Thurau et al., 2010). In fact, digital assets have emphasized the importance of customer engagement, as customers become active co-producers, or destroyers, of the value that the companies produce, as well as it disrupted entire industries and changed significantly the context of business models (Leeflang et al., 2014). Therefore the combination of them, so the innovation of digital services

could be one way of coping with this crisis, to improve existing services and create new ones, as the pandemic created a completely new context for service innovation (Heinonen & Strandvik 2020). The COVID-19 crisis has created a unique opportunity to apply creative thinking beyond the borders of comfort for most businesses (Whiteside, 2020). Only an innovator will gain competitive advantage by learning and experimenting to find what works for it and its customers (Blosch 2020). The ones that will ignore and fail to make customer experience a digital imperative will experience a business model failure (Brand 2020).

Throughout the last decades, Design Thinking has emerged in management literature, illustrating how firms might benefit from this concept (Dunne & Martin, 2006; Brown, 2008; Brown, 2009; Martin, 2011). So far, the use of DT in organizations has been described in the literature in a quite vague way, through stories about the few success cases, as well as in books written by practitioners promoting it (Johansson-Sköldberg et al., 2013). More systematic empirical investigations of DT in organizations are still missing (Johansson-Sköldberg et al.,2013), and there is limited understanding of the adoption of DT in a company context. From an academic perspective, the lack of empirical foundations of how Design Thinking is used in practice, makes it challenging to connect and theorize new concepts to existing design theories and models (Kimbell, 2011, Hobday et al., 2012; Johansson-Sköldberg et al., 2013). Furthermore, it is challenging to determine its impact to organisations (Schmiedgen et al., 2016). Despite this, DT is increasingly adopted by firms to develop innovations (Nakata et al., 2020). But what Design Thinking is, how it works and if it leads to successful new services and products, are partially unresolved issues (Nakata et al., 2020).

To summarize the content of the previous paragraphs, COVID-19 made business process inefficiencies unbearable, in terms of being able to satisfy the increased IT demand, guarantee an efficient business continuity and not wasting time because of them. This research focuses on the support business processes that affect the life of knowledge workers, who have

been severely impacted especially due to the shift from offices to homes. The pandemic accelerated the need of solving these inefficiencies, through the design of efficient processes that deliver a great customer experience and enable collaboration across business units. Organisations cannot waste their resources in digital transformation initiatives that will not solve them. Therefore, some questions arise about how it is possible to do so. Given the premises found out in the literature and the reasons stated above, the research question mentioned below has been drafted.

1.2. Research questions and objectives

"What was the role of Design Thinking in meeting the pandemic challenges within Enterprise Service Management?"

To understand the impacts of the pandemic, so to identify the potential areas of application of DT and to understand its applicability, this research sub-question has been identified:

1) "What have been the impacts of COVID-19 in the ESM domain?"

Consequently, to assess which Design Thinking's aspects emerged from the companies analysed in this research and evaluate their impacts, so to identify the elements that might eventually have had a positive effect on digital transformation, the second research sub-question has been identified:

2) What Design Thinking's aspects emerged from the methodologies used in the projects analysed?

Finally, to evaluate which solutions have been implemented and what the projects' outcomes have been, the third research sub-questions is:

3) Which solutions have been implemented?

This research focuses on the digitalisation of processes within the domain of ESM, that organisations had to execute in order to respond to the consequences of the COVID-19 pandemic. The overall purpose of this research is to understand if Design Thinking can be a valid approach that can be used to help organisations with the digitalization and redesign of their processes within the ESM domain, to face the impacts of the pandemic. The practical goal is to assess if the DT aspects, described in the literature, find a correspondence in the practical context, and if they could be taken in consideration by the organizations that are still struggling with their digital transformation, or by the ones which did not achieve their desired digitalization target yet. The theoretical goal is to fill the gap of ESM in the academic field. In addition to this, as it seems that the concept of ESM is not clearly well-structured in the literature, this master thesis also aims to provide some insights on this domain and on the methodologies used in it. Furthermore, there is the goal to point out the similarities and differences among the different project's methodologies used in this domain.

1.3. Project's details and structure

This research is a company project at Deloitte Consulting B.V., based in the Netherlands. More specifically, the duration of the internship was 7 months, starting from the 4th of January 2021. The researcher has been part of the Enterprise Service & Process Management team. It fits into the offering Technology Strategy and Transformation, which is part of the Enterprise Technology and Performance portfolio, in the Consulting business area. The supervisor from Leiden University is Drs. P.M. Kwantes. The second supervisor is Dr. J. Wang. The company supervisors for this research project are M.Sc. Sandra Rijswijk and M.Sc. Rick Vrouwenvelder, with the support of M.Sc. Anca Negotei.

After this first chapter, the research methodology chapter will follow, which focuses on the methodology that the researcher adopted to conduct his research. Chapter 3 is about the

literature review, that explains the outcome of the previous research about the topics covered in this thesis. In chapter 4, the data collected are presented. Chapter 5 deals with the analysis and discussion of the findings, comparing them also with the secondary data from the literature. The last chapter is the conclusion, which summarises this research, evaluate its potential limitations and gives indications for potential future research related to it.

2. Research Methodology

This chapter describes the research methodology employed in this master thesis. It elaborates on the activities performed throughout the development of this research, with the goal of answering to the questions stated in chapter 1.2. More specifically, this chapter is divided into four different sections, following the structure of the "research onion" in Figure 10 (Saunders et al., 2012). The first section is about the research philosophy, nature and approach, which explains the researcher's view towards the development of knowledge. Then, the research strategy is illustrated, that focuses also on the different methods used for the data collection. The third part is related to how the data has been analysed. The fourth one informs about the quality and ethics criteria applied in this thesis.

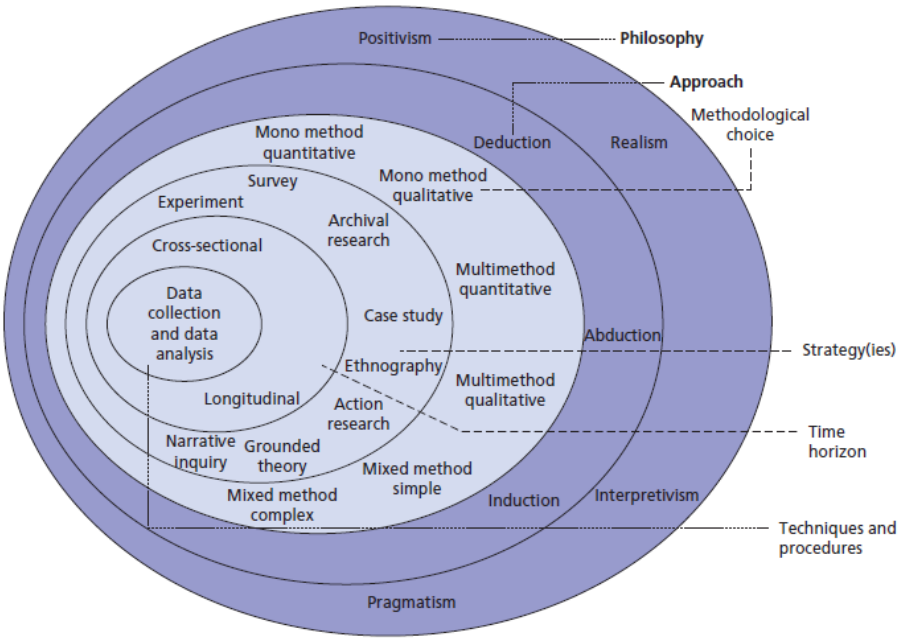

Figure 1: The research onion

2.1. Research philosophy, nature and approach

The research philosophy relates to the development of knowledge and its nature (Saunders et al., 2012). It can be thought as the researcher's assumptions about the way the world is perceived (Saunders et al., 2012). These assumptions establish the research strategy and its methods. Especially researchers in the field of business and management need to be

aware of the philosophical commitments set through the choice of the research strategy, as they have a significant impact on the researcher's understandings (Johnson and Clark, 2006). Interpretivism is the research philosophy adopted in this master thesis. This implies that the researcher perceives the nature of reality as socially constructed. For this reason, multiple perspectives have been taken into consideration. As explained by Saunders et al. (2012), this suggests focusing on the details of a situation and on the reality behind them. The researcher's view of the role of values within the research is that they are bounded to the research itself, consequently the researcher is himself part of what is being researched. The data collection methods often used in this philosophy are qualitative in-depth investigations within a small sample (Saunders et al., 2012), which is also the case of this research.

Given the research question, the nature of this research is exploratory. More specifically, as the problem setting is the COVID-19 pandemic, this type of research is particularly suitable not only because of the relative novelty of the problem itself, but also because of its recent context. Indeed exploratory research is ideal when the researcher is trying to gain familiarity with a phenomenon. The choice of the research philosophy and the nature of the research question has further implications in the research methodology, that will be outlined in the upcoming sections of this document.

In order to understand better the nature of the problem, an inductive approach was mainly adopted by the researcher. From a generalizability perspective, this approach deals with going from specific to general. One of the strengths of inductive approach is the possibility to develop an understanding of the way in which people interpreted their social world, in order to enable a correct cause–effect link between particular variables (Saunders et al., 2012). Moreover, induction has been adopted to explore the new information found during the data analysis.

2.2. Research strategy and data collection methods

The philosophical choice has a deep impact on the methodology employed in this master's thesis, as the purpose was to create a coherent set of decisions that are logical and can be inspected by readers (Lincoln, 2005). This thesis has been developed using a qualitative methodology, consistent to what emerges from the previous subchapter. This is because researchers have to interpret the subjective and socially-constructed aspects, noticed about the phenomenon being studied. In general, qualitative research focuses on the concepts expressed by the participants involved in the study and collected by the researcher, using a variety of data collection techniques and analytical procedures. The researcher's success depends not only on the choice of participants and on the ability to gain cognitive access to their knowledge, but also on establishing a connection with them and demonstrating sensitivity while acquiring and managing these data.

This research employed two methodologies for data collection. Initially, an exhaustive literature review was conducted. It enabled the researcher to investigate the different Design Thinking's aspects, to explore the ESM domain and its related methodologies, as well as to understand if in academia a connection between Design Thinking and ESM has been already made. Furthermore, the literature review served as basis for articulating the interview questions. The second methodology used has been semi-structured interviews for the collection of primary data. Two case studies have been conducted.

2.2.1. Methodology for review of the literature

In this thesis, secondary data from academia has been used to gain an understanding of different topics: DT, ESM, digital transformation and their relationships, as well as to build knowledge by the researcher for the interviews. The primary sources of the literature review were available through Leiden University, Deloitte and Google. Specifically, Leiden

University provided access to the Web of Science database and to other repositories, such as Elsevier, through the use of the university credentials. The Deloitte Knowledge Exchange has been used to collect articles and information that gave a concrete and practical perspective of the problem, as well as to access to Gartner Research and Forrester Insights. Google Scholar and Google were utilized as a source to gather and review journal articles, reports, case studies and books. The keywords, used to find the resources, included "Design Thinking", "Enterprise Service management", "digital service design", "process digitalization", "process redesign after COVID-19", "COVID-19 implications".

Whenever the researcher found a paper which he considered useful for the purpose of collecting secondary information, an evaluation of the secondary data used was carried out. The purpose of this evaluation was to examine the quality of the data and the sources of the documents, with the aim of using relevant, reliable and up-to-date sources, in particular with regard to the non-academical ones. Overall, this evaluation brought the selection of the most relevant and representative documents of the topics related to the research questions, after having set also some reliability and credibility constraints, to ensure a high quality of secondary data's sources. Moreover, while studying the papers and articles selected, the researcher started to understand which were the most active and accredited authors in the domains mentioned above. Consequently, the literature history of these authors (such as Tim Brown, Michael M. Hammer, Thomas H. Davenport, Roger L. Martin, Albert Fleischmann, Marc Stickdorn) has been reviewed, looking for suitable papers. Furthermore, it has been given a particular attention to the following magazines and journals: Harvard Business Review, Journal of Management, Journal of Service Management, Journal of Service Research, Journal of Business Research. The Literature Review was conducted from the beginning of January since the end of March 2021.

2.2.2. Methodology for collection of primary data

As previously mentioned, semi-structured interviews were chosen as the collection technique for primary data, due to their ability to provide rich insights on the phenomenon that was being analysed (Gephart, 2018). Given the researcher's understanding of research philosophy as social constructivism, interviews gave him the chance to adopt an active role in the conversations and to guide respondents in such a manner that the phenomenon was analysed effectively. They facilitated the exploration of the topics of interest, through the creation of ad-hoc interviews' structures, according to the expertise of each different respondent (Gioia et al., 2012).

Two tactics were adopted. The first one has been defined by the researcher as "bottom-up": initially two projects conducted by Deloitte, that were particularly relevant to address the research question, have been identified. The researcher did not include in the sample all the COVID-related projects found in the Deloitte projects' database. When it comes to the criteria applied for choosing the projects, the main one is the relevance that the pandemic variable had. Indeed, they were chosen only the projects where the pandemic's effects were so severe and impactful in the client's organisation, that a solution was urgently required. In other words, the researcher chose the projects where the pandemic has been the main trigger to start a digital transformation initiative. After the projects' selection, the researcher contacted experts that worked, or are still working, on these projects. More specifically, three practitioners were contacted from project 1, two from project 2. The idea behind this bottom-up tactic is that from concrete examples, about how organizations dealt with the impacts of the pandemic, it is possible to find the common challenges and extract best practices and solutions that have been adopted to tackle them.

The client of the first project is a big multinational company operating in the food and beverage industry. Deloitte has been hired to redesign the onboarding process. The scope was

to increase employee satisfaction by delivering a great employee experience. Then COVID came and, as most of the companies, also the client organisation had to respond to the emergency. It was struggling to identify the impact of COVID on the health, well-being and productivity of their employees working from home. The redesign of the onboarding process has been put on hold and the budget has been invested in a new project to find solutions to tackle the challenges posed by the pandemic. Deloitte helped the company to understand these impacts and define an action plan accordingly. The scope evolved into a platform implementation, in order to establish a connection with the employees, to understand their well-being, as well as to guarantee the business continuity.

The client of the second project is a company from the public administration. Deloitte has been hired to help with the digital and organizational transformation. The original scope was related to the general IT architectural landscape, such as data migrations from all the previous systems to new ones, define the data architecture, define the future-proof architecture, reconfigure the general document management system. Then COVID came and the company had to quickly respond to a potentially overwhelming economic impact. The response was to implement a platform to automate the handling of the large volumes of applicants and direct payments.

The second tactic has been defined as “top-down”. Here the researcher reached out to experts that contributed to some Deloitte’s publications about “Digital Transformation after the pandemic” and experts that are knowledgeable about Design Thinking, ESM and digital transformation. The goal of this approach was to start from an higher perspective and gradually deepen into the core of the topics. Below it is possible to find an overview of all the respondents involved in the research. The interviews were conducted in May.

Respondent	Date	Approach	Title	Business area	Interview duration
#1	03/05/21	Bottom-up, project 1	Consultant	Consulting → Human Capital → HR Transformation	24:47
#2	04/05/21	Bottom-up, project 1	Senior consultant	Consulting → Enterprise Technology and Performance → Technology Strategy and Transformation	25:28
#3	06/05/21	Bottom-up, project 2	Consultant	Consulting → Enterprise Technology and Performance → Technology Strategy and Transformation	28:10
#4	07/05/21	Bottom-up, project 2	Senior consultant	Consulting → Core Business Operations → Operations Transformation	20:51
#5	11/05/21	Top-down	Senior consultant	Consulting → Customer and Marketing → Advertising, Marketing and Commerce	25:02
#6	14/05/21	Top-down	Senior Manager	Consulting → Human Capital → Organization Transformation	20:30
#7	27/05/21	Top-down and bottom-up, project 1	Director	Consulting → Enterprise Technology and Performance → Technology Strategy and Transformation	21:42
#8	28/05/21	Top-down	Manager	Consulting → Enterprise Technology and Performance → Technology Strategy and Transformation	22:47

Table 2: Respondents involved in the research

The sampling of interviewees used in this research has been purposive sampling and snowball sampling. The researcher used the Deloitte projects' repository to identify the key figures involved in the projects. Not all the team members involved in the same projects have been selected for an interview. While selecting the sample of practitioners, the researcher aimed to achieve the maximum variation sampling. Thus, chosen participants presented as much diversity as possible, in terms of field of expertise, business area, years of experience, background. For the top-down approach, snowball sampling was also applied, which consists

in having conversations with knowledgeable professionals that could indicate to the researcher someone else that would be knowledgeable on the same topic (Hwee Ang, 2014), expanding the network of the researcher. While analysing the data, when a core theme or relationship is identified, a particular attention was paid to select new cases that might have been relevant to that specific theme identified. This approach is a special form of purposive sampling, known as theoretical sampling. According to Corbin and Strauss (2008), the data collection should continue until theoretical saturation has been reached, which occurs when data collection ceases to reveal any new properties that are relevant to a category, and/or when categories have become well developed and understood, and/or when relationships between categories have been verified.

From a practical perspective, in order to explain to the respondents the purpose of the interviews and to find them prepared, a draft of the interview questions have been designed in advance and sent to each interviewee before the proper interview. Given the effects of the pandemic, all the interviews have been carried out remotely, relying on the software "Zoom". The lack of a clear body language and some minor Internet connection problems have been detected as the major disadvantages of this remote setting. The main advantage was the flexibility of scheduling. In this thesis, the researcher tried to establish personal contact with the interviewees. This enabled a greater degree of naturalness within the conversations and foster the easiness to access to more precise and sincere type of answers. All interviewees agreed to let the researcher recording the interviews. Interview recording allowed the researcher to transcribe the conversations, whose respondents have been anonymized and customers' name concealed.

2.3. Data analysis

The transcriptions of the interviews have been coded through the Grounded Theory methodology. Grounded Theory is a process to analyse, interpret and explain the meanings that social actors construct, to understand their experiences in specific situations and extract knowledge through them (Charmaz 2006; Glaser and Strauss 1967; Suddaby 2006). In this research, this was possible using a CAQDAS type of software called MAXQDA (MAXQDA, 2021), referenced and recommended by Saunders et al. (2012) and Saldaña (2009). Coding refers to the act of "labelling each unit of data, within a data item (such as a transcript or document), with a code that symbolizes or summarizes that extract's meaning" (Saunders et al., 2012). In social sciences research, codebooks are commonly used, since they provide a taxonomy and descriptions of the full analysed data (Guest et al., 2014).

The three different steps employed chronologically by the researcher are described below, derived from the work of Corbin and Strauss (2008):

- Open coding: the reorganisation of data into categories, through the identification of generic dimensions and conceptual units. In the specific case of this research, the researcher identified different categories within each transcript and used a colour-based system to distinguish them. Below, it is possible to find an extract.

Color	Commer	Docume	Document name	Code	Beginning	End	Weight score	Segment	Modified by
			Interview with #1	GREEN	21	21	0	we had feedback and it kept improving it	fgermino
			Interview with #1	RED	22	22	0	opening this tool for visitors	fgermino
			Interview with #1	RED	22	22	0	multi-country organization	fgermino
			Interview with #1	RED	22	22	0	booking an office between different countries	fgermino
			Interview with #1	GREEN	26	26	0	is fundamental	fgermino
			Interview with #1	BLUE	27	27	0	platform is flexible	fgermino
			Interview with #1	BLUE	27	27	0	being flexible and adaptable	fgermino

Figure 2: Extract of the open coding's outcomes in MAXQDA

- Axial coding: the process of recognising patterns and relationships within each different category. These patterns can also be described as sub-categories. In this step, different types of coding have been used, such as:

  - Descriptive coding: refers to summarize short phrases in form of a simple noun, or in combination with an adjective and/or a verb, marking the basic topic of a paragraph (Saldaña, 2009);
  - Structural coding: applies when a conceptual expression is assigned to a segment of data representing a topic related to a certain question, used to frame the observation. Similarly coded segments are then collated together for more in-depth analysis (Guest & MacQueen, 2008);
  - Process coding: is used to capture specific actions in the data, by coding observed activities and general conceptual actions (Gubrium & Holstein, 2002);
  - Values coding: applies when codes refer to qualitative data that represent a participant's values, beliefs, and/or attitudes (Gable & Wolf, 1993) (LeCompte & Preissle, 1993)

- Selective coding: the development of principal categories and subcategories to produce a theory. During this step, the researcher aggregated the identified categories and subcategories across the transcripts, with the goal to produce the new theory.

Due to the fact that qualitative research requires a profound reflection on the meanings and patterns of human experience, applying multiple cycles of coding mechanisms is strongly recommended to refine the codes (Saldaña, 2009). This is appropriate especially when the content of the data proposes multiple interpretations, that require and warrant more than one code. The motivation of this approach is also that complex social interactions do not happen in isolated units, so this method serves as a tool to investigate their interrelationships (Glesne, 2016). This is why the above-mentioned mechanism have been implied also for this research.

Related to the criteria applied for converting codes into findings, the researcher evaluated which codes were the most mentioned by the interviewees, as well as the ones that

were more relevant according to the research's scope. In the Appendix it is possible to find more information regarding the methodology used for the data analysis.

2.4. Quality criteria and ethics principles

Given the nature of this thesis, establishing a quality assessment is fundamental. The researcher took into consideration the quality criteria, related to interpretivism and social sciences research, proposed by Lincoln and Guba (1985), rather than the ones commonly employed in positivism. The criteria are 'dependability' instead of 'reliability', 'credibility' as 'internal validity' and 'transferability' rather than 'external validity'.

Dependability is a method to evaluate the quality of the integrated processes of data collection, data analysis and finally theory generation. In other words, it corresponds into the act of recording the changes occurred in the research itself, compared to the original research design. Different biases are involved in this criterion (Saunders, 2012), such as:

- Interviewer bias, which is the event of the researcher implicitly leading the interviewees towards his own understanding and beliefs;
- Interviewee bias, which is the action made by interviewees when keeping potential sensitive information concealed;
- Non-response bias, when some contacted participants were not willing to participate in the research, or did not reply to the researcher's invitation.

The dependability criterion was targeted by the researcher through being transparent as possible, especially while dealing with transcripts and other potential sensitive documentation. Moreover, he tried to minimize the interviewer bias preferring the usage of open-ended questions over close-ended ones, implicitly encouraging the interviewee to answer freely and not being affected by the researcher. As the researcher communicated to the interviewees his

intentions to treat any confidential information shared by respondents with confidentiality and care, hopefully interviewee bias was minimized. Credibility translates into presenting, in an accurate manner, the interviewees' points of view concerning the research. This criterion has been pursued through asking further explanations and asking questions to the interviewees if something might have been contradictory or unclear for the researcher.

Furthermore, the different viewpoints have been supported also by the usage of several sources of data, collected during the literature review. Moreover, the researcher focused the attention on maintaining an open mind about the new findings, to not limit himself to just the ones emerged from the literature review. Transferability refers to the ability of reproducing the findings of this thesis in other contexts. The researcher aimed to achieve it by providing a clear context for the research problem and by detailing the main findings, implications and limitations of the thesis.

Following the topics addressed by Bell & Bryman (2007), these last two paragraphs illustrate the ethical principles kept in consideration by the researcher throughout the whole thesis's process. As written, the researcher aimed to be as transparent, objective, integer and truthful as possible, avoiding partiality and pretexts while writing the present thesis, through constantly assessing the correctness of his beliefs and questioning his hypotheses consistently. Confidential information was managed with integrity and respect. Before each interview, the researcher clearly explained to each respondent that he committed himself to anonymize in the transcripts and in the thesis, every name of interviewees, projects and client names.

In addition to this, the researcher always emphasized the voluntary nature of participation in this study, as well as the consent to record the interviews has been asked every time prior to scheduling the interview. Interviewees taking part in this research were always aware of the voluntariness of their involvement in the study and the voluntary nature regarding

the recording of the interviews. Moreover, the purpose of the interviews and the methodology for the data analysis were shared with the interviewees every time in advance, with also the goal to guarantee clarity, transparency and to establish a good relationship with them.

3. Literature Review

This chapter covers the relevant academical theories and frameworks related to Design Thinking and to the design methodologies used in the ESM domain. This exploration has the objective of illustrating the academic situation about the topics covered, as well as it sets a basis for answering to the research question and develop the questions for the interviewees.

3.1. Design Thinking

Tim Brown, president & CEO of IDEO, a company well-known for applying Design Thinking (DT), explained (2008): "Design thinking is a human-centred approach to innovation, which aims to integrate the needs of people, the possibilities of technology, and the requirements for business success". DT is a methodical approach to generate something new and to solve complex problems, through the use of a creative and constructive mindset. It is characterized by innovative approaches towards a solution-oriented design. Due to its origin, Design Thinking was originally primarily concerned with the development of new physical products. Now, it is used in a wide variety of areas, such as the development of services or entire business models, and it is increasingly gaining in importance in the field of organizational design and Business Process Management (Fleischmann et al., 2020).

The range covered by DT is not seen uniformly. There are interpretations which see it as a mindset, as a process or as a toolbox (Brenner et al., 2016). This can be a consequence of the inherent, further constant developments and adaptations of DT in different contexts. Larry Leifer (2012) stated that these interpretations are an important part of DT itself and it would be unrecognizable if a fixed manifesto was published in the future.

Figure 3: Understanding Design Thinking (Source: Fleischmann et al., 2020. p. 164)

Toolbox	Method/Process	Methodology	Mindset
Tools with clear rules and instruction manuals (e.g. *Empathy Maps, Brainstorming Rules, Stakeholder Map, etc.*)	A means or manner of procedure, to systematically get things done and to know when to apply a specific tool (with its sub-steps) according to the situation at hand. Often understood as a (semi-)ordered sequence of actions.	Combining a set of appropriate methodologies, like the principles, practices and procedures of different knowledge domains (*e.g. Lean Start-up, Six Sigma*).	A guiding stance or attitude, which influences ways of reasoning. As such it shapes the selection and development of appropriate methodologies, methods and tools (*e.g. Empathetic towards people's needs, Accepting of uncertainty and open to risk, etc.*)

Table 3: The different shades of Design Thinking

Design Thinking can be seen also from three different perspectives (3Ps): people, process and place. As reported in the literature, in order to achieve it an interdisciplinary team (people) should be assembled, enabling an environment (place) that promotes creativity and going through a set of activities (process) that involve many iterations. Conceptually, Design Thinking identifies the optimal solution in the overlapping area of human desires (human-psychological aspect), profitability (business aspect) and feasibility (technological aspect) (Uebernickel et al., 2015). In between, the concept of innovation lies, as it should consist of 3 elements according to Orton (2017):

- Something that people really like (desirability),
- Something that is feasible from a process-related and technological point of view (feasibility),

- Something that will be successful from an economic point of view (viability).

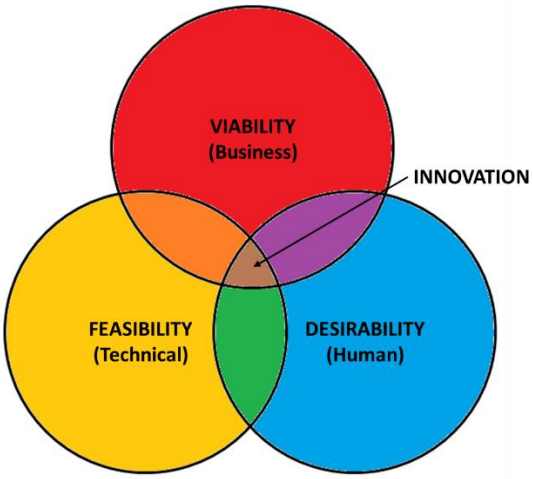

Figure 4: Innovation in Design Thinking

DT's creativity and innovation can address problems that are particularly novel and difficult (Cohen & Cromwell, 2020). Design Thinking offers innovative and creative solutions to emergent complex problems, including the ones that have arisen as a result of the pandemic (Thakur et al., 2020). Kachanovsky (2020) explains that while traditional management skills are great for managing a predictable context, Design Thinking skills are great for managing a project's context characterized by VUCA (Volatility, Uncertainty, Complexity and Ambiguity).

Regarding the 3Ps, it is relevant to analyse specifically the "process" dimension. Since the approach dates back to the 1980s, multiple versions of the different sets of activities are present in the literature, even if the differences between them are just a few, as all of them follow the basis model from the Design School in Stanford, that includes five "working modes", or phases (Boland & Collopy, 2004). In addition to the five working modes, in the methodology it is present an alternation between divergent and convergent viewing and thinking (Figure 16). This means that during some phases, a significant amount of information is collected and different possibilities are explored. In the convergent moments, just one solution is analysed or realized in detail. Deliberate iteration is also crucial within the whole

process. This is reflected also in the motto "fail early, fail often", that characterizes also allowing-errors and open-culture environments, such as start-ups. It suggests also that ideal solutions can be found through multiple and early experimentations, testing and taking into consideration the feedback from the different stakeholders. Another principle is the "Be visual & show", which means that thoughts, ideas and results have to be visually documented and presented, through the use of post-its with keywords, mind maps, process maps and tangible prototypes.

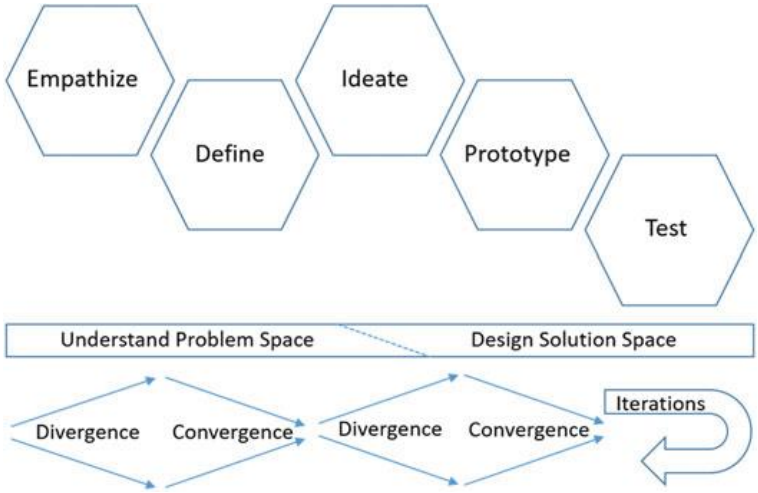

Figure 5: Design Thinking process according to Stanford Design school (Source: Fleischmann et al., 2020. p. 166)

According to the 5 working modes illustrated above, the idea is that the overall macrocycle should lead from understanding the problem to an implementation plan, passing through to the concretization of a vision for a solution and finally (Lewrick et al., 2017).

The first mode is **Empathize**, the core of human-centred design process. It is necessary to build a deep understanding of the “wicked problem”, its context and the target users of the solution. Specifically regarding this last point, the aim is to understand why and how people behave, what is important and useful to them, as well as to learn about their physical and emotional needs (Camillus, 2008). This means interacting with the users, listening, observing them, imagining and empathizing with their situation and thus immersing into their conscious and unconscious world of feelings, values and needs (engage, observe, immerse) (Brown,

2008). This is the first requisite to steer innovations in the right direction. Particularly for this purpose, User Profile Canvas are useful, with personas and use cases that address users' needs and expectations (Brown, 2009).

The second mode is **Define** and it is about reflecting on the findings from the "Empathize" mode, sharing and bringing them together. This has the purpose to further develop the personas and to adopt the perspectives of various stakeholders (Brown, 2009). The outcome should be a deeper understanding of the users, making the problem context more concrete, defining the problem in a meaningful way. The latter point forms, in particular, the question for the subsequent phase of idea generation and it is related to the concept of point-of-view (Lewrick et al., 2017).

The aim of **Ideate** is to develop a creative and wide range of solutions. The input for this phase is the point-of-view question, together with the insights of the users gained previously. The most popular approach is brainstorming, which can be further and repeatedly stimulated by specific tasks and creativity techniques (Brown & Martin, 2015). The use of this method in a creative setting, together with the collective perspectives and strengths of the team, should enable going beyond obvious solutions, increasing the innovation potential (Brown, 2009). Unexpected solution's perspectives should emerge and be able to contribute to the quantity and diversity of ideas. The entire process should be strictly separated between the generation and evaluation of ideas, in order not to limit the creative flow.

Prototyping is a converging mode that consist of taking the most highly rated idea originated in the ideate phase and developing it further, with the goal of visualizing and eventually trying an early phase solution (Brown & Wyatt, 2010). Prototypes are created to assess the effectiveness of a solution, to clarify potential doubts, to understand the potential issues of it, to incorporate users' feedback into tangible models or to recognize a dead end,

which can imply saving costs if done in an early stage (Liedtka & Ogilvie, 2011). Related to this, there is the slogan of "Love it, change it or leave it", whereas for transferring idea into concrete models, there is the motto "Don't tell me, show me" (Brown & Martin, 2015). The level of detail of the prototype should correspond to the progress of the project itself.

Finally, **Testing** is closely linked to prototyping. The phrase "Prototype as if you know you are right, but test as if you know you are wrong" describes this way of thinking (Stevens, 2021). Similarly to prototyping, it offers the opportunity to receive feedback, but this time the prototypes are placed in the context of the potential user, then used and evaluated. The main advantage of running a project in this way is that if mistakes are made, their consequences are less impactful, giving also time to the project's team to fix them in a relatively short amount of time, if there are not severe (Morison, 2017). Having the flexibility to experiment is particularly indicated for growing digitally (Goldberg, 2018).

3.2. Enterprise Service Management

In the first place, it is relevant to illustrate the definition of service: "A service is an activity or a series of activities of intangible nature that normally, but not necessarily, consists in interactions, between the customer and the service employees and the involvement of physical resources or goods and/or systems from a service provider, that are provided as solutions to customer problems" (Grönroos, 1990). A service does not have to be associated just to an entity consumed by the final external client, because services embrace the whole organization, especially when intended as outcome of processes. A particular type of service is an IT service, which is a type of service provided to one or more customers by an IT service provider, based on the use of IT. It supports the customer's business processes and it implies a combination of people, processes and technology, all defined in a Service Level Agreement (Arraj, 2010).

ITSM is a strategic approach that focuses on defining, managing and delivering IT services to support business goals and customer needs (Winniford et al., 2009). It differs from the traditional technology-oriented approaches of IT operations and it is a discipline for customer-defined and process-oriented IT services, with a particular focus on continuous improvement (Winniford et al., 2009). ITSM aims to align IT operations-related activities and the different interactions of IT technical personnel with business processes (Finden-Brown & Long, 2005). In fact, providers of IT operational services should systematically plan the quality of these services and the related customer relationships to ensure an effective value delivery from IT operations (van Bon, 2002). Organizations recognized an opportunity to use ITSM to improve organizational competitiveness in response to the increasing pressure on CIOs for a fast delivery of services (Cash & Perlson, 2004).

Recently, it is possible to notice how IT Service Management has gradually transformed the “helpdesk” idea into a services hub, that provides real and concrete value to its customers, who are the organization’s employees (Gopalakrishna, 2021). This is why the concept of Enterprise Service Management has started to gain popularity, as mentioned in the first chapter. From this perspective, ESM can be an interesting incubator for innovation, as it unifies IT across different business silos thanks to enabling platforms, with the purpose of promoting and measuring IT operational efficiencies (Gopalakrishna, 2021). Furthermore, by building and applying a consistent model where all the relevant business information can be shared, data becomes more holistic, aligning three parties: employees, customers and management (Null, 2020).

ESM has the same goals of ITSM, to improve performance and efficiency, support business needs and increase user satisfaction (Watts, 2020). Given the ESM's roots in ITSM, it is reasonable to imagine that ESM will be the field where the enterprise-wide digital transformation can begin, starting from the IT side and gradually embracing the other aspects

of organization (Null, 2020). Also the Information Technology Infrastructure Library v.4, which will be described in the next chapter, provides a definition for Service Management: "A set of specialized organizational capabilities for enabling value for customers in the form of services" (Cartlidge, 2020). Other than this, Service Management enables a service provider to understand the services provided, ensuring that their services specifically facilitate to achieve the outcomes its customers want (Cartlidge, 2020).

3.2.1. Information Technology Infrastructure Library

The Information Technology Infrastructure Library (ITIL) is the most popular and widely accepted framework of IT Service Management: a framework that should be employed by an IT function in order to develop a specific governance (McNaughton et al., 2010). It is a methodology to design and manage IT-related processes. The first version was developed during the 1980s by a British public institution called "Central Computer and Telecommunications Agency", which later was merged into the Office of Government Commerce. Starting from January 2014, the ownership of ITIL has been transferred to Axelos, a joint venture between the UK government and Capita, an international company that offers services of business processes outsourcing.

ITIL had originally two main goals: creating a consistent and comprehensive set of best practices related to the quality of IT Service Management and encouraging the development of training, consultancy and tools to support the framework itself. ITIL version 2, released in 2002, became extremely popular and from that moment ITIL has been addressed as the standard for IT Service Management. ITIL 3, published in 2007 (and updated in 2011), explains specifically the various tasks that an IT services supplier must perform. According to Brahmachary (2019), the different stages of the ITIL lifecycle are:

- Service Strategy, where the objectives and activities of the IT Department are aligned with the core business and where a strategy is implemented;
- The second phase of ITIL Service lifecycle is Service Design, which has to goal to design the services the IT Department will provide to support the business, according to the strategy previously defined;
- Service Transition is the intermediate stage of ITSM lifecycle, through which services are handed-over from the development phase to operations phase;
- The Service Operations stage ensures that services are delivered within the agreed service level and that business continuity is maintained through resolving any kind of issues faced by users on a daily basis;
- The final stage of ITIL lifecycle, Continual Service Improvement, helps to identify and implement improvements strategies to provide better service in future. It is based on the Deming Cycle (or Plan-Do-Check-Act Cycle).

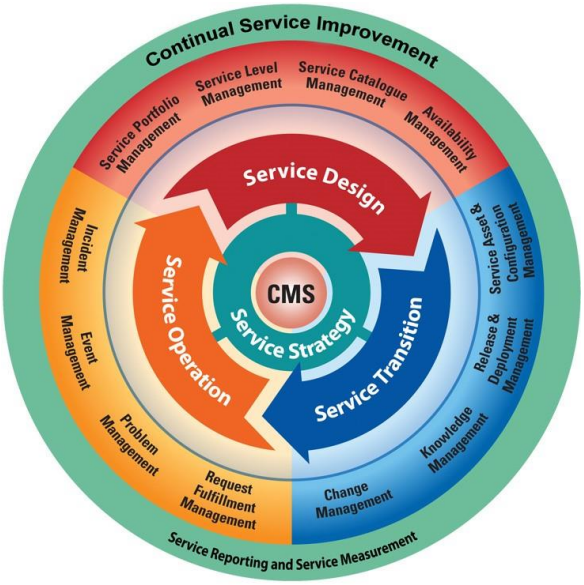

Figure 6: ITIL v.3 (source: WordPress)

While ITIL v.3 is the most representative framework of the classic ITSM practices, the current version, ITIL v.4 (released on the 18th February 2019), can be also taken as a starting

for ESM. In fact with this latest version, ITIL has been updated for facing the era of digital transformation and to interact with other leading frameworks in the field, optimizing for companies the process of adopting new emerging technologies to addressing the emerging organizational needs (Joshi, 2020). Furthermore, it aims in reshaping the established ITIL practices in the wider context of customer experience and value streams, while embracing new ways of working, such as Lean, Agile and DevOps (Cartlidge, 2020), which ITIL v.3 did not fully consider.

The influence of the above-mentioned practices is also visible in the definition of "service" that ITIL v.4 provides: "A service is a mean of enabling value co-creation by facilitating outcomes that customers want to achieve, without the customer having to manage specific costs and risks" (Cartlidge, 2020). It is noticeable the aspect of co-creation, that will be an important concept in this research. Initially, the framework aims to define the four dimensions of Service Management, which are:

- Organizations and people
- Information and technology
- Partners and supplies
- Values streams and processes

Each of the 4 dimensions can be affected by the external factors, following the Political-Economic-Social-Technological-Legal-Environmental (PESTLE) framework.

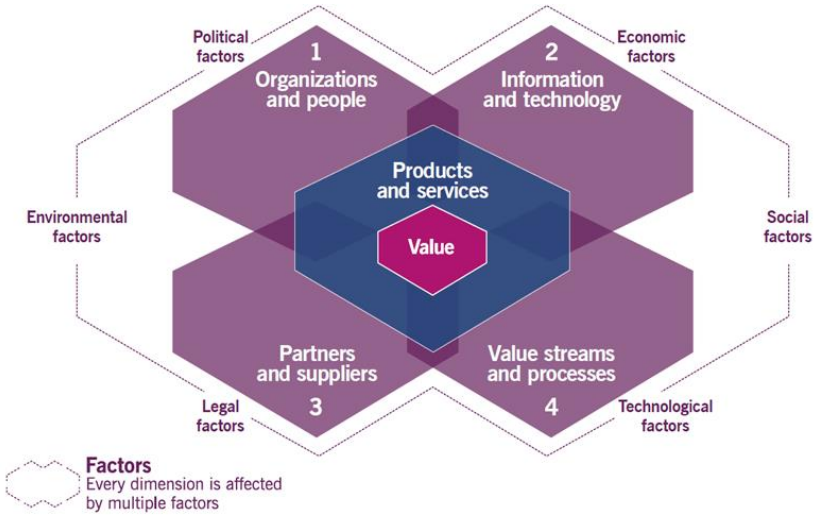

Figure 7: The 4 dimensions of Service Management in ITIL v.4

The characterizing element of this version of the framework is the substitution of the ITSM lifecycle with the so-called Service Value System (SVS), which is the blue hexagon represented in the figure above. According to Cartlidge (2020), the SVS should enable integration, coordination and a unified value-driven focus across the whole organization. Below there is the representation of the SVS. As it is possible to notice, it is formed by a set of guiding principles, governance, practices and continual improvement.

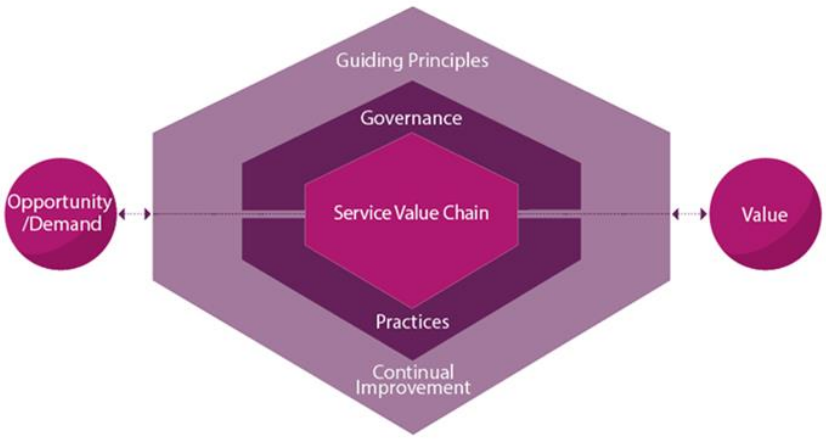

Figure 8: Service Value System in ITIL v.4

The SVS is triggered by opportunities or demand from internal and/or external sources, with the purpose of adding value to the organization. The final value is delivered through products and services that have been crafted thanks to the co-creation of the stakeholders. The guiding principles of ITIL v.4 have the purpose of creating the foundation for the organization's culture development, from strategic decision-making to day-to-day operations in general. They

support and promote continuous improvement across all levels of the organization. Cartlidge (2020) states that the 7 Guiding Principles are:

- **Focus on value**: everything an organization does needs bring value for itself, its customers, and its other stakeholders. Related to costumers, or services' consumers in this context, they define this value based on their own needs and also the experience they have when they interact with the services is an important aspect of it.
- **Start where you are**: Before starting to redesign a service from zero, organizations need to develop the capability to determine what can be re-used and to consider what is already available that can be leveraged.
- **Progress iteratively with feedback**: Organizing work into smaller, manageable sections improves control and focus and consequently also feedback can be used to improve the quality of iterations and to identify improvement opportunities, risks and issues.
- **Collaborate and promote visibility**: Collaboration achieves greater engagement, support, commitment and improves the alignment and contribution between stakeholders and objectives. Furthermore, making work transparent and sharing information across stakeholders supports a culture of openness, transparency and trust.
- **Think and work holistically**: To deliver value, services need effective and efficient management, and a dynamic integration of information, technology, organization, people, processes, suppliers and agreements.
- **Keep it simple and practical**: This principle aims to eliminate the activities that do not bring added value, using on the other hand outcome-based thinking to produce concrete solutions that deliver valuable outcomes.

- **Optimize and automate**: Technology can help organizations to scale up and deal with repetitive tasks, allowing human resources to manage more complex decision-making activities. But before this automation, activities should be optimized, to be as effective and useful as possible.

The core element of the Service Value System is the Service Value Chain (SVC), which provides an operating model for the creation, delivery and continual improvement of services. It defines six key activities that can be combined in several ways to form different value streams, that are, according to Cartlidge (2020):

- **Plan**: in this phase a shared understanding of the vision, status and improvement direction for all services and across all four dimensions is ensured in the organization;
- **Improve**: this phase focuses on ensuring the continual improvement of products, services and practices across the value chain activities;
- **Engage**: this phase has the purpose of establishing if a good understanding of stakeholders' needs and continual engagement is provided;
- **Design & transition**: here it is ensured that products and services should meet stakeholder expectations related to costs, quality and time;
- **Obtain/build**: service components are available where and when they are needed and they meet agreed specifications;
- **Deliver and support**: services are delivered and supported according to SLAs and stakeholders' expectations.

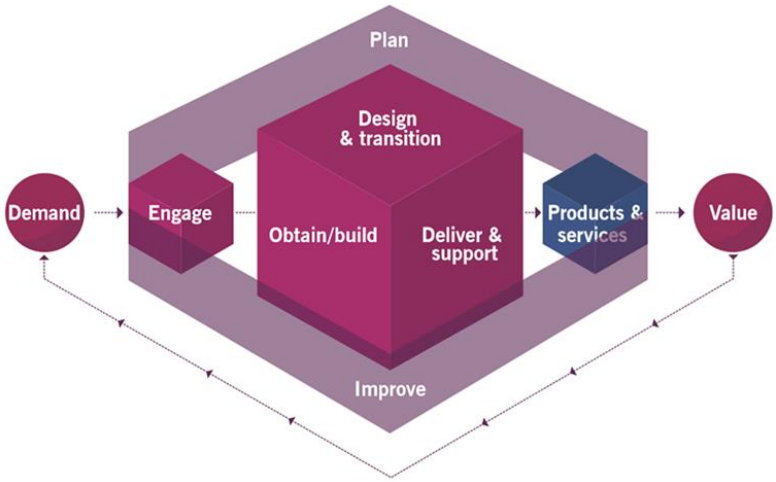

Figure 9: Service Value Chain in ITIL v.4

Regarding the potential benefits of adopting ITIL v.4 for fostering digital transformation, in his paper Harris (2019) explains that organizations need to manage effectively the different IT management techniques if they want to achieve the advantages of the technological advances associated with digital transformation. Trying to break down the complexity of IT management can be quite complex, but it is important to do so, as silos are counter-productive to creating agile environments that can foster innovation (Harris, 2019). In this sense ITIL v.4 is quite unique, as it puts services at the centre of the discussion and reflects the need for new ways of working to accommodate broader technological shifts and other management approaches. Furthermore, this framework recognizes that true value does not reside in IT processes, functions or digital transformation programmes, but in the uniqueness of each service (Harris, 2019). This is why it is particularly important to focus on service design, both to provide to users an high quality experience, as well as setting the stage for a digital acceleration.

3.2.2. Business Process Management

Although ITIL is probably the most relevant methodology in the ESM domain, given its origin from ITSM, it is not the only one. Due to the linkage between ‘services’ and ‘processes’ from an enterprise architecture perspective and the different dimensions affected by a digital transformation project, also Business Process Management (BPM) is linked to the

ESM domain. “BPM is a discipline involving any combination of modelling, automation, execution, control, measurement, and optimization of business activities’ flows in applicable combination to support enterprise goals, spanning organizational and system boundaries, and involving employees, customers, and partners within and beyond the enterprise boundaries” (von Rosing, 2017).

Although the literature describes different models of BPM that slightly differ from each other, especially regarding the number of the phases and the names used, below it is possible to find a figure that summarizes them in a comprehensive way.

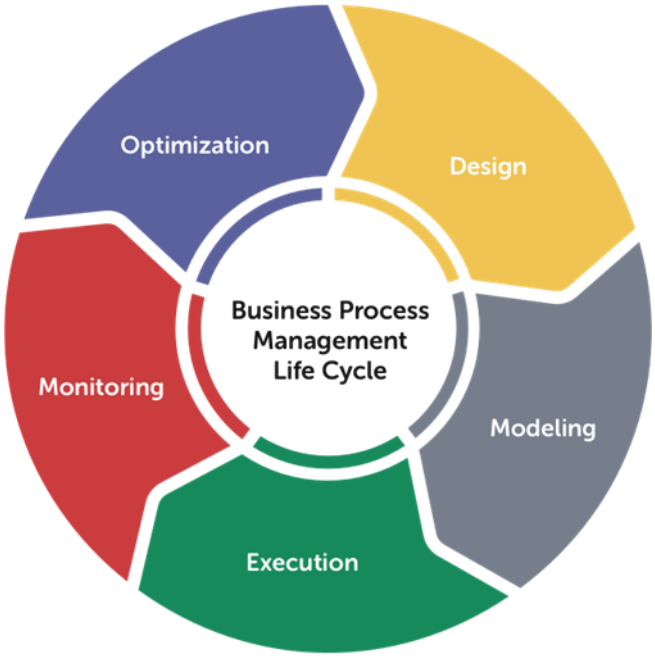

Figure 10: Business Process Management Lifecycle (Source: von Rosing, 2017, p. 216)

- **Design**: process design is the step where an organization understands, defines and design the business activities that enable the functioning of the process itself. The goal is to make them optimized and effective, meet customer requirements and demands, support and sustain organizational growth and development. The effects of a well-designed process will improve efficiency, deliver greater productivity and create more business value (von Rosing 2017).
- **Modelling**: “every detail of a process is more or less affected by every other detail; therefore the entire process must be presented in such form that it can be visualized all at

once before any changes are made in any of its subdivisions" (Gilbreth, 1921). Business process modelling is the step where processes are represented through visual tools. There different ways of doing so. The most common one is through the "Business Process Model and Notation" modelling language.

- **Execution**: business process execution is about executing a business process, once it has been discovered and modelled. This execution can be done manually, automatically or with a combination of manual and automated business tasks. The first way is also defined as "human-driven" and will be the object of this research. The second one is associated with the concept of Business Process Automation (BPA), which includes methods and software deployed for automating business processes.
- **Monitoring**: through IT infrastructures, organization can track the status of a process and assess its performance. The general practices refer to it specifically as business activity monitoring (BAM), in order to address not exclusively to the monitoring tools generally provided by a Business Process Management System.
- **Optimization**: the final step is about identifying points of improvement, usually related to bottlenecks, potential opportunities for cost savings, time reduction or delivering greater value. All these points should be taken into consideration to restart the cycle from the Design step.

To conclude, BPM is just one approach to the larger process improvement sphere known as Business Process Improvement (BPI). Another approach within BPI is Business Process Reengineering (BPR).

3.2.3. Business Process Reengineering

Michael Hammer, founder of this methodology, defined BPR as "the fundamental rethinking and radical redesign of business processes to achieve dramatic improvements in critical measures of performance" (Hammer, 1990). The concepts of process improvement,

process excellence and process innovation come from it. Compared to BPM, it is more specific, as it usually focuses on a single process group and it is carried out as a specific project, whereas BPM focuses over a set of business processes simultaneously, with a consistent approach (von Rosing, 2017). In addition to this, BPR tends to be more radical, rather than incremental (which is a characteristic of BPM) when it comes to the modifications of the process.

According to Hammer (1990), Business Process Reengineering aims to increase productivity, decrease process cycle times and improve the resulting quality of the service/product. The idea of BPR is to completely rethink an organization's process group from zero, by focusing only on processes that deliver the most value to the internal or external consumer (Hammer, 1990). Indeed, the overall goal is to eliminate non-productive activities, relying mainly on two principles: the first one includes the redesign of functional organizations into cross-functional teams with different expertise, to increase productivity and efficiency across business silos. The second one includes the usage of technology, to enhance data collection and consequently to improve decision making (Hammer, 1990).

Business Process Reengineering fits in the Business Process Improvement sphere, as well as in the field of Business Process Orientation (BPO). In addition to Hammer, others contributed to BPO, such as Porter (1985), Walton (1988), Melan (1989), Davenport (1990 & 1993) and McCormack (1999). The latter enriched the two Hammer's principles with other 5 ones, for a total of 7 principles divided into 3 different classes:

Cultural Principles

1. Business Process Oriented Organization: commitment of the management towards process orientation.
2. Adoption of a customer-supplier logic: the corporate culture should be in line with the process approach, by breaking down processes into subprocesses and addressing the final

customer of the first subprocess as the supplier of the second subprocess and so on, until the final external customer is reached.

Organizational Principles

3. Process Ownership: a specific person should be held responsible for the entire process.
4. Job redesign: achieving a process-oriented organizational structure through job redesign, with the goal of preventing business silos, typically related to a vertical dimension.

Management Principles

5. Process documentation: processes need to be documented, relying on a valid technical infrastructure that collects data and information about them.
6. Process performance measurement: the data collected should be used to measure processes' performance and compare it in relation to business process performances of competitors, internal objectives and customer expectations.
7. Application of continuous process improvement methodologies: it means optimizing activity flows and adopting a balance between the pull logic and push logic.

Throughout the years, each principle has been enriched with several contributions by other authors. In the table below, there are some contributions that the researcher considered relevant for the purpose of this thesis:

Principle	Author	Theory
2	Moore (2019)	A digital transformation projects need a customer-centric tendency
3	Edward & Mbohwa (2013)	The reengineering leader must be passionate about the reengineering objective and have a strong commitment to achieve it

3	Kohli & Johnson (2011)	In a digital transformation project, the role of the leader is central in propelling the change
4	Goldberg (2018)	Teams need to feel empowered to take ownership of ideation, validation, and iteration, to accelerate businesses forward in innovative ways
4	Schallmo et al. (2018)	A multidisciplinary team can successfully capture and implement the requirements coming from the dynamic external environment
4	Jongen (2018)	Multidisciplinary teams outperform the traditional functional silos resulting often in the development of new ideas
4	Craig (2018)	The process of decision-making can be accelerated increased by preferring the adoption of an horizontal organizational structure

Table 4: Contributions by other authors to McCormack's principles

From the literature, it emerges that the BPR approach can be visualized through a lifecycle, similarly to Business Process Management. Also in this case, the number of the stages is slightly different, according to each different author. All the different phases should be followed consecutively. Below it is possible to find an overview of the different sets of stages:

Hammer & Champy (1993)	**Covert (1997)**	**Kettinger & Teng (1998)**	**Adesola and Baines (2005)**	**Lampathaki et al. (2013)**
Envision new processes		Strategy linkage	Understand business needs	Visioning
			Understand the process	
Initiating change	Begin organizational change	Change planning		
	Build the reengineering organization			
Process diagnosis	Identify BPR opportunities	Process problems		Identifying

	Understand the existing process		Model and analyse the process	Analysing
Process redesign	Reengineer the process	Social re-design	Redesign process	Redesigning
		Technical re-design		
				Evaluating
Reconstruction	Blueprint the new business system	Process re-generation	Implement new process	Implementing
	Perform the transformation			
Process monitoring		Continuous improvement	Assess the new process and methodology	Improving
			Review the new process	

Table 5: Overview of the different stages of BPR

3.3. Overview of previous cases of application

The following subchapter summarizes, from the literature, the previous integrations of Design Thinking into different Enterprise Service Management-related methodologies. It has the purpose to get an understanding of the reasons behind the choice of combining DT and these methodologies, how it was done and, more importantly, the outcomes achieved.

3.3.1. BPM and Design Thinking

Taking in consideration an integration between BPM and DT is not a novelty. However, in most cases it can be difficult to formally establish the overlapping between the two methodologies, when merged. Nor this intention is commonly declared in the literature, especially because it is usually applied spontaneously in practical contexts with a little degree of awareness. Despite this, some experts pointed it out in some of their papers.

Luebbe and Weske (2011) have analysed it especially related to process modelling. Process models can effectively provide a shared understanding of the workflow of the activities. For this reason, based on Design Thinking's principles, the authors developed a method that aims at facilitating the contribution of modelling a process by all the actors involved, as well as at improving even more its understanding for them. To achieve this goal, they introduced physical building blocks and a methodological guidance to change the way people interact with process models. They have defined this as "tangible business process modelling (TBPM)" and they have shown, through observations collected during their research project, how this tangible toolset offered a promising approach to improve business process modelling and comprehension.

Also Fleischmann et al. (2020) put Design Thinking and BPM into relation to one another, discussing the promising use of Design Thinking elements for process management. They specifically focused on the digitalization of processes, such as the reasonable use of information and communication technology for process improvement and innovation. The authors state that traditional BPM approaches usually involve interviews and workshops, but despite this, aspects such as understanding users' motivation, ways of thinking, and values, which are expressly emphasized for the development of empathy in Design Thinking, are largely ignored in BPM. Furthermore, Fleischmann et al. (2020) claim that traditional waterfall BPM increases the likelihood that the resulting IT solution will deviate from the evolving needs and desires of users.

Following these ideas, concepts such as Social BPM have been developed. The integration of "social software" (which is a category of software that was ideated to foster user collaboration and communication) and BPM can help organizations to harness the benefits of informal relationships and communications, without compromising the consolidated practices embedded in traditional BPM solutions. Brambilla et al. (2011) presented Social BPM as a

methodology where the social process design exploits an extension of BPMN for capturing social requirements, through a technology that automatically produces a process enactment Web application connected with mainstream social platforms.

In the same period, also the Subject-oriented Business Process Modelling (S-BPM) approach illustrated the possibility to build an interesting bridge between BPM and DT. It focuses on the actors in the process, who are defined as “subjects”. In this context, S-BPM not only explicitly specifies the behaviour of the subjects represented and their interactions with other participants, but it can also immediately test and eventually change the result of the design (Fleischmann et al., 2012). This representation is possible thank to interaction and behaviour diagrams. The application of these diagrams ensures coherent facilitates the creation of intelligible specifications when business processes are captured from different stakeholders’ perspectives (Fleischmann et al., 2012).

Fleischmann et al. (2020) further explain how Design Thinking makes a stronger distinction between problem understanding and solution design, which only begins with the Ideate phase. Before the point-of-view question is formulated as the starting point for generating ideas, the actual situation is extensively illuminated, documented and visualized along the way, through personas in the customer/user experience journey. In BPM, on the other hand, only weak points in the current state are documented and the analysis of information is used to develop and visualize a new target model. The creative, design-related part begins earlier than in Design Thinking and tends to be supported by less information. It is not driven by the "soft" factors identified during the empathy development in Design Thinking, but it is driven by more analytical factors, such as KPIs (Fleischmann et al., 2020).

The model, that Fleischmann et al. (2020) presented, is displayed in the higher part of Figure 11, that analyses the differences between it and the traditional Design Thinking methodology:

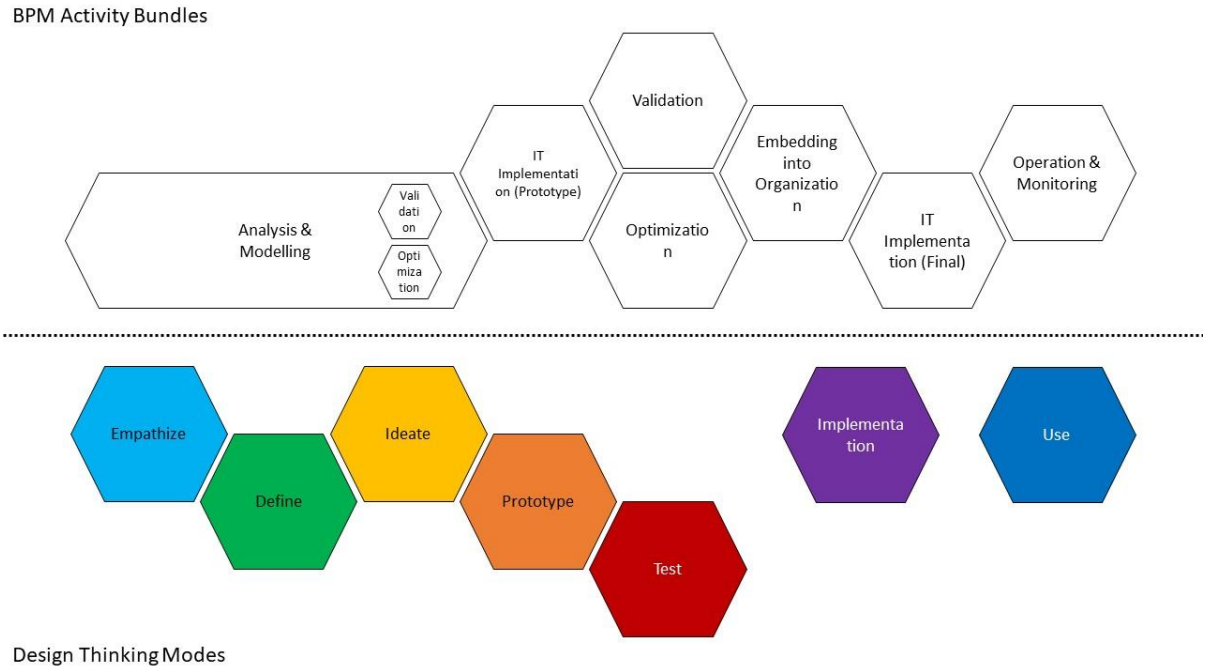

Figure 11: Assignment of Design Thinking modes and BPM activity bundles. (Source: Fleischmann et al., 2020. p. 173)

According to them, the activity bundle Analysis & Modelling can be assigned to the DT modes Empathize, Define and Ideate. The use of proven DT instruments is ideal for a more comprehensive capturing of the problem context and for the development of solutions for process innovation. As effectiveness and efficiency are already taken into account during the analysis and modelling of processes, especially if the future users are part of the team, the activity bundles Validation and Optimization are assigned to the DT-mode Test, but also cover Empathize, Define and Ideate.

The DT Prototype mode corresponds to the activity bundle IT implementation in process management, as the focus is on process digitalization. The purpose is to create a functional prototype in the form of software, that allows users to experience what their work with the IT solution would look like. Eventual feedback leads again to a new prototype, until a

version is found that satisfies the users. This cycle prevents more complex reworking during the later realization of the real runtime environment. Finally, the model must also be embedded into the organization (Organizational Embedding) before the process can go live (Operation & Monitoring).

To conclude, the authors think their proposed framework is suitable for quickly mapping processes and their related changes both in business and IT domains, while adequately involving the users in short iteration cycles at the same time, in order to approximate the resulting solution to their ideas.

3.3.2. Service Design (Thinking)

As previously explained, DT can be applied especially in the context of Service Design, which is the activity of planning and organizing people, infrastructure, communication and material components of a service in order to improve its quality and the interaction between service provider and customers (Lazier, 2016). It is the activity of implementing changes to improve service quality (Stickdorn & Schneider, 2011). Service Design is about designing services with the customers and end users, rather than just designing services for them. This is because the purpose of Service Design methodologies is to design solutions according to the needs of customers or participants, so that the service is user-friendly and relevant to the customers (Gibbons, 2017). Therefore, involving them since the early stages, makes it easier to achieve this purpose.

Service Design was first introduced as a design discipline at the Köln International School of Design in 1991 and it gradually gained relevance. According to Stickdorn (2018), there are six Service Design principles:

- Human-centered: Consider the experience of all the people affected by the service.

- Collaborative: Stakeholders of various backgrounds and functions should be actively engaged in the service design process.
- Iterative: Service Design is an exploratory, adaptive, and experimental approach, iterating toward implementation.
- Sequential: The service should be visualized and orchestrated as a sequence of interrelated actions.
- Real: Needs should be researched in reality, ideas should prototyped in reality.
- Holistic: Services should sustainably address the needs of all stakeholders through the entire service and across the business.

Regarding the first principle, the same authors called it “user-centred” in a previous work 7 years before (Stickdorn, 2011). Later on, they realized the term "user" refers just to user of a service system, so organization's customers and employees. Consequently, they changed it to “human-centred”, to address clearly that “human” includes also service providers, customers, and all others relevant stakeholders. This is because it is important to stress that Service Design must consider not only the customer experience, but also the interests of all relevant people involved (Stickdorn, 2018).

The second and third principle are directly related to Design Thinking. A service exists with the participation of users and should be designed by a group of people from different backgrounds, to foster creativity, following an iterative cycle (Stickdorn, 2018). More specifically, the meaning of “collaborative” is not only related to “collaboration”, so to indicate the process of creation by the entire stakeholders, but it also points out that a service only exists with the participation of a user. On the other hand, the word “iterative” carries implicitly the

meaning that Service Design should be continuously adapted, according to the continuous changes of business environment (Stickdorn, 2018).

Also the fifth principle is deeply related to Design Thinking. Services are not tangible and occur in a state that the user cannot physically perceive. Therefore, "real" wants to stress that even if services are intangible, they need to be designed in a tangible way, focusing on the concrete benefits that the user can have after having accessed to the service. One possible way to stress this is emphasizing the linkage with the backend activities related to a service. As they have as much (if not more) impact on the overall user experience as the visible points of interaction that the users encounter (Gibbons, 2017).

Finally, thinking in a holistic way is one of the basis of service design. Holistic thinking needs to consider both intangible and tangible service, as previously written, and it should also ensure that every touchpoint between the user and the service is considered and optimized (Stickdorn, 2011). Holistic thinking should also take into consideration the perspectives of different stakeholders, to ensure that no needs are neglected. Related to this, the similarities with Enterprise Architecture are several.

To follow these principles, Service Design uses methods and tools derived from different disciplines, ranging from ethnography and information and management science to interaction design (Holmlid, 2007). More specifically, design tools aim at producing mainly a summary of the service, a blueprint, which describes the nature and characteristics of it. A service blueprint goes beyond a customer journey map and it allows, from a more holistic viewpoint, a complete understanding of the customer, including the work and processes for creating and delivering an experience (Lazier, 2016). Design tools, on the other hand, include service scenarios, which describe the interaction, and use cases, which illustrate the detail of time sequences in a service encounter.

These techniques have already been used in other fields, such as software and systems engineering, to capture the functional requirements of a system. However, when used in Service Design, they have been adequately adapted to include more information concerning material and immaterial components of a service, as well as physical flows and time sequences (Morelli, 2006). Specifically from a Design Thinking perspective, there is the importance of visualization. Service Design concepts and ideas are typically portrayed visually, using different representation techniques according to the culture, skill and level of understanding of the stakeholders involved in the service (Krucken and Meroni, 2006).

3.4. Design Thinking for digital transformation

Cooper et al. (2009) illustrated that DT can be addressed as a valuable tool to address problems and issues that do not necessarily involve a product. In fact, DT is establishing itself as a tool to address a wide range of issues, from strategy to social change. There are different ways of how design practitioners and design researchers have made use DT. It appears that it provides to managers new ways of thinking about new products and services and new ways of designing them. Cooper et al. (2009) explains the importance of gaining a set of design skills, such as the development of people-based scenarios, the ability to quickly visualize problems and concepts and the design of business strategies based on design research methods. Through this, managers are able to see how design principles and methods can help them to navigate the uncertainties and complexities present in the business environment (Cooper et al., 2009).

Carlgren et al. (2014) found out that DT has been used to create concepts and ideas for new offerings for the market and has been integrated formally during the development process for new solutions (Brown, 2009; Martin, 2009). DT has been used in some companies as the basis to create a separate process for more radical ideas, to foster innovations. In other companies, DT was less formally defined and considered something that should be always

integrated within the organisational culture. The findings of the study by Carlgren et al. (2014) indicates that when these firms implemented DT, the main use of DT was in early, strategic phases of innovation projects, which is where design has typically been included, and less in the executional phases of the project. Yet, they conclude that, since especially the 'design part' of DT is the one that enables to distinguish itself from other concepts promising increased innovativeness, the role of design in DT is a crucial topic for further investigations, especially within the innovation research field.

Schmiedgen et al. (2016) explored if and how organizations measure the impact of Design Thinking. First of all, the authors found out that among the organisations analysed, all the practices relatable to DT are labelled as (or part of) Design Thinking, despite the fact that they present some differences, making them challenging to be analysed. Even if many respondents reported some kind of impact, very few actually measure it. The few who do it, have different ways of doing so and some of the methods seemed a bit vague from the perspective of Schmiedgen et al. (2016). They conclude that the impact of Design Thinking is very difficult to quantify and appears to be a so-called "butterfly effect".

Mahmoud-Jouini et al. (2016) explained that researchers have long recognized that standard approaches to project management might be unsuitable to address the changes in the environment or changes of business needs, particularly in innovative contexts characterized by uncertainty and complexity. Three guidelines for project management arise as a result: managing the explorative phase, managing the involvement of stakeholders in the project, and managing the project in relation to the strategic process of the firm. They suggest that Design Thinking can make some important contributions to these topics. It has been highlighted by practitioners, as well as in academia, as a novel methodology that is potentially valuable for improving innovative outcomes, whether they are products, services, or strategies.

In their paper, Nakata et al. (2020) describe how Design Thinking is not just a list of tools or features, but rather a dynamic coupling of mindsets and actions that create innovations. The authors found out that Design Thinking leads to successful new products and services. They showed that the relationships between DT actions, such that discovery and ideation, are necessary for the experimentation, which leads to new product and service success. This finding confirms the belief that Design Thinking is value-enhancing for firms. According to the authors, DT gives the possibility of expanding human experiences, towards innovation. DT was found to have a positive impact on performance even when the environment is quite unknown and unstable. Thus, it is sufficiently robust to strengthen innovation outcomes, irrespectively of the level of market turbulence.

Due to the fact managers search for new ways to reduce the innovation failures, Design Thinking is worthy of serious consideration (Nakata et al., 2020). This does not necessarily imply that other ways should be abandoned. Indeed, Design Thinking is one of several ways that a firm could adopt, the choice depends on different aspects (team expertise, project type, business strategy...). Another strategy would be the combinations of DT with other approaches, such as agile project management techniques. They conclude that future research could investigate in what circumstances DT can be more effective on its own, versus in combination with others. Finally, they suggest Design Thinking deserves further examination to detail its mechanisms of impact.

Radnejad et al. (2021) suggested that managers who have to respond to disruptive threats, should consider the implementation of DT principles, which enable the activation of the innovation process. Their findings appoint the development of DT as a proper management capability, enabling successful and rapid organizational learning, and not just a problem-solving, or product-innovator, tool (Cousins, 2018). Its user-centre approach must be

institutionalized within organizational processes and systems, to form the culture of the organizational DT capability.

Magistretti et al. (2021) provided an analysis about the role of Design Thinking dynamic capabilities in fostering digital technologies' opportunities. Their study identified which Design Thinking dynamic capabilities enable digital transformation in the consulting environment. It reveals how consulting firms should adopt the set of DT's capabilities to facilitate digital transformation projects and deliver higher value to their customers. The capabilities identified are valuable for managers facing the introduction of digital technologies in solutions. Indeed, through the capabilities pointed out above, they could craft the final solution better, by focusing on the true value for users, instead on the technical functionalities.

Also Baran (2017) identified similar advantages of using DT, such as creating human-centred solutions, enhancing creativity, innovativeness and cooperation. In addition to this, Przybilla et al. (2018) described how traditional development methods are not particularly effective when it comes to decide which specific features are needed, to address the core needs of customers. This is crucial especially in innovative projects that require a detailed understanding of the customers, such as in the ones related to digitalization. Consequently, the authors propose an approach which integrates the Design Thinking methodology, whose advantage is to "increase human-centred innovation" (Przybilla et al., 2018).

Related to the development of innovative features, Wattanasupachoke (2012) illustrated that the application of Design Thinking to business operations significantly enhances a firm's innovativeness, as it focuses on developing creativity in service/product concepts, and on improving the operating processes. Finally, Valentim et al. (2017) pointed out that DT helps to better understand the users and to think of innovative features for the IT services. They explained that DT makes the development process more interactive and dynamic.

4. Results of the analysis

This chapter illustrates the results of the data analysis, gathered from the research interviews. More specifically, they have been divided into three subchapters. Specifically, chapter 4.1. clarifies the impacts that COVID-19 had in the ESM domain, so it provides the answers for the first research sub-question. Chapter 4.2. provides the answers to the second sub-question. Chapter 4.3. provides the answer to the third sub-question.

4.1. Impacts of COVID-19 in ESM domain

1) New information requirements for managing personnel and offices' spaces followed from the regulatory response of the government to COVID-19

As described in chapter 1.1.1., most of the employees have been redeployed from offices to their homes due to the pandemic. Also company 1, to comply to the new regulations, was forced to send most of its personnel to work from home. This resulted in a consistent challenge. Before COVID-19, the company had the full visibility of its workforce, as employees were physically present at the office. After this shift, managers and heads of business units could not assess the presence of their employees, and consequently, their operational status. Compared to the lack of visibility described in chapter 1.1.2., which was mainly related to the inefficiencies of some IT systems in showing the user's requests status for administrative matters, for the case of company 1 the lack of visibility should be intended in a broader sense.

The scope of this problem cannot not be contextualized in a specific process, because the physical absence of the employees involved most of the company (except some personnel in the manufacturing area). The interviewees explained that the business continuity was impacted, as the company could not precisely know which resources were available, which of them had been infected and ill, where they were working remotely from. The communication

of this type of data required a specific process and platform, also due to its sensitive information related to private aspects of the life of the employees.

"We had to check, or determine, and measure what is the operational, or employee, key performance indicator, like: how many employees are functional, how many employees are in aside, how many employees are in the office, who has COVID." (Respondent 2)

In a second moment, in summer 2020, offices started to reopen because of the partial lifting of COVID regulations. The company needed a way to manage the buildings and to enable the employees to reserve a spot, accordingly to the maximum limit of accesses possible. As pointed out by respondent 2, technical lead of project 1, relying on the emails and phone calls to make reservations for a place was not considered feasible, due to the high numbers of employees that would have sent a request. Also in this situation, there was a lack of visibility of the spatial configuration of the offices. It was necessary to find a system that would have digitally mapped the different offices and buildings and managed the employees' reservations.

2) Increase of employees' requests through digital channels

The employees of second company were responsible to manage funds' requests coming from the customers. Before COVID, each request was managed manually by the respective clerk. The first one who opened the request was responsible to end the process as well. The process presented several points of interactions with other governmental institutions. These communications were managed relying on different spreadsheets and modules. After COVID, given the precariousness of the economic situation, the number of requests increased drastically, as the users of the platform became very active. Consequently, it was not possible for the organisation to handle all the requests manually. Respondent 3 explained that the difficulty to manage all the requests at the beginning of the pandemic had an impact on the customers' satisfaction.

In addition to this, in both companies the employees working from home were concerned about the new overall situation. As appointed by respondent 1, the communication's flow between management and workforce required to be specifically addressed. Employees kept sending emails or making phone calls to their managers or to the HR department, asking questions especially related to administrative procedures and IT-related concerns, such as: "If I get infected, to whom do I need to communicate this?", "If I will keep tested positive, will I have to use part of my holiday days?", "My VPN is not working, how can I solve this problem?", "I urgently need to go to the office to get some documents I was working on before the lockdown. To whom can I ask this permit?". Respondent 1 explained that this situation was particularly challenging to be addressed by the HR, administrative and IT department. Therefore, it was necessary to structure a system that would have properly addressed and organized these flows of information and communication.

3) Employers started having concerns about successfully enabling an efficient virtual environment for their employees working from home

Related to the aspect illustrated above, another business impact that the pandemic had on both organisations was the generation of concern among managers if their workforce had everything to keep their productivity unchanged from home. In other words, managers had to be sure that employees could work efficiently in the new setting. Managers and leaders were addressed as responsible to create an appropriate virtual working environment, by providing support and attention to the employees. Indeed, there were two aspects that needed to be tackled: giving technical resources and offering support for their mental well-being and personal situation.

As explained by respondent 5, who took part in a study conducted by Deloitte about this topic, one of the most common pitfalls of remote work is not a lack of tools to get the work

done, but rather the sense of professional isolation and disconnection that it can bring. Further findings of this study, shared with the researcher, point out that working alone often leaves people feeling uninspired, insufficiently challenged, while collaboration and creative work is more difficult in a remote environment. Some working activities, such as building new connections, business development, socializing, and creative inspiration, are not particularly suitable for a remote environment. These aspects were difficult to be perceived by the organisations, as there were different variables involved, such as the employees' personal relationships and their working setting.

4) There was a lack of suitable 'out-of-the-box' solutions to address the new needs caused by the pandemic

Due to the fact that specific platforms, to handle the problems described above, were needed, company 1 started to evaluate the solutions offered by different service management software providers. Despite this, given the novelty and the scale of the problem, there were no suitable out-of-the-box solutions, so there were no platforms in the market immediately available to address the lack of visibility of the operational status of the employees working from home, nor, in the second moment, to manage the reservations for spots at the offices.

"We improved it {the original module} a lot. Because the client wanted to be faster than what the original module was providing, or than the technology was providing, so [we had] to develop on top of that." (Respondent 1)

In company 2 the main challenge was that its current platform was not supportive enough to face the increased demand coming from the customers. Compared to company 1, where COVID created a new scope, in company 2 the scope remained the same, but it was amplified by the pandemic. In both cases though, a need to search for customs solutions, in terms of platforms and IT applications, emerged after the pandemic.

4.2. Design Thinking's aspects emerged in the projects analysed

This subchapter provides the answers to the research second sub-question. More specifically, it explains which Design Thinking's aspects emerged from the two companies while doing their projects, to face the four impacts described above.

1) Collaboration

The two organisations, during the execution of both the respective projects, worked closely together with Deloitte. To facilitate the workshops with clients, the team members relied on Zoom, Microsoft Teams and similar software. A joint development process methodology has been adopted. A deep sense of collaboration has been experienced by the team members, which was hardly ever experienced before by the respondents throughout their careers.

"What you can do is having a lot of workshops to come up with the best solution, so instead of doing it in the old-fashioned way, you apply DT where you actually apply a completely, significantly, different approach to your design" (Respondent 8)

According to respondent 2, the collaborative environment enabled the quick delivery of the product, imposed by company 1 to face the external situation of emergency.

"In a normal project set up you need to have months for you to be able to develop and roll out something. We were able to deliver weekly. […] It's helpful and it was one of the reasons why the project was a success." (Respondent 2)

2) Continuous iteration and feedback

There has been a continuous interaction between the two parties involved, especially regarding the validation moments. Regarding stakeholder engagement, multiple sessions were

held. These meeting were used to show to the stakeholders from the client organization, that would have had to use the platform, which progresses have been done.

"First, think about the design and make sure you have an aligned design with the important people from different roles and then validated by the most important people in the organization." (Respondent 3)

In the dynamic environment posed by the pandemic, respondent 4 stressed the importance of daily meetings not only for the reasons explained above, but also in order to assess if the client had feedback or new inputs. The context was not formal and this also helped in enabling a valid communication, partially threatened by the remote environment, to assess the developments of the platform's architecture and of the programme management.

"You start small, you try first with an iteration, you check, you get regular feedback and then you start building. People are now realizing more the value of it, [people are now realising] that it should be embedded in the ways of working." (Respondent 6)

On the other hand, given the time constraints, respondent 4 pointed out that feedback was taken into account and integrated into the platform, or into the design of the process, only if it was considered relevant by all the parties involved and the time and the resources available allowed it.

3) User-centricity

The outcomes that were expected to be delivered, have been integrated in the project approach since the first phases. The project team tried to make every decision in line with the business outcomes set at the beginning. Multiple sessions, with all the stakeholders of the new platform, have been held at the beginning, whose purpose was to understand the client's first requirements. At first, the focus, rather than on the technological aspects, was on the client's ideas. One of the critical success factors pointed out by respondent 7 was to spend time on the

business case upfront, to define those outcomes in advance together with the client. This is because the situation was new for both the parts involved, therefore a consistent amount of time was spent at first to define and understand the needs of the company. The client usually knew the business best and knew what requirements should be present. On the other side, Deloitte had a greater knowledge of the platform, selected as basis for the final solution, and of the boundaries of that solution, that the client was not entirely aware of.

""Ok, these are your requirements, let us prototype, let us show back to you to assess if it meets your needs. You have given us these requirements, but there is this possibility on the platform, why don't you consider that?" So it was really a collaborative effort." (Respondent 7)

There were daily meetings, where it was decided which requirements would have been implemented and which ones not. It was noticed that it was mainly the changes in the external environment used to trigger the client coming with new requirements. When there was some room to implement extra functionalities, the requirements were mainly technology-driven, so there was a prioritization according to technical possibilities available.

4) Experimentation

To enhance the quick product's delivery required, a recurrent sequence of steps was followed. Respondent 2 explained that the first step had the goal to define the target state, so what the client wanted to achieve from a strategy perspective. Then the requirements identified needed to be translated into the architecture, translating the needs collected through customer journeys into practical features of the platform. The third step involved designing the product, keeping in mind the different needs of the users. In the research interviews, especially this part of the methodology has been addressed as crucial: different solutions used to be proposed in each cycle. Together with the client, the evaluation of the best alternative took place. Then, in each cycle, a different part of product was developed, validated and deployed at the end. All

these steps were followed, as explained before, in an iterative, continuous way, according to the different parts of product delivery.

"I had a meeting with the product owners and they had to explain things to me and I have to build it on the fly. Then I had to show them back. […] Testing the water, until we managed to deliver something." (Respondent 2)

5) Adoption of holistic thinking

Previously in this chapter, there has been a focus mainly on the projects' methodology. In this fifth point, the focus is broadened to other two areas: technology and organization. In fact, it has been stressed the relevance of the adoption of a holistic thinking while running a project, embracing multiple areas, instead of focusing just on the methodological part of the project. Furthermore, it was explained that concentrating the project's efforts both on the methodology and on the implementation of the new platform, was still not sufficient to address the goals of the projects. Indeed, a set of organizational actions were required, whose purpose was to reshape the organisations themselves. The quotation that follows further explains this:

"I think the pitfall, that often people fall into, is the fact that they think that this type of changes is all about technology. Which is not the case. Actually, often these types of programmes fail not because of technology, but because of a lack of focus on change management, or [because of] not basically understanding the overall transformation that needs to happen, which touches your organisation, your processes, your governance. It's the whole package. And especially when you talk about a large transformation, like this one, it's actually far more complex than just getting the technology right." (Respondent 7)

When combining the three domains (methodology, technology, organisation), a complete change management approach is set. The next points further stress the adoption of this holistic

thinking. In fact, below some organisational and technological measures are described, which have been taken in the two projects analysed:

- **Fast decision-making capabilities have been increased**

In project 1, a set of job enrichment action has been taken. For instance, in order to bypass the time it takes to commit parts of the platform in production, content managers have been scaled up. In this way, the decisional process has been shortened, to deliver faster the platform to client 1.

"We also needed to upscale content managers […] it takes a while for you to follow the proper change management. But when we upscaled the content managers, they could directly change things in production. So we bypassed the time it takes for you to commit, or to deploy, something in production." (Respondent 2)

- **Project's control shifted towards the top management**

As soon as the pandemic hit, the control over the project shifted up in the hierarchy. Compared to other projects leaded by the middle management, the interviewees emphasized the importance of having had an C-level leadership to guide the digital transformation to respond to the pandemic, for two specific reasons: sponsorship in terms of resources, as well as in terms of vision to transmit to the rest of the organisation. This quote summarizes this necessity:

"Often if you are really talking about true digital transformation, it's simply not possible without top-down sponsorship." (Respondent 7)

Regarding the first point, the executives decided to allocate immediately the budget from the previous project to the new one. This enabled a quick response in a moment of emergency. Regarding the second aspect, which emerged also from the people who worked on

the second project, it is particularly challenging to proceed with the transformation without a management that indicates clear objectives and increase motivation among the workforce. In the second company, at the beginning, there was some resistance within the workforce to embrace the new way of working, but thanks to the support of C-levels, their hesitation was won.

- **Multidisciplinary teams were created**

In both projects, a project team has been assembled within the client's companies. The team included both people from Deloitte as well as people from the client's organization. It has been appointed that in both projects the teams were made of people with different kinds of expertise. According to respondent 4, this implied a faster deployment of the product: project members were less siloed and were keener on sharing their specific knowledge with other people. It enabled a better development of synergies, increasing the degree of collaboration.

"We kind of built a mini organization, a "Corona team" basically, with all kinds of expertise." (Respondent 3)

- **The Business and IT sides were aligned throughout the project**

As previously explained, daily meetings occurred. The conversations were not only between Deloitte and the customer, but also within the two organisations there were two different parties: the business side and technical one. Given the time constraints, the interviewees witnessed a close and constant communication between these two parts. In particular, the technical side was in charge of assessing how the new platform would have fit into the legacy IT infrastructure, the business side was in charge of communicating the business requirements. Respondent 4 summarized this need with these words:

"We had a couple of ground rules that we establish to make the project successful. The most important was the business-IT-legal communication. All departments needed to be constantly aligned." (Respondent 4)

- **A change of employees' mindset was encouraged**

The project team had to train the employees on how to use the functionalities of the new platform. Especially during project 2, explaining the new way of working has been addressed by the interviewees as quite challenging, as the employees were used to work in a specific way and afterwards they were forced to change due to the new conditions settled by the pandemic. In fact, they could not handle manually the incoming requests anymore, due to the higher amount. The training given had not only the purpose to explain the technical functioning of the platform, but more importantly to explicate that this change was needed, to be able to meet the customers' demand. The following quotation from respondent 4 reinforces what written:

"It required a whole new way of working for the employees. What's the biggest mistake is if you buy a new platform and then start copying the old world into the new world. That always goes wrong. […] We tried to bring the employees along. It was a big cultural shift, that the employees had to go through because they were used, all those years, to check things themselves." (Respondent 4)

- **The platforms presented these characteristics: modular and customisable**

Both projects were guided by the principle of automating the process workflow, with the objective to reduce the number of manual tasks the users needed to do. To achieve this, in project 1, the platform built was the result of different modules, already available in the market, adapted and extended with the new aspects to suit the customer's needs, and then integrated together. Given the time constraints set by the pandemic, this aspect has been appointed by the

respondents as an efficient way of building a platform, rather than building it from scratch. It would have required longer time and due to the circumstances, it was something not suitable in that context. The quotation that follows, from project 2, further explains this:

"Because your going-to-market time is very short, compared to what it was before. So you have to develop things more quickly. Also reusing different concepts that you have developed technically. because of a flexible and modular design of the application, connected with services, you can use those services again for different regulations that you have to develop systematically. That reduces this time. so it's easy to reuse components. you have a quicker time to market." (Respondent 3)

4.3. Implemented solutions

This subchapter summarizes the answers to the research third sub-question. It describes what solutions have been implemented and the achieved outcomes of the two projects.

In project 1, it was necessary to start from an existent platform and adapt it accordingly to the specific situation, creating some of the modules that are mentioned below, from zero. In particular, these three modules have been designed and adopted to tackle the remote-working situation:

- Support Hub for employees: a COVID-19 Support Hub has been deployed to push internal and external communications, FAQs, updates, information, and relevant content about COVID-19. In this repository, different communications are managed. Communications coming from external entities, such as new regulations by local governments, as well as the internal ones coming from the HR department, explaining any eventual update on the new working configuration, for instance.
- HR Services for employees and HR Dashboard: Established HR services to allow employees to declare their health status, raise a case about sick and pay leave, or ask a

question related to COVID-19. This gave the possibility to the HR team to monitor the impact of COVID on their employees based on real time dashboards, such as the number of the impacted employees and the associated productivity loss in terms of full-time equivalent, including the impact per team and per function (office based, field, sales, bottling plants). This information has been made available also to the different team leads/managers, so they could take some actions in case there were problems related to lack of resources and staffing management.

"Employees were really happy about it and they see the benefit of having a centralized portal, in order to get what they want or to have what they need. We also drove heavily self-services, which empowered the employees to process things themselves." (Respondent 2)

- Return-to-work solution: a module Given to the employees the opportunity to make a reservation for going back to the offices or to the warehouses, allowing them to book a place on a specific day, in a specific time range, in a specific location.

The overall outcome was very positive. Employees needed to use it, because they needed to raise their health status themselves, as the company could not know what their health status was. So the sample of people that tried the platform was high. The user interface, built together with the client using the employees' inputs, has been highly appreciated. This appreciation has been concretely proved into the extension of the platform also in other countries where the company operates.

"During the first iteration we had covered two countries, and then since these two countries really loved the product, we extended [it] to several more countries." (Respondent 2)

As previously stated, the collaborative environment and the continuous iterations with the client enabled a quicker product delivery, faster compared to regular methodology. In the end, the company was able to react promptly to the emergency, thanks to the platform, and to

guarantee the business continuity. The Design Thinking-based methodology helped to adapt the original platform to the platform required to satisfy the business needs.

In company 2, the project brought into the new process a set of data analytics and new features related to fraud detection, business process architecture, risk and compliance management. The introduction of the platform gave the opportunity to significantly reduce the number of requests that each employee had to examine, as well as it enabled to have a structured workflow within the process itself. Consequently, the company could manage all the requests coming, thanks to this standardization.

"So instead of every file, every case having to be checked manually, now we had to come up with a smart way of designing business rules and all kinds of decision points, that had routed the right cases to the right employee or finished it automatically." (Respondent 3)

Below it is possible to find a comparison between the process workflow before the project and the new workflow. The key difference lies in the introduction of a risk model that distinguish between the requests that do not present a potential risk for the organization, so the loan can be automatically approved, and the ones which need to be manually checked by the clerk, as they present the potential risk of the customer not giving the money back. This risk model was the logical principle of functioning of the platform.

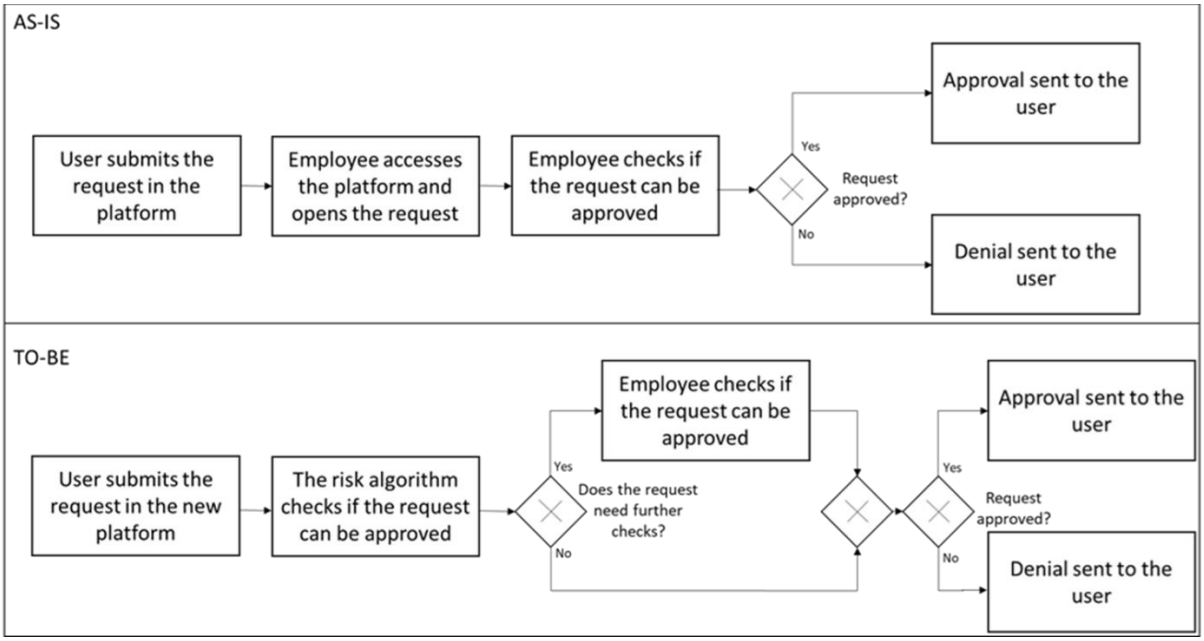

Figure 12: AS-IS vs TO-BE process workflow

Also in this case, Design Thinking was used to build a platform with a friendly user interface, easy access both for the clients, as well as for the employees. Asking their opinion and continuous feedback has been appointed by the two respondents as the key aspect, that contributed to the fast and successful delivery of the platform.

5. Discussion

This chapter analyses the findings presented in the previous chapter, comparing them with the literature concepts explored in chapter 3.

5.1. Impacts of COVID-19 in ESM domain

Starting from the analysis of the context, so with the first sub-question "What have been the impacts of COVID-19 in the ESM domain?", it is challenging to narrow the impacts of the pandemic in just one domain, mainly because its effects were visible in every layer of the organisations. Given the novelty of the event, probably only in a couple of years it will be possible to assess the true organizational impacts that it had. Despite this, these impacts have been identified:

1) New information requirements for managing personnel and offices' spaces followed from the regulatory response of the government to COVID-19
2) Increase of employees' requests through digital channels
3) Employers started having concerns about successfully enabling an efficient virtual environment for their employees working from home
4) Lack of suitable out-of-the-box solutions to address the needs caused by the pandemic

The first sub-question had the purpose to identify the potential areas of application of DT and to understand its applicability. Both companies experienced a significant change in their working context, which started to be characterized by complexity and an increasing time pressure to find solutions to deal with the effects of COVID-19. The pandemic was a disruptive event, as it introduced new information requirements in response of the social-distancing measures. Organisations were forced to search solutions to mitigate the impacts of COVID, due to the fact that keeping the original status quo was not possible. Moreover, it accelerated

the use of technology in organisations. Among the ways described in the literature to cope with a scenario described above, Cooper et al. (2009) suggested that Design Thinking appears to be a valuable tool when it comes to the need of elaborating new ways of addressing the new requirements and to navigate the uncertainties and complexities present in a business environment. This is because, according to the authors, it helps to visualize problems, to develop people-based solutions and to design business strategies based on design research methods. However, in their paper this conclusion is not empirically proved, but they elaborated this theory based on the outcomes of the International DMI Education Conference.

Given the new information requirements coming in response to COVID-19, it can be relevant to mention back the research of Mahmoud-Jouini et al. (2016), who explained the role that DT has in similar situations: *"Design Thinking is well suited to addressing the exploration and stakeholder involvement efforts required in projects confronted with complexity and uncertainty. It helps frame ill-defined issues and develops them into clearly defined problems around which key stakeholders can be mobilized".* Furthermore, they explained how DT can provide relevant contributions to the challenges encountered within the field of project management, in terms of exploration and stakeholder involvement.

The main consequence about the third finding was that managers started reflecting about a way to improve their employees' experience of working from home, and eventually their office experience for the moment they would have been back. Looking at a possible solution a priori, from a theoretical perspective, Design Thinking is value-enhancing for this, as it gives the possibility of expanding human experiences, according to Nakata et al. (2020). The authors explain that four "items" in particular (Pushing the boundaries of possible product or service ideas, Going beyond immediately observable solutions, Asking "what if" questions to discover new ideas, Challenging "what is" or assumed in pursuit of novelty) are effective when designing a solution to face a complex and novel problem.

Finally, the last finding "Lack of suitable out-of-the-box solutions to address the needs caused by the pandemic" supports and strengthens the previous item, as the pandemic forced the research for custom-made solutions and enforced the need of thinking about how to design these solutions. Given the novelty of the phenomenon, also its related effects have never been faced before by companies. Thus, first a careful thinking about how to address the new needs, was necessary. Secondly, it was crucial to find and construct a solution, to address these requirements promptly. For both aspects, DT was an important way for meeting these goals.

5.2. DT's aspects

In the previous chapter, the answers to the first sub-questions have been discussed. In fact, the why-scenario was described (the impacts of COVID, why the solutions were needed, in order to set the scene). In this chapter, there is the description of the middle part of the story, the how-scenario (how the solutions were found). The second sub-question had the purpose to identify which Design Thinking's aspects emerged from the projects taken into examination in this research and to evaluate their impacts. The answer to this question (What Design Thinking's aspects emerged from the methodologies used in the projects analysed?) is:

- Collaboration
- Continuous iteration and feedback
- User-centricity
- Experimentation
- Adoption of holistic thinking

In the next paragraphs, the analysis, contained in the literature, of these five aspects is compared with the outcomes of the research interviews. There will be approximately one paragraph for each aspect. The main conclusion of this comparison, that can be already

anticipated here, is that there is a convergence between the literature and the data collected. This convergence implies that all these five aspects are needed in order to manage successfully the Enterprise Service landscape, especially under the conditions that COVID brought (conditions described in chapter 5.1). So, in the next paragraphs it is explained the reasons of why each aspect is useful.

Starting with the first one, collaboration during a project is fundamental. It finds a confirmation also in the literature (Edmondson et al., 2019). It might seem superfluous to emphasize the need of collaboration, however most of the executives admitted, in a survey conducted by Accenture, that their business functions tend to compete rather than collaborate, hindering the ability to successfully drive digital transformation (Narsalay, 2020). In these pandemic times, collaboration is even more important. In fact, according to a research by Gensler, a digital design firm, the shift to home-working has dealt a significant decrease of collaboration (Hoskins, 2021). This is not all: "collaborate" is also one of the principles of ITIL v.4., suggesting that it is an aspect to be kept in mind while dealing with the design of digital services. Given the turbulent environment that characterized two projects analysed, the key concept here is that collaboration was required even more to complete them, compared to pre-COVID times.

Feedback and validation with the customer are common moments that occur in every type of project. But the point emerged in the results of the Analysis chapter is that Design Thinking suggests incorporating these aspects fully during the project, to obtain several benefits, such the guarantee of being aligned at best with the customers' needs. Furthermore, in the context that the pandemic brought, this way of working prevents impactful consequences from mistakes, if they are not serious (Morison, 2017). In the projects analysed, the interviewees explained that iteration is ideal especially when the business environment is subject to change, which was the case, as it gives some space to incorporate potential new

requirements. Furthermore, while executing impactful change management projects, different fields of the organisations are affected, so this aspect gives the opportunity to the employees to process, and gradually accept, the new way of working. For this reason, this way of working is recommended also in ITIL v.4, expressed as: "Progress iteratively with feedback".

Putting the client under the focus lens is not a novelty. In fact, the concept of meeting the demands of the customer, so customer intimacy, was kept in consideration by companies way before the advent of DT. However, the DT principle of "user-centricity" has the specific meaning of trying to gain a very clear understanding of the user's needs and preferences. For this reason, this approach must be institutionalized within organizational systems and processes, to form the culture of the organizational DT capability (Radnejad, 2021). In ITIL v.4, this concept is expressed through the words: "Focus on value", which means focusing on true added value and bring it to the client. In other words, the ITIL's principle recommends gaining the ability to recognize trends that enable to standardize operations and recommends establishing a service that is repeatable and consistent, in terms of quality and cost (Morison, 2017). The literature seems to be consistent to the data collected from respondent 7, who said: "*The clients actually expect you to deliver certain outcomes. So I think what is important from an overall project management/programme management perspective is to make sure that those outcomes are actually embedded in the project approach*".

Experimentation is one requirement of innovation and digital transformation (Carr, 2020), so using a methodology that enhances it, like DT, is beneficial. As indicated in the previous chapter, the experimentation aspect was addressed through a specific iterative sequence of steps. In particular, it was during the "define" and "design" phases that emerged the most, as their purposes were respectively to understand and transform the client's requirements into something concrete, establishing the features of a platform's module, for example. It was not only about the steps though. As indicated by respondent 1, it is important

to have the right mindset to experiment: "*It was a very innovative and flexible client. And as soon as COVID-19 happened, they really realized that they did not have the budget to continue with the scope, but they could still use this project to tackle the pandemic, to use the technology to do something to improve the situation*".

During the first phases of the project, different proposals were made to the client to understand which features the final platform should have had. It has been explained to the customer why certain modules would have been more useful than others, and conversations began. Only once both parties were satisfied with the solution achieved, the release was possible. To continue adapting and growing digitally, it is key to have the flexibility to experiment safely and effectively (Goldberg, 2018). Secondly, to create possibilities for true digital transformation innovations, it is required taking more risks, timewise and money-wise (Carr, 2020). This was noticed in the second project, as time and money have been allocated in advance, to schedule extra feedback sessions, to let the project's team evaluate and discuss what the best possible solution was.

The dimension of adopting an holistic thinking emerged especially during the 4th and 7th research interviews. This means that respondents emphasized how multiple aspects of the organisations were touched by the two project and why it is important to adopt a broader perspective, not just the technological implementation one. The need of tackling a project from multiple perspective is addressed also in the literature. In the ITIL v.4 this aspect is emphasized through the sentence "Think and work holistically", which suggests that an integration of information, technology, people and processes is required during Enterprise Service Management. In the next paragraphs there are some considerations regarding the organizational actions described at the end of chapter 4.2. Not all of them are directly related to Design Thinking, so they have not been formally added to the five points which answer the second sub-question. Despite this, it is worth to analyse them, to point out which actions are useful

when it comes to deliver rapidly a solution under pressure, as required in the two projects. Furthermore, some of them have been treated also in chapter 3.2.3.

To define rapidly the change programme to respond to the emergency, fast decision-making capabilities were required. This requirement can be found also in the literature, in fact Craig (2018) explained these capabilities can be increased by preferring the adoption of an horizontal organizational structure rather than a vertical one. Also a set of job enrichment practices can be useful, as suggested by McCormack (1999). Job enrichment is a managerial process that empowers people by giving them an higher degree of authority and decisional power. This implied empowering the main actors involved in the project. In fact, teams need to feel empowered to take ownership of ideation, validation, and iteration, to accelerate businesses forward in innovative ways (Goldberg, 2018).

From the first, sixth and seventh interviews, it emerged that especially in times of emergency and uncertainty, the leadership should establish a clear mission and specific goals, and communicate them to the whole organization, to inspire employees. This has the goal to create a true willingness to change within the organization. In addition to this, a top-down leadership has the decisional power to use the resources. This element is supported by different authors. As explained by Edward & Mbohwa (2013), the reengineering leader must be passionate about the reengineering objective and have a strong commitment to achieve. In a digital transformation project, the role of leader is central in propelling the change and for enhancing a fast-decision-making process (Kohli & Johnson, 2011), as support and commitment from the executive management is pinnacle (Davenport, 1993). Proceeding on this reasoning, Radnejad et al. (2021) suggested that managers, who have to respond to disruptive threats, should consider the implementation of DT principles, which enable the activation of the innovation process. In the project analysed it has been noticed a similar

approach, as the project's control shifted towards the top management, which encouraged the implementation of such principles.

While defining the two projects' teams, it has been addressed by the interviewees the importance of assembling a multidisciplinary team, in order to effectively capture and implement the requirements coming from the dynamic external environment, according to the different expertise of the team members. This aspect is also the second DT's principle recognized by Schallmo et al. (2018). Multidisciplinary teams outperform the traditional functional silos, still dominant in many organizations and the different members' perspectives complement each other, resulting often in the development of new ideas (Jongen, 2018). Related to the redesign and realization of the implementation of the platform itself, an alignment between the business and IT side was crucial in both projects. This enabled an effective development of feasible requirements: the business knows which needs to be addressed, the IT knows what the technological constraints are. As explained by Moore (2019), digital transformation projects need a customer-centric tendency and to achieve this, organizations need a cross-functional, multi-disciplinary team with a mix of skills from the business, IT, business process and customer experience.

When it comes to change, the employees within the organization needed to develop the appropriate mindset. This is stressed also in the literature by Bovey and Hede (2001), as they explained that resistance from employees is one of the most mentioned obstacles in organizations that are implementing major transformations. Especially in times of sudden changes, such as the one brought by the pandemic, dealing with change can be quite challenging. This is what happened in the second project. Due to COVID, the change was not something gradual, but something that was suddenly forced by the external environment. And change, whether it is positive or negative, tend to disturb people, who seek stability (Keyes, 2000). Therefore, companies must identify and address this aspect as early as possible

(Westerman et al., 2011). It is up to the organization itself to establish the correct culture to mitigate the effects of a sudden change, if it should occur.

Finally, to support the overall change, from the research interviews emerged the design of a platform with the following characteristics:

- Standardisation and automation, in order to:
  - quickly provide services to users
  - have a faster go-to-market time for products and services, especially during disruptive events like a pandemic
  - focus on the core aspects of the business, rather than spending time on supporting activities

These aspects, looking at the literature, are consistent to the ITIL v.4 principles "Keep it simple and practical" and "Optimize and automate". Especially within ESM, the automation of day-to-day workflows is at the heart of successful digital transformation (Deshpande, 2021).

- Customisable, in terms of modularity and flexibility. In fact, companies need the flexibility and modularity of a modern digital technology platform to quickly bring new features into production (Lansing et al., 2021).

5.3. Implemented solutions

In this chapter, there is the description of the what-scenario (what solutions were found), which is the end of the story started in chapter 5.1 and continued in chapter 5.2. A comparison with the literature is complex, as there are very few elements within the academical field that can relate to the points explained in chapter 4.3. Despite this, it is still possible to elaborate on them.

Before the pandemic, it was common to reserve online meeting rooms or common spaces within offices. After the pandemic, this has been scaled up for most of the spots. Through the Return-to-work solution described in chapter 4.3, the design of a new process came in place. The principle behind this module has been to digitally map the office in the platform, allowing the employees to book a place on a specific day, in a specific time range, in a specific location. Regarding the other modules, COVID-19 Hub underlined the importance of constituting a unique repository to be accessed independently by the employees for retrieving information, especially during an emergency. The HR Services module emphasized the need of having an holistic view of the own workforce, so tracking their availability and health status, in order to ensure business continuity. In the second project, the employees' experience was not exactly expanded, but facilitated, as the process has been automated. The first project witnessed the development of a solution that expanded the employees experience, giving them the possibility to have an overview of the spots available in the offices.

When it comes to the pure choices of implementing a specific functionality rather than another one, the researcher does not have enough data to assess if only the use of DT was responsible for having brought to these functionalities, or if they would have been achievable also through other methodologies. Despite this, the key point gathered from the interviews is DT was a critical element to achieve these results described in chapter 4.3. in such a limited period of time. The interviewees said that the methodology employed has been the crucial point. Without it, it would have been very difficult to achieve the same results in the same time range.

5.4. General discussion

After the answers to the three sub-questions have been provided, the focus of the discussion shifts into aggregating them, to find an answer to the main research question: "What

was the role of Design Thinking in meeting the pandemic challenges within Enterprise Service Management?". The answer of the first sub-question implies that the pandemic scenario is a context where DT could be useful. In fact, COVID-19 generated a sense of urgency to deliver the solutions to the clients' organisations, as those challenges needed be solved rapidly. The requirement to quickly adapt to new circumstances and work together arose. Furthermore, the effects of the pandemic were something never experienced before, so innovative solutions were needed, as there were no available ones yet. To this extent, DT is a valid option for shaping these solutions (Cohen & Cromwell, 2020; Thakur et al., 2020; Kachanovsky 2020).

The answer of the second sub-question suggests that Design Thinking promoted the enhancement of the innovation process, especially in its first phases. Through a collaborative and iterative methodology, it was possible to explore the hidden needs of the client organisations, to understand what the employees required to guarantee the business continuity and to gather the necessary requirements to start the project. These elements served as basis for starting the redesign of the processes and the implementation of platforms analysed. Several authors from the literature presented equivalent concepts. Thakur et al. (2020) illustrated that DT can accelerate the development and implementation of solutions through a process of inspiration, ideation and implementation. Magistretti et al. (2021) explained that Design Thinking dynamic capabilities have a positive role in fostering digital technologies' opportunities. Its capabilities facilitate digital transformation projects and deliver higher value to their customers (Magistretti et al., 2021).

Despite all the just-mentioned authors, it seems that there is still some distance between the theoretical concepts, described in the literature, and the practical aspects noticeable in a concrete environment. As concluded by Schmiedgen et al. (2016), the impact of Design Thinking is very difficult to be empirically quantified. This has been noticed by the researcher both in the literature, as well as in the research interviews executed. Maybe this has been

noticed because Design Thinking is still a poorly defined approach, as explained in chapter 3.1: given its vast range of applicability, some professors and professionals see it as a mindset, others as a process, others as a toolbox. This can lead to misalignment and misunderstanding. Perhaps it is only when DT will be formally recognised as a methodology, that it will be possible also to empirically measure its advantages. This is a point that can be addressed in future research.

Nevertheless, this research tried to build a bridge between the theoretical and practical domains of DT. For example, it has been pointed out that the organisation responsible to guide the digitalization's project, and the client one, need to work closely during the execution of a demanding and fast-paced project. It is necessary to held multiple sessions with the customer at the beginning, to understand its needs and expectations. Then, throughout the project, frequent moments for validation and feedback collection need to be established. Finally, to guide and support the implementation, a set of organizational and technological measures are required, such as creating multidisciplinary teams, relying on modular and flexible platforms and encouraging a change of mindset among employees.

To conclude the discussion, the study shows how DT was used as a framework for organising the redesign process and mobilising project resources to implement the required changes. DT found a concrete application through a set of activities like holding sessions with the customer, to understand its needs and expectations, as well as moments for validation and feedback collection. Several aspects are discussed, including project organisation, project lifecycle management, requirements acquisition and change management. From this discussion we learn that DT was firmly entrenched in the redesign process, and it was valued by the interviewees as a useful guideline, particularly in the challenging environment created by the pandemic. In the next chapter, where the research limitations and potential future research are explained, it will be described some further potential points of action.

6. Conclusion

This last chapter is divided into three parts. The first one contains some final considerations about the whole research. Chapter 6.2 reflects on the limitations of this research, Chapter 6.3. gives some recommendations for future research, related to the topics touched during this master thesis.

6.1. Final considerations

The advent of COVID-19 has been a disruptive event. Its implications were never faced before by organisations on such a vast scale. One of its consequences has been the shift of the employees from offices to private homes. This implied that the process workflows were brought also outside the organizations' spaces. There was a significant change in the workforce's way of working. This resulted in most people using internet-based services to communicate, interact, and continue working from home. Consequently, enterprise services need to be connected to homes, in order to ensure the business continuity, otherwise there was the threat for organisations of failing to remain competitive.

The organizational and social perspective of the innovation process has been highlighted in this research. In fact, first it was pointed out the importance of the collaboration between the consultancy firm and the client: for discovering the client's needs and to elaborate promptly a set of solutions, in-depth interviews and workshops have been held. A continuous iteration between the parties involved has been considered particularly relevant especially to quickly evaluate the feasibility and utility of a proposed solution. As it was necessary to guarantee the business continuity, the internal customer has been put at the centre of the redesign process, because employees were the most affected by the shift of the processes' workflows. The innovation process was interactive and dynamic, as DT was used to quickly understand how it was possible to limit the disruptive consequences of working from home.

The main aspects of DT, described in the literature, found correspondence in the projects analysed by the researcher.

To conclude, the study showed how DT can be used as a useful guideline, throughout the different stages of the project lifecycle, for organising the redesign process. It emerged that DT enabled a good understanding of customer's needs and expected outcomes, to trigger the innovation process. Consequently, when it comes to the redesign process of ESM processes, companies can rely on DT to foster it, especially in the dynamic environment caused by the pandemic. Regarding the theoretical implications of this research, in the literature review chapter it has been pointed out the similarities between the different methodologies that deal with process and service management. For instance, in both DT, ITIL and BPM one of the first and most important phases is to understand the customer's requirements and objectives, promoting collaboration with the goal of delivering value for the end user of the process/service. Both the practical goal and the theoretical one, that the researcher has set at the beginning of this study, can be considered fulfilled.

6.2. Research's limitations

A limitation of a particular research study is defined as: "systematic bias that the researcher did not or could not control and which could inappropriately affect the results" (Price & Murnan, 2004). They are closely associated with several factors, such as the chosen research design. Thus, as much as a researcher can carefully plan and design the study, it is inevitable that some limitations, not identified before conducting the research, will be encountered (Theofanidis & Fountouki, 2018). Therefore, this section illustrates the limitations, some more relevant than others, that had an impact on the research. The main purpose is to ensure that quality criteria, illustrated in chapter 2.4., are met.

Due to the nature of this research, there are different aspects that deserve to be carefully analysed. Focusing on the data collected from case studies, the first one is about the sample for collecting data. The fact that the researcher interviewed a limited number of practitioners, eight, working within the same company, might pose a threat to generalizability. Indeed, given the specificity of the requirements set at the beginning of the research, the sample variety was quite limited. Furthermore, the same geographical area of the firm might be as well a limitation, even if the projects' teams were composed by people with different backgrounds and expertise and the solution have been deployed across multiple countries. In addition to this, not having taken part in the projects but having just interviewed projects members, implies the lack of a personal experience that could have been useful for the researcher. Also the limited time span played a role in this, as the pandemic occurred just one year prior this research. Because of this, it is challenging to forecast the value delivered by the projects on the long period.

Additionally, the researcher did not include all the COVID-related projects in the sample, but just the ones where the pandemic had a relevant role according to his opinion. This reflected on the size of the sample. Also the different tactics (top-down and bottom-up, described in chapter 2.2.2) about the choice of interviewees played a role in this thesis. In particular, through the "bottom-up" interviewees it was possible to gather the specific data related to the projects investigated, but when it comes to higher-level concepts (like DT, and the effects of the pandemic, on a more general perspectives), it was slightly challenging to derive them. Vice versa, the "top-down" interviewees were particularly knowledgeable on a general level about the concepts discussed and they were able to link them in order to provide to the researcher a full picture of the situation. So it has been quite easy to elaborate some answers to the first sub-question from them. But it was more challenging to use their inputs for sub-question 3, for instance.

During the interviews, there might have been the limitation of the self-reported data bias, as it can be rarely verified independently. In addition to this, it contains several potential sources of bias. They can be, for instance, selective memory (being able to remember or not past experiences or events), attribution (attributing positive events to own merit and negative ones to external variables) and exaggeration (Brutus et al., 2013). Moreover, despite the efforts of being as much objective as possible, some questions that were asked by the researcher might have led the respondents towards a specific answer. When it comes to the solutions analysed, there was a focus on the organizational side of the projects and on social process of innovation, but there was less a focus on the technical solution and engineering perspective, which would have added more information to formulate an answer to research question.

To conclude, the other variables that influenced the research have been:

- Time constraints: if there had been more time available, the researcher could have explored further extensively certain topics.
- Language: in all the interviews except one, where also in that case English was employed to facilitate the accuracy of the transcription, both the interviewee and the interviewer did not have the same nationality. This might have had an effect on the naturalness of the conversation itself.
- Only one researcher involved: this translates into a lack of multiple perspectives when it comes to data interpretations.
- Remote interviews: this way of conducting interviews, adopted to adhere the COVID regulations set by the government and the host company, may have constituted in a lack of completeness of understanding. Specifically because of the virtual setting, the difficulty in evaluating the nonverbal communication's aspect, which plays an important role during

interviews (Phutela, 2015), might not have had facilitated the barriers' removal for effective communication.

Finally, there were some limitations also from the literature analysis. As ESM is quite a new concept in the academia, there is a limited amount of information within literature about it. In addition to this, limited objective measures, about how DT actually influences the design choices and the design of artifacts, were available in the literature.

6.3. Future research

During the development of the present thesis, several topics have been encountered, that would be interesting to investigate further. However, given the length constraints of this thesis, it was not possible to deep dive into all of them. Therefore, a short overview of them has been included in this section.

Related to the context of the pandemic, the findings of this research are only preliminary concepts of a much broader theme, because of two reasons: the novelty of the problem and the small sample used for the data collection. Probably the theoretical sampling's saturation has been reached quite soon due to the fact that topic of COVID-19 is such a new and broad concept, that it will take some time before the tangible implications can be truly assessed. Therefore, the first suggestion for future research is to repeat the study in a couple of years, extending the sample to more projects. The second suggestion has practical implications: it would be interesting to concretely assess the benefits of DT. This is possible only through taking part in a digital transformation project within an organization and applying DT, or through investigating which practical artifacts (platforms/products) have been designed thanks to DT. The third suggestion is related to ESM. From the literature review, it emerged that the knowledge of this field in the academia is still quite limited and unstructured, especially compared to its practical adoption in the organisations every day.

In addition to this, it would be interesting to investigate which architectural paradigm would support better the redesign of business processes. During the literature review phase, the concepts of Composable Enterprise and Packaged Business Capabilities (PBCs), illustrated for the first time by Gaughan et al. (2019), have been encountered. Both the concepts are present in the Gartner's Hype Cycle for Emerging Technologies of 2020, so it could be worth to explore them.

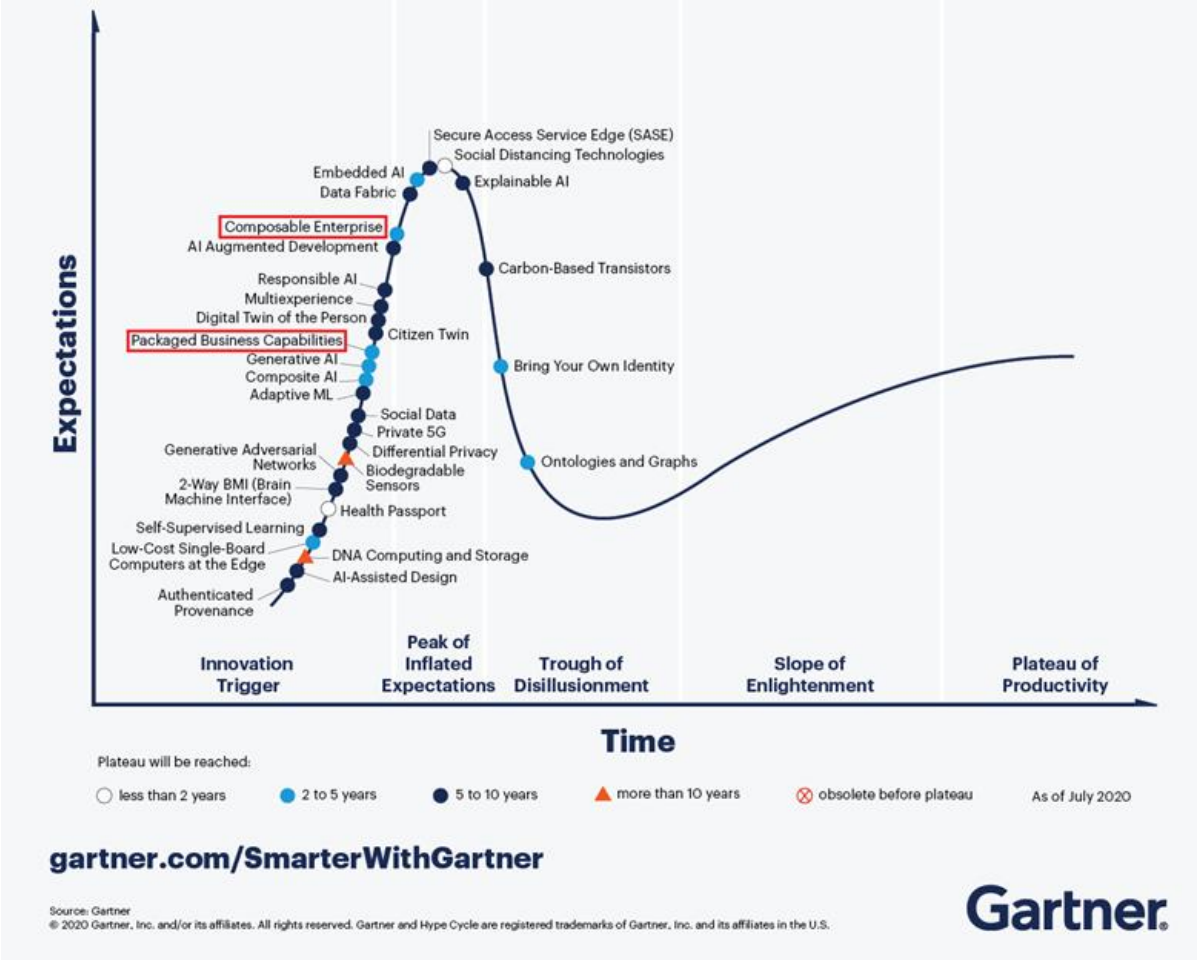

Figure 13: Gartner's Hype Cycle for Emerging Technologies of 2020

Especially because, according to the author, business needs to change, organizations must be able to adapt applications dynamically and deliver innovation quickly, through reassembling capabilities from inside and outside the enterprise (Gaughan et al., 2020). Specifically, a Composable Enterprise is: "an organization that delivers business outcomes and adapts to the pace of business change. It does this through the assembly and combination of

Packaged Business Capabilities" (Gaughan et al., 2019). "PBCs are software components representing a well-defined business capability, functionally recognizable as such by a business user" (Gaughan et al., 2020). These aspects are deeply related to the topics touched in this master thesis.

Finally, when it comes to a suitable methodology to run the a similar type of enterprise, it could be investigated how DevOps can be expandend through adopting a more customer-centric approach, following a framework similar to the one represented below in Figure 21, where UX stands for user experience and DX for Digital Transformation.

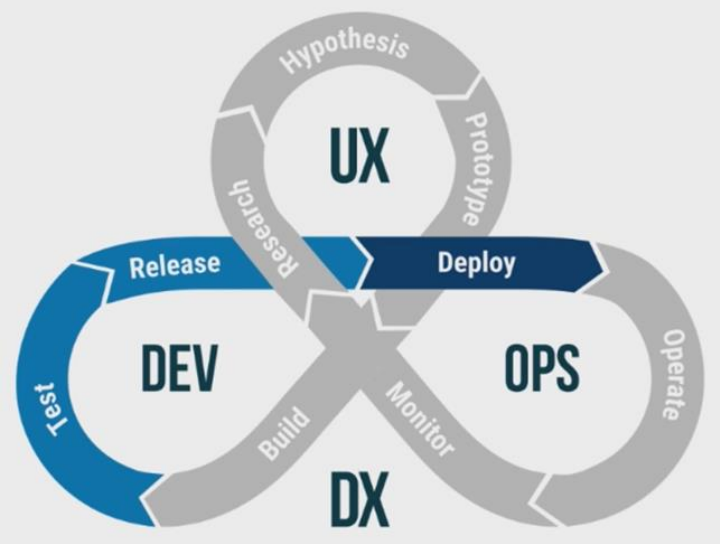

Figure 14: A possible representation of the extended DevOps

7. Bibliography

Adesola S. and Baines T. (2005). Developing and evaluating a methodology for business process improvement. Business Process Management Journal, Vol. 11, Issue 1, page 37 – 46

Amis, J. M., & Janz, B. D. (2020). Leading change in response to COVID-19. The Journal of Applied Behavioral Science, 56(3), 272-278.

Anatolii Iakimets. (2020). What are Packaged Business Capabilities?. Elasticpath. Retrieved from: https://www.elasticpath.com/blog/what-are-packaged-business-capablities

Arraj, V. (2010). ITIL®: the basics. *Buckinghampshire, UK*.

Baran, G. (2017). Design Thinking as a Source of Management Innovation. International Journal of Contemporary Management, 16(3), 51-71.

Bell, E., & Bryman, A. (2007). The Ethics of Management Research: An Exploratory Content Analysis. British Journal of Management. 18. 63 - 77. 10.1111/j.1467-8551.2006.00487.x.

Bentivegna, E. & Gastaldi, L. (2018). Design Thinking: non più solo una moda, ma le startup sono ancora immature. EconomyUp. Retrieved from: https://www.economyup.it/innovazione/design-thinking-non-piu-solo-moda-le-startup-ancora-immature/

Blosch Marcus, Brand Saul, Osmond Neil. (2020). Enterprise Architects Combine Design Thinking, Lean Startup and Agile to Drive Digital Innovation. Gartner. Retrieved from: https://www.gartner.com/en/documents/3941917/enterprise-architects-combine-design-thinking-lean-start

Boland, R., & Collopy, F. (2004). Design matters for management. In R. Boland & F. Collopy (Eds.), Managing as designing. Stanford, CA: Stanford University Press.

Bovey, W. H. and Hede, A. (2001) 'Resistance to organizational change: the role of cognitive and affective processes', Leadership and Organization Development Journal, 22(8), pp. 372–382. doi: 10.1108/01437730110410099.

Brahmachary, Ayan (2019). ITIL Service Management LifeCycle Fully Explained. CertGuidance. Retrieved from: https://www.certguidance.com/itil-service-life-cycle/

Brambilla, M., Fraternali, P., & Vaca, C. (2011, August). BPMN and design patterns for engineering social BPM solutions. In International Conference on Business Process Management (pp. 219-230). Springer, Berlin, Heidelberg.

Brand Saul, Blosch Marcus, West Mike. (2020). Use Value Streams to Drive Customer Centricity, Design Services and Operating Models, and Technology Platform. Gartner. Retrieved from: https://www.gartner.com/en/documents/3989435/summary-translation-use-value-streams-to-drive-customer-

Brenner, W., et al. (2016). Design thinking as mindset, process and toolbox. In W. Brenner & F. Uebernickel (Eds.), Design thinking for innovation (pp. 3–21). Cham: Springer.

Brown, T. (2008). Design thinking. Harvard Business Review, 86(6), 85-92.

Brown, T. (2009). Change by design: How design thinking transforms organizations and inspires innovation. New York: Harper Business.

Brown, T., & Martin, R. (2015) Design for action. Harvard Business Review, September, 57-64.

Brown, T., & Wyatt, J. (2010). Design thinking for social innovation. Stanford Social Innovation Review, Winter, 31-35.

Brutus, Stéphane et al. (2013). "Self-Reported Limitations and Future Directions in Scholarly Reports: Analysis and Recommendations." Journal of Management 39: 48-75.

Camillus, J.C. (2008). Strategy as a wicked problem. Harvard Business Review, 86(5), 99–106.

Cankurtaran, P., & Beverland, M. B. (2020). Using design thinking to respond to crises: B2B lessons from the 2020 COVID-19 pandemic. *Industrial Marketing Management, 88,* 255-260.

Carnevale, J.B. and Hatak, I. (2020), "Employee adjustment and well-being in the era of COVID-19: implications for human resource management", Journal of Business Research, Vol. 116, pp. 183-187.

Carr D. F. (2020). Digital transformation: 3 ways to make room for experimentation. The Enterprisers Project. Retrieved from: https://enterprisersproject.com/article/2020/6/digital-transformation-how-increase-experiments

Cartlidge, Alison (2020). Introductory overview of ITIL® 4. Axelos.

Cash, J. I., & Perlson, K. (2004, Oct. 18). The Future CIO. *Information-Week.*

Charmaz, K. (2006) Constructing Grounded Theory. London: Sage.

Cohen, A. K., & Cromwell, J. R. (2020). How to respond to the COVID-19 pandemic with more creativity and innovation. Population Health Management.

Cooper, R., Junginger, S., & Lockwood, T. (2009). Design thinking and design management: A research and practice perspective. *Design Management Review, 20*(2), 46-55.

Corbin, J. and Strauss, A. (2008) Basics of Qualitative Research (3rd edn). London: Sage.

Cousins B (2018). Design thinking: Organizational learning in VUCA environments. Academy of Strategic Management Journal 17(2): 1–18.

Covert, M. (1997). Successfully performing business process reengineering. Visible Systems Corporation, 201.

Craig, W. (2018). The Nature Of Leadership In A Flat Organization. Forbes. Retrieved from: https://www.forbes.com/sites/williamcraig/2018/10/23/the-nature-of-leadership-in-a-flat-organization/?sh=37fa7e145fe1

Davenport, T. H. (1993). Process Innovation: Reengineering Work Through Information Technology. Boston MA: Harvard Business School Press.

Davenport, T.H, & Short, J.E. (1990). The new industrial engineering: information technology and business process redesign. Sloan Management Review. 31. 11-27.

De Smet Aaron, Elizabeth Mygatt, Iyad Sheikh, Brooke Weddle. (2020). The need for speed in the post-COVID-19 era—and how to achieve it. McKinsey. Retrieved from: https://www.mckinsey.com/business-functions/organization/our-insights/the-need-for-speed-in-the-post-covid-19-era-and-how-to-achieve-it

Deshpande, A. (2021). Automation + Digital Transformation: The Key to Unlocking Business Growth. Frevo. Retrieved from: https://www.frevvo.com/blog/want-digital-transformation-start-with-your-workflows/

Doheny, R., Andes K., Cleary M. (2020). Critical Capabilities for IT Service Management. Gartner. Retrieved from: https://www.gartner.com/en/documents/3991510/critical-capabilities-for-it-service-management-tools

Dunne, D., & Martin, R. (2006). Design thinking and how it will change management education: An interview and discussion. Academy of Management Learning & Education, 5(4), 512-523.

Edmondson A.C., Jang S., Casciaro T. (2019) Cross-Silo Leadership: how to create more value by connecting experts from inside and outside the organization. Harvard Business Review. Retrieved from: https://hbr.org/2019/05/cross-silo-leadership.

Edward, L. N., & Mbohwa, C. (2013). The role of leadership in business process reengineering: Leaders, do you want to change?. In Information and Knowledge Management (Vol. 3, No. 2, pp. 125-130).

Feng, C., Ma, R. and Jiang, L. (2020), "The impact of service innovation on firm performance: a metaanalysis", Journal of Service Management.

Finden-Brown, C., & Long, J. (2005, July). Introducing the IBM Process Reference Model for IT: PRM-IT Sequencing the DNA of IT Management. IBM Global Services.

Finsterwalder, J. & Kuppelwieser, V.G. (2020). Equilibrating resources and challenges during crises: a framework for service ecosystem wellbeing. Journal of Service Management.

Fleischmann, A., Oppl, S., Schmidt, W., & Stary, C. (2020). Contextual process digitalization: changing perspectives–design thinking–value-led design. Springer Nature.

Fleischmann, A., Schmidt, W., & Stary, C. (2012, April). A primer to subject-oriented business process modeling. In International Conference on Subject-Oriented Business Process Management (pp. 218-240). Springer, Berlin, Heidelberg.

Gable, R., & Wolf, M. (1993). Instrument development in the affective domain: Measuring attitudes and values in corporate and school settings. Boston: Kluwer Academic Publishers.

Gaughan Dennis, Yefim Natis, Benoit Lheureux, Mark O'Neill, Massimo Pezzini. (2019). Innovation Insight for Packaged Business Capabilities and Their Role in the Future Composable Enterprise. Gartner. Retrieved from: https://www.gartner.com/en/documents/3976170/innovation-insight-for-packaged-business-capabilities-an

Gaughan Dennis, Yefim Natis, Gene Alvarez, Mark O'Neill. (2020). Future of Applications: Delivering the Composable Enterprise. Gartner. Retrieved from:

https://www.gartner.com/en/documents/3980861/future-of-applications-delivering-the-composable-enterpr

Gephart, R. P. (2018). Qualitative Research as Interpretive Social Science. In C. Cassell, A. Cunliffe, & G. Grandy (Eds.), The SAGE Handbook of Qualitative Business and Management Research Methods: History and Traditions (pp. 33–53). SAGE Publications Ltd. https://doi.org/10.4135/9781526430212

Gibbons, Sarah (2017). Service Design 101. Nielsen Norman Group. Retrieved from: https://www.nngroup.com/articles/service-design-101/

Gilbreth, F. B., & Gilbreth, L. M. (1921). Process charts.

Gioia, D. A., Corley, K. G., & Hamilton, A. L. (2012). Seeking Qualitative Rigor in Inductive Research: Notes on the Gioia Methodology. 16(1), 15–31. https://doi.org/10.1177/1094428112452151

Glaser, B. and Strauss, A. (1967) The Discovery of Grounded Theory . Chicago, IL: Aldine.

Glesne, C. (2016). Becoming qualitative researchers: An introduction. Pearson. One Lake Street, Upper Saddle River, New Jersey 07458.

Goldberg R. (2018). How experimentation accelerates digital transformation. Fastly. Retrieved from: https://www.fastly.com/blog/experimentation-accelerates-digital-transformation

Gopalakrishna, Nivedita (2021). ESM: Changing the Future of IT Service Desk. Accelerating IT Success (AITS). Retrieved from: https://aits.org/2021/01/esm-changing-the-future-of-it-service-desk

Grönroos, C. (1990). Service Management and Marketing: Managing the moments of truth in service competition. Lexington: Lexington Books, p. 27.

Gubrium, J. F., & Holstein, J. A. (2002). From the individual interview to the interview society. Handbook of interview research: Context and method, 3-32.

Guest, G., & MacQueen, K. M. (Eds.). (2008). Handbook for team-based qualitative research. Rowman Altamira.

Guest, G., MacQueen, K., & Namey, E. (2014). Planning and Preparing the Analysis. In Applied Thematic Analysis (pp. 21–48). SAGE Publications Ltd. https://doi.org/10.4135/9781483384436.n2

Guseva Irina, MacComascaigh Mick, Lowndes Mike. (2021). Critical Capabilities for Digital Experience Platforms. Gartner. Retrieved from: https://www.gartner.com/en/documents/3872077/critical-capabilities-for-digital-experience-platforms

Hadaya, P., & Gagnon, B. (2017). Business Architecture: The Missing Link in Strategy Formulation, Implementation and Execution. ASATE Publishing Inc.

Hammer, M. (1990). Reengineering work: don't automate, obliterate. Harvard business review, 68(4).

Hammer, M., & Champy, J. (1993). Business process reengineering. London: Nicholas Brealey, 444(10), 730-755.

Harris, Damian (2019). ITIL® 4 and Digital Transformation. Axelos.

Heinonen, K., & Strandvik, T. (2020). Reframing service innovation: COVID-19 as a catalyst for imposed service innovation. Journal of Service Management.

Helkkula, A., Kowalkowski, C. and Tronvoll, B. (2018), “Archetypes of service innovation: implications for value cocreation”, Journal of Service Research, Vol. 21 No. 3, pp. 284-301.

Hennig-Thurau, T., Malthouse, E., Friege, C., Gensler, S., Lobschat, L., Rangaswamy, A. and Skiera, B. (2010), "The Impact of New Media on Customer Relationships", Journal of Service Research, Vol. 13 No. 3, pp. 311-330.

Hobday, M., Boddington, A., & Grantham, A. (2012). Policies for design and policies for innovation: Contrasting perspectives and remaining challenges. Technovation, 32(5), 272-281.

Holmlid, Stefan (2007). "Interaction Design and Service Design, Expanding a Comparison of Design Disciplines".

Hoskins D. (2021). How companies can reinvigorate collaboration post-COVID. Fortune. Retrieved from: https://fortune.com/2021/03/21/collaboration-remote-work-from-home-covid/

Hwee Ang, S. (2014). Research Design for Business & Management. SAGE Publications Ltd. https://doi.org/http://dx.doi.org/10.4135/9781473909694.n6

Johansson-Sköldberg, U., Woodilla, J., & Çetinkaya, M. (2013) “Design Thinking: Past, Present and Possible Futures”. Creativity and Innovation Management, Vol. 22 No. 2, pp. 121–146.

Johnson, P., & Clark, M. (2006) ‘Editors’ Introduction: Mapping the terrain: An overview of business and management research methodologies,’ in P. Johnson and M. Clark (eds) Business and Management Research Methodologies. London: Sage.

Jongen, R. (2018). Why Multi-disciplinary Growth Teams are a Necessity for Business. Revelx. Retrieved from: https://www.revelx.co/blog/growth-team/

Joshi, Ravi (2020). ITIL4 – Driving Digital Transformation. LTI.

Kabadayi, S., O'Connor, G.E. and Tuzovic, S. (2020), "Viewpoint: the impact of coronavirus on service ecosystems as service mega-disruptions", Journal of Services Marketing

Kachanovsky, N. (2020). Why 'Design Thinking' is as relevant during COVID-19 as ever. Marketing Mag. Retrieved from: https://www.marketingmag.com.au/hubs-c/opinion-why-design-thinking-is-as-relevant-during-covid-19-as-ever/

Kang, B. (2021). How the COVID-19 pandemic is reshaping the education service. The Future of Service Post-COVID-19 Pandemic, Volume 1, 15.

Kasey Panetta. (2020). Gartner Keynote: The Future of Business Is Composable. Gartner. Retrieved from: https://www.gartner.com/smarterwithgartner/gartner-keynote-the-future-of-business-is-composable/

Kettinger, W. J., & Teng, J. T. (1998). Aligning BPR to strategy: a framework for analysis. Long Range Planning, 31(1), 93-107.

Keyes, C. L. M. (2000) 'Subjective Change and Its Consequences for Emotional Well-Being 1', Motivation and Emotion, 24(2), pp. 67–84. doi: 10.1023/A:1005659114155.

Kimbell, L. (2011) "Rethinking Design Thinking: Part I". Design and Culture, Vol. 3 No. 3, pp. 285–306.

Kohli, R., & Johnson, S. (2011). Digital Transformation in Latecomer Industries: CIO and CEO Leadership Lessons from Encana Oil & Gas (USA) Inc. MIS Quarterly Executive, 10(4).

Kotter, J. P. (2012). Leading change. Harvard business press.

Kowalkowski, C. and Witell, L. (2020), "Typologies and frameworks in service innovation", in Bridges, E. and Fowler, K. (Eds), The Routledge Handbook Of Service Research Insights and Ideas, Routledge.

Krucken, L. & Meroni, A. (2006). "Building Stakeholder Networks to Develop and Deliver Product-Service-Systems: Practical Experiences on Elaborating Pro-Active Materials for Communication". Journal of Cleaner Production, vol 14 (17).

Lampathaki F, Koussouris S, Psarras J (2013). Business process modeling, business process re-engineering. Decision Support Systems Laboratory NTUA.

Lansing Jens, Kürtz Klaas Ole, and Redlich Matthias. (2021). Get the most out of your platform transformation. McKinsey. Retrieved from: https://www.mckinsey.com/business-functions/mckinsey-digital/our-insights/tech-forward/get-the-most-out-of-your-platform-transformation.

Lazier, Meghan (2016). What is Service Design? TryDesignLab. Retrieved from: https://trydesignlab.com/blog/what-is-service-design/

LeCompte, M., & Preissle, J. (1993). Ethnography and qualitative design in educational research. San Diego: Academic Press.

Leeflang, P. S., Verhoef, P. C., Dahlstrom, P. and Freundt, T. (2014), "Challenges and solutions for marketing in a digital era", European management journal, Vol. 32 No. 1, pp. 1-12.

Leifer, L. (2012). Über design thinking, bad guys, experimente, Jagd und organisationalen Wandel. In: Organisations Entwicklung, Nr. 2, 2012, pp. 8–13.

Lewrick, M., Link, P., & Leifer, L. (2017). Das design thinking playbook – Das handbuch. München: Vahlen.

Liedtka, J., & Ogilvie, T. (2011). Designing for growth: A design thinking tool kit for managers. Columbia University Press.

Lincoln, Y.S. (2005). Fourth-Generation Evaluation. Encyclopedia of Evaluation (pp. 162–164). https://doi.org/10.4135/9781412950558

Lincoln, Y.S. and Guba, E.G. (1985) Naturalistic Inquiry. Beverly Hills, CA: Sage.

Luebbe, A., & Weske, M. (2011). Bringing design thinking to business process modeling. In design Thinking (pp. 181-195). Springer, Berlin, Heidelberg.

Mann, Stephen (2020). Survey Report: The State of ITSM in the COVID-19 Pandemic. ManageEngine, ServiceDesk Plus. Retrieved from: https://www.manageengine.com/products/service-desk/itsm/itsm-pandemic-survey.html

Martin, R. (2009). The design of business. Boston, MA: Harvard Business School Press.

Martin, R. (2011). "Design thinking: achieving insights via the "knowledge funnel." Strategy & Leadership, Vol. 38 No.2. pp. 37–41.

MAXQDA (2021). The Art of Data Analysis. https://www.maxqda.com/

Mazzone, D.M. (2014). Digital or Death: Digital Transformation — The Only Choice for Business to Survive Smash and Conquer. (1st ed.). Mississauga, Ontario: Smashbox Consulting Inc.

McCormack, K.P. (1999 March). The Development of a Measure of Business Process Orientation. Paper presented at the European Institute for Advanced Studies in Management: Workshop on Organizational Design. Brussels, Belgium.

McDaniel, Kate (2020). Automated Systems Allow Us to Start Building Our Post-COVID-19 World Today. UIPath.com. Retrieved from: https://www.uipath.com/blog/automation/businesses-prepare-for-post-covid19-with-automation

McNaughton, B., Ray, P., & Lewis, L. (2010). Designing an evaluation framework for IT service management. *Information & Management, 47*(4), 219-225.

Melan, E. H. (1989). Process management: A unifying framework for improvement. National Productivity Review, pp. 395–406.

Mintzberg, H. (1989). The structuring of organizations. In Readings in strategic management (pp. 322-352). Palgrave, London.

Moore, C. (2019). How to Build a Cross-Functional, Multi-Disciplinary Team for Digital Transformation. Document Media. Retrieved from: https://documentmedia.com/article-2924-How-to-Build-a-Cross-Functional-Multi-Disciplinary-Team-for-Digital-Transformation.html

Morelli, Nicola (2006). "Developing new product service systems (PSS): methodologies and operational tools". Journal of Cleaner Production. 14 (17): 1495–1501.

Morison Charlotte. (2017). How to prove effectiveness and value in ITIL. Axelos. Retrieved from: https://www.axelos.com/resource-hub/blog/how-to-prove-effectiveness-and-value-in-itil.

Morison Charlotte. (2017). Progress iteratively – why “baby steps” are better than all or nothing. Axelos. Retrieved from: https://www.axelos.com/resource-hub/blog/progress-iteratively-baby-steps

Nakata, C., & Hwang, J. (2020). Design thinking for innovation: Composition, consequence, and contingency. Journal of Business Research, 118, 117-128.

Narsalay Raghav. (2020). Driving a digital transformation right now? Try this. Accenture. Retrieved from: https://www.accenture.com/us-en/blogs/industry-digitization/why-collaboration-is-at-the-heart-of-digital-transformation

Null, Christopher (2020). Next generation ESM: An essential guide—5 key takeaways. TechBeacon. Retrieved from: https://techbeacon.com/enterprise-it/next-generation-esm-essential-guide-5-key-takeaways

Orton, K. (2017). Desirability, Feasibility, Viability: The Sweet Spot for Innovation. Medium. Retrieved at: https://medium.com/innovation-sweet-spot/desirability-feasibility-viability-the-sweet-spot-for-innovation-d7946de2183c

Pandey, N. & Pal, A. (2020). Impact of digital surge during Covid-19 pandemic: A viewpoint on research and practice. International journal of information management, 55, 102171. https://doi.org/10.1016/j.ijinfomgt.2020.102171

Phutela, D. (2015). The importance of non-verbal communication. IUP Journal of Soft Skills, 9(4), 43.

Pisanu, N. (2021). Innovazione e creatività, il Design Thinking piace alle imprese. Giornale delle PMI. Retrieved from: https://www.giornaledellepmi.it/il-design-thinking-rivoluziona-la-gestione-dellinnovazione-digitale-nelle-imprese-rendendola-a-misura-duomo/

Plant, Robert (2015). What Do You Do When Employees Start Using a Free Cloud Service?. Harvard Business Review. Retrieved from: https://hbr.org/2015/09/what-do-you-do-when-employees-start-using-a-free-cloud-service

Porter, M. E. (1985). Technology and competitive advantage. Journal of business strategy.

Power, B. (2012). Understanding Fear of Process Improvement. Harvard Business Review. Retrieved from: https://hbr.org/2012/09/understanding-fear-of-process-improvement

Price, J. H., & Murnan, J. (2004). Research limitations and the necessity of reporting them. American Journal of Health Education, 35(2), 66.

Przybilla, L., Schreieck, M., Klinker, K., Pflügler, C., Wiesche, M., & Krcmar, H. (2018). Combining Design Thinking and Agile Development to Master Highly Innovative IT Projects.

Radnejad, A. B., Sarkar, S., & Osiyevskyy, O. (2021). Design thinking in responding to disruptive innovation: A case study. The International Journal of Entrepreneurship and Innovation, 14657503211033940.

Ramsey, Michael (2020). Customer experience in the next normal: a global crisis is accelerating the digital transformation of customer service. Workflow from ServiceNow. Retrieved from: https://workflow.servicenow.com/customer-experience/customer-service-management-after-covid-19/

Saldaña, J. (2009). The coding manual for qualitative researchers. Thousand Oaks: Sage Publications.

Saunders, M., Lewis, P., & Thornhill, A. (2012). Research methods for business students (6. utg.). Harlow: Pearson.

Schallmo, D., Williams, C. A., & Lang, K. (2018, June). An integrated design thinking approach-literature review, basic principles and roadmap for design thinking. In ISPIM Innovation Symposium (pp. 1-18). The International Society for Professional Innovation Management (ISPIM).

Schmiedgen, J., Spille, L., Köppen, E., Rhinow, H., & Meinel, C. (2016). Measuring the impact of design thinking. In Design Thinking Research (pp. 157-170). Springer, Cham.

Serrat, O. (2017). Bridging organizational silos. In Knowledge solutions (pp. 711-716). Springer, Singapore.

ServiceNow. (2019). Swiss Re extends one-stop service delivery from employees to customers with ServiceNow. Retrieved from: https://www.servicenow.com/content/dam/servicenow-assets/public/en-us/doc-type/resource-center/case-study/cs-swiss-re.pdf

Siderska, J. (2021). The Adoption of Robotic Process Automation Technology to Ensure Business Processes during the COVID-19 Pandemic. Sustainability, 13(14), 8020.

Smith Adrie (2018). These 7 manual tasks in recruitment are losing you talent. Blog Recruitee. Retrieved from: https://blog.recruitee.com/manual-tasks-in-recruitment/

Solis, Brian (2020). COVID-19 accelerates enterprise use of automation in digital transformation. CIO.com. Retrieved from: https://www.cio.com/article/3562697/covid-19-accelerates-enterprise-use-of-automation-in-digital-transformation.html

Stevens, E. (2021). A Complete Introduction to Prototyping (Stage 4 of the Design Thinking Process). Careerfoundry. Retrieved from: https://careerfoundry.com/en/blog/ux-design/design-thinking-stage-four-prototyping/

Stickdorn, Marc, & Schneider, Jakob (2011). This is Service Design Thinking: Basics, Tools, Cases. Hoboken, N.J.: Wiley.

Stickdorn, Marc; Hormess, Markus; Lawrence, Adam; Schneider, Jakob (2018). This Is Service Design Doing: Applying Service Design Thinking in the Real World (first ed.). Sebastopol, CA: O'Reilly Media.

Suddaby, R. (2006) ‘From the editors: What grounded theory is not’, Academy of Management Journal, Vol. 49, No. 4, pp. 633–42.

Sun Mengqi (2018). Businesses Predict Digital Transformation to Be Biggest Risk Factor in 2019. The Wall Street Journal. Retrieved from https://www.wsj.com/articles/businesses-predict-digital-transformation-to-be-biggest-risk-factor-in-2019-1544005926?tesla=y

Tabrizi Behnam, Lam Ed, Girard Kirk and Irvin Vernon (2019). Digital Transformation Is Not About Technology. Harvard Business Review. Retrieved from: https://hbr.org/2019/03/digital-transformation-is-not-about-technology

Thakur, A., Soklaridis, S., Crawford, A., Mulsant, B., & Sockalingam, S. (2020). Using rapid design thinking to overcome COVID-19 challenges in medical education. Academic Medicine.

Theofanidis, D., & Fountouki, A. (2018). Limitations and delimitations in the research process. Perioperative nursing, 7(3), 155-163.

Tian, H., Liu, Y., Li, Y., Wu, C.-H., Chen, B., Kraemer, M. U., et al. (2020). An investigation of transmission control measures during the first 50 days of the COVID-19 epidemic in China. Science, 368(6491), 638–642.

Uebernickel, F., Brenner, W., Pukall, B., Naef, T., & Schindlholzer, B. (2015). Design thinking – Das handbuch. Frankfurt am Main: Frankfurter Allgemeine Buch.

van Bon, J. (2002). IT Service Management: An introduction. London: Addison-Wesley.

Valentim, N. M. C., Silva, W., & Conte, T. (2017, May). The students' perspectives on applying design thinking for the design of mobile applications. In 2017 IEEE/ACM 39th International Conference on Software Engineering: Software Engineering Education and Training Track (ICSE-SEET) (pp. 77-86). IEEE.

Von Rosing, M., Von Scheel, H., & Scheer, A. W. (2014). The Complete Business Process Handbook: Body of Knowledge from Process Modeling to BPM, Volume 1 (Vol. 1). Morgan Kaufmann.

Walton, M. (1988). The Deming Management Method: The Bestselling Classic for Quality Management.

Wattanasupachoke, T. (2012). Design thinking, innovativeness and performance: An empirical examination. International Journal of Management & Innovation, 4(1).

Watts, Stephen (2020). What Is Enterprise Service Management? (ITSM for the Rest of Us). BMC. Retrieved from: https://www.bmc.com/blogs/enterprise-service-management/

Westerman, G., Calméjane C., Bonnet D., Ferraris P., McAfee A. (2011). Digital transformation: A roadmap for billion-dollar organizations. MIT Center for Digital Business and Capgemini Consulting, 1–68.

Whiteside Jonathan (2020). COVID-19 - Accelerating the digitalisation of operations. SupplyChainDigital. Retrieved from: https://www.supplychaindigital.com/technology-4/covid-19-accelerating-digitalisation-operations

Winniford, M., Conger, S., & Erickson-Harris, L. (2009). Confusion in the ranks: IT service management practice and terminology. *Information systems management*, *26*(2), 153-163.