

Middle Ground, Major Impact

The Enabling Role of Middle Managers in Digital Transformation

In the digital age, incumbent firms must evolve to stay competitive and face the disruption brought by technological change. Companies wishing to undertake this shift not only need to acquire new digital technologies, but significantly reshape their processes and their human resources. In this context, this study explores the pivotal, yet understudied role of middle managers in driving competitive advantage through digital transformation, focusing on the key skills and mindsets required. Employing semi-structured interviews with middle managers and digital experts at a Swedish manufacturing company undergoing digital transformation, the research examines the distinct challenges and opportunities faced by these organisations.

Findings emphasise middle managers as vital enablers, bridging strategic and implementation levels within organisations, and serving as connectors effectively bridging the gap between vision and implementation by playing a pivotal role in the successful adoption and integration of digital technologies. Moreover, this study reveals that leadership, communication, and openness to learning emerge as vital soft skills for middle managers, proving more important than technical competencies in successful digital transformation. This emphasis on soft skills underscores the importance of fostering a culture that values adaptability, collaboration, and continuous improvement.

This research contributes to the dynamic capabilities and digital transformation literature by shedding light on the crucial role middle managers play in the digital era. Providing valuable insights for organisations seeking to enhance middle management's skill development and promote successful digital transformations, the results offer practical implications for organisational leaders looking to better support and develop this crucial group of change agents.

KEYWORDS: Digital Transformation, Dynamic Capabilities, Competitive Advantage, Middle Managers, Skills and Mindsets

Stockholm School of Economics
Master Thesis in Business & Management
Spring 2023

AUTHORS
Matteo Festa (42076)
Mathias Östlund (24299)
SUPERVISOR:
Sebastian Krakowski

Acknowledgements

This thesis would not exist without the invaluable support of a number of people. Their collective expertise, advice and support were essential in finalising this work, and a huge thank you goes out to all of them.

-

First and foremost we owe a big thank you to our contact and key informant at the case company, who played an invaluable role from the very beginning with everything from guidance and advice to access to data and the company itself.

-

We're also extremely grateful to all the people who agreed to be interviewed, devoting their time and energy to share with us the expertise and insights that shaped the foundations of the thesis.

-

The thesis also would not have been possible without the case company itself, which provided us with access to the people and resources that made the work possible.

-

An additional thank you goes out to the friends and family who read through the thesis and provided the constructive feedback that helped finalise our work.

-

Last and not least, our supervisor Sebastian Krakowski deserves a huge thank you for his valuable guidance and feedback throughout the process.

Table of Contents

Acknowledgements	2
Table of Contents	3
List of Figures and Tables	5
Glossary	6
1. Introduction	7
1.1 Background	7
1.2 Scientific Relevance	8
1.3 Practical Relevance	9
1.4 Research Purpose and Question	9
1.5 Delimitations	10
1.6 Overview of the thesis	10
2. Literature Review	12
2.1 Digital Transformation	12
2.1.1 Digitisation and Digitalisation	12
2.1.2 Industry 4.0	12
2.1.3 Digital Transformation	13
2.2 Resource-Based View & Dynamic Capabilities	14
2.2.1 The Resource-Based View	14
2.2.1.1 Complementarities	15
2.2.2 Dynamic Capabilities	15
2.2.2.1 Defining Dynamic Capabilities	15
2.2.2.2 The Role of Dynamic Capabilities in Digital Transformation	16
2.2.2.3 Dynamic Capabilities and the Role of People and Skills	17
2.3 Research Gap	17
3. Theoretical Framework	18
3.1 Introduction	18
3.2 From Skills to Digital Transformation	20
3.2.1 Technology-centric and Actor-centric Components of Digital Transformation	20
3.2.2 The Actor-Centric Component	21
3.3 Limitations of the Conceptual Model	22
4. Methodology	23
4.1 Methodological Fit	23
4.1.1 Research Approach	23
4.1.1.2 Research Scope	23
4.1.2 Case Company	23
4.2 Data Collection	24
4.2.1 Pre-Study	24

4.2.2 Interviews	25
4.2.2.1 Interview Sample	25
4.2.2.2 Interview Guide	27
4.2.2.3 Interview Setting	27
4.2.3 Data Collection Limitations	27
4.3 Data Processing and Analysis	28
4.4 Quality of the Study	28
4.4.1 Reliability	28
4.4.2 Validity	29
4.5 Ethical Considerations	29
5. Empirical Findings	31
5.1 Pre-Study Findings	31
5.1.1 The Current State of Digital Transformation at the Case Company	31
5.1.2 Six Challenges to Digital Transformation	32
5.2 Main Findings	33
5.2.1 Driving Innovation and Digital Opportunities	34
5.2.1.1 Identifying and Implementing Opportunities	35
5.2.1.2 Technological Understanding and Application	35
5.2.1.3 Agile and Iterative Approach	36
5.2.2 Fostering Organisational Alignment and Collaboration	37
5.2.2.1 Aligning Goals, Vision, and Expectations	37
5.2.2.2 Cross-Functional Communication and Knowledge Sharing	38
5.2.2.3 Building Cooperation and Harmonisation	38
5.2.3 Empowering People and Overcoming Barriers to Change	39
5.2.3.1 Developing and Supporting Employees	39
5.2.3.2 Mitigating Fear and Building Resilience	40
5.2.3.3 Encouraging Diversity and Empathy	41
6. Analysis	42
6.1 Dynamic Capabilities: Processes and Challenges	42
6.1.1 Sensing	42
6.1.2 Seizing	43
6.1.3 Reconfiguring	44
6.1.4 Exploring the Role of Middle Managers	44
6.2 Skills and Mindsets & Dynamic Capabilities	44
6.2.1 Identifying and Implementing Opportunities	47
6.2.2 Technological Understanding and Application	47
6.2.3 Agile and Iterative Approach	47
6.2.4 Aligning Goals, Visions and Expectations	48
6.2.5 Cross-Functional Communication and Knowledge Sharing	48
6.2.6 Building Cooperation and Harmonisation	48
6.2.7 Developing and Supporting Employees	49

6.2.8 Mitigating Fear and Building Resilience	49
6.2.9 Encouraging Diversity and Empathy	50
7. Discussion	51
8. Conclusion	53
8.1 Answer to the Research Question	53
8.2 Academic Implications	53
8.3 Managerial Implications	54
8.4 Directions for Future Research and Limitations	54
9. References	56
Appendix 1 - Interview Guides	64
1.1 Pre-Study Interview Guide	64
1.2 Main Study Interview Guides	65
1.2.1 Digital Expert Interview Guide	65
1.2.2 Role Expert Interview Guide	67
Appendix 2 - Coding	71
Appendix 3 - Full Description of First-Order Concepts	76
Appendix 4 - Grouping of First-Order Concepts	81

List of Figures and Tables

Figure 3.1 - Conceptual Model of Digital Transformation	19
Table 4.1 - List of pre-study participants	25
Table 4.2 - List of interviewees (digital experts)	26
Table 4.3 - List of interviewees (role experts)	26
Figure 5.1 - Grouping of empirical findings	34
Table 6.1 - Middle management's contribution to dynamic capabilities	45

Glossary

Term	Definition
Competitive Advantage	Factors allowing the firm to produce its goods and services better or more cheaply than its competitors.
Digital Transformation (DT)	A strategic organisational change within a firm brought about by technological developments.
Digitalisation	The usage of digital technologies for transforming business processes and operations.
Digitisation	The conversion of analog information into a digital format.
Dynamic Capability	A firm's ability to integrate, build, and reconfigure internal and external competencies to address rapidly changing environments.
Incumbent Firm	A business already established in a particular industry or market.
Industry 4.0	The integration of digital technologies, artificial intelligence and data analytics in manufacturing and industry
Manufacturing Firm	A firm centred around the production of goods through the use of components or raw materials.
Middle Management	The organisational level between the strategic level and the implementation level, responsible for executing strategy.
Mindset	An individual's established set of attitudes.
Operations	A firm's day-to-day activities focused on extracting value from assets.
Process	A set of steps or actions taken by a firm in order to achieve specific organisational goals.
Resource	Factors or inputs that are owned and/or controlled by a firm.
Resource-Based-View (RBV)	A management theory focusing on a firm's resources as the source of competitive advantage.
Skill	A particular ability that you develop through training and experience and that is useful in a job

1. Introduction

1.1 Background

Although today LEGO is widely regarded as a successful firm and a leader in its industry, things were not always looking so bright. In 2004 the Danish toy producer was on the verge of collapse due to increasing production and supply chain costs, as well as high organisational rigidity and fierce competition (Sebastian et al., 2017). In order to survive, the company determined that drastic measures were needed. They appointed 35-year-old Jørgen Vig Knudstorp, who had joined the firm three years prior from McKinsey & Company, as CEO and tasked him to ensure the company's survival by increasing efficiency and refocusing on LEGO's core values (El Sawy, Kræmmergaard, Amsinck, & Vinther, 2020). A key component of achieving this would be a digital transformation of the entire firm.

Knudstorp's first order of business was improving back-end efficiency by increasing the usage of an already existing enterprise resource planning (ERP) system, followed by building an ecosystem of digital platforms for company employees which resulted in the reduction of knowledge silos and inefficiencies within the company (Andersen & Ross, 2016; El Sawy et al., 2020). On the human side, LEGO gradually but rapidly increased its IT headcount, built up digital skills among the workforce, and introduced the new role of the digital officer, a function-specific expert in digital transformation (El Sawy et al., 2020). The focus on digital transformation continued over the years, with LEGO establishing it as one of the four key strategic priorities in their long-term vision, and continued to invest in this direction even after Knudstorp stepped down as the firm's CEO in 2017 (El Sawy et al., 2020; LEGO, 2022).

Since its near-death experience in 2004, Knudstorp's LEGO managed to recover and enjoy remarkable growth and strengthen its leadership position in its industry (Andersen & Ross, 2016; Statista, 2022). While this can not be attributed solely to digital transformation, Knudstorp's measures were a crucial part of overcoming the 2004 crisis and in developing capabilities beneficial for the long-term success of the firm (El Sawy et al., 2020).

With this success, LEGO stands out as an exception in the world of Digital Transformation where only a minority of transformation efforts are ultimately successful in reaching their objectives (Laurent-Pierre Baculard, Laurent Colombani, Virginie Flam, Ouriel Lancry and Elizabeth Spaulding, 2017). This is supported by Tabrizi, Lam, Girard, & Irvin (2019) who find that a large percentage of digital transformation initiatives fail to ever reach their goals, with a major cause of these failures being the excessive focus on acquiring and employing new technologies while failing to invest in digital skill-building and adapting the business strategy (Brynjolfsson, Rock, & Syverson, 2018; Chamorro-Premuzic, 2021; Tabrizi et al., 2019).

At the same time, a majority of executives in larger firms reportedly consider digital transformation to be a critical success factor for their future survival, making it essential to get right (Gurumurthy, Schatsky, & Camhi, 2020). Indeed, in a global economy dominated by born-digital behemoths like Google, Amazon or Apple, pursuing digital transformation is in most industries a strategic imperative, more than a choice (Fitzgerald, Kruschwitz, Bonnet, & Welch, 2014; Sebastian et al., 2017; Warner & Wäger, 2019).

LEGO's successful example shows that it is possible for incumbent and historically non-digital companies to leverage digital transformation and complement their existing strengths with the benefits of digital technologies to remain competitive. It does, however, also show that digital transformation requires more than an out-of-the-box technological solution to be successful.

Given the importance of digital transformation in the face of technological disruption, and the high failure rate of companies trying to implement it, understanding the factors behind successful digital transformation becomes a worthwhile endeavour. As Warner and Wäger (2019) argue, this is all the more relevant for large, incumbent firms whose organisational rigidity already makes change efforts difficult to pull off. What, then, can incumbent firms do to improve their chances of successful digital transformation? That question - and the influencing factors behind it - will be the focus of this thesis. Through a case study of an incumbent manufacturing firm currently undergoing a digital transformation, we investigate the influence of the human factor on digital transformation.

1.2 Scientific Relevance

Digital transformation (DT) has evolved from information technology (IT) and information systems (IS) research (Vial, 2019) and has gained increasing attention in recent years due to disruptive technologies such as Artificial Intelligence (AI), Internet of Things (IoT), and cloud computing having a significant impact (Kraus et al., 2021; Verhoef et al., 2021; Warner & Wäger, 2019). While digital technologies play a crucial role in enabling digital transformation, the literature highlights a multifaceted and complex phenomenon, in which technology is only one of the factors (Vial, 2019). The literature further emphasises the importance of the human aspect, including skills, mindsets, and company culture. A critical component of this human aspect lies in the role of middle managers, who are responsible for executing strategy and often serve as the bridge between top management and employees (Huy, 2002; Nadkarni & Prügl, 2021).

Despite the extensive research on the human aspects of digital transformation, much of the literature focuses on aggregate factors such as company culture, organisational structure and processes (Vial, 2019; Warner & Wäger, 2019). Even at the individual level, much of the research focuses on leaders and top managers who shape the company's vision and overall strategy, while middle managers, who are in charge of the execution, have received comparatively little attention (Nadkarni & Prügl, 2021). At the same time, middle managers are likely to be heavily affected by digital transformation, due to their role requiring high levels of technical, human and conceptual skills (Northouse, 2021). This lack of attention to middle management in DT literature constitutes a research gap that should be addressed due to the importance of these roles in digital transformation. This thesis aims to address that gap.

Further, middle managers' insights into the challenges encountered at the operational level during digital transformation offer valuable information that complements the strategic views that comes from studying top management or the organisation as a whole. By examining their role, researchers can better understand the interplay between different organisational levels and the factors influencing digital transformation outcomes. Lastly, this research focus can contribute to the development of practical frameworks and best practices for incumbent firms undergoing digital transformation, by shedding light

on the best practices for leveraging the unique position of middle managers in driving digital transformation.

1.3 Practical Relevance

From a firm's perspective, integrating and leveraging the capabilities offered by new digital technologies, and merging them with the organisation's existing strengths is one of the biggest challenges companies currently face (Hess, Matt, Benlian, & Wiesböck, 2016; Sebastian et al., 2017). At the same time, this is a necessary endeavour due to the potential of these technologies to disrupt entire industries. In the newspaper industry, for instance, the disruption caused by the emergence of the internet and digitalisation forced companies to adapt their organisational structure, develop new capabilities and re-skill their workforce to provide new products and services (Karimi & Walter, 2015). The pace of disruption is unlikely to slow down as spending for digital transformation is only projected to grow (Statista, 2022) and is regarded as a strategic priority by almost all company leaders (de la Boutetière, Montagner, & Reich, 2018; Hess et al., 2016). Particularly in a rapidly developing technological landscape creating exponential disruptions in ever shorter time periods (Henriette et al., 2015), firms must continuously assess their internal capabilities as new skills become relevant and necessary among the workforce (Warner & Wäger, 2019).

As Huy (2002) argues, the role of middle management in digital transformation processes is a crucial, often make-or-break, but equally often under-appreciated aspect of firms aiming to leverage digital technologies to withstand the disruption of their industries, and the mindsets and skill sets of middle managers are the key variables in this regard (Huy, 2002). One example of their importance lies in mitigating fear of and resistance to change. In any organisational change, including digital transformation, middle management can either be the *locus* for resistance to change, thus inhibiting the implementation of crucial digital transformation strategies, or be an essential driver of change, connecting different layers of the organisation and driving the execution of such strategies (Burgelman, 1983; Huy, 2002; Nadkarni & Prügl, 2021).

As such, the skills and mindsets of middle managers, which allow them to perform their enabling role (Huy, 2002), is essential to a firm's digital transformation. It follows that, for firms to thrive in a digital world, they need to be conscious of the role of middle managers and know which capabilities and mindsets they should possess. This in turn enables adequate focus to be placed on building these internal capabilities, whether it is done through external hiring or internal upskilling and training.

1.4 Research Purpose and Question

Based on the above, this thesis is guided by the following research question:

How do middle management skills and mindsets enable incumbent firms to successfully achieve digital transformation?

This exploratory study thus aims to contribute to the DT literature by targeting the under-researched field regarding the role of middle management in a firm's digital transformation, particularly in the case of

incumbent, non-digital-native manufacturing firms facing industry disruption caused by technological developments. To do this, the thesis draws on Resource-Based-View (RBV) and Dynamic Capabilities literature, both of which have been previously used in the study of digital transformation (Krakowski, Luger, & Raisch, 2022; Warner & Wäger, 2019). In particular, the empirical findings collected are analysed through the lenses and processes of dynamic capabilities, while RBV motivates how the topic of study (i.e., the skills and mindset of middle managers) leads to a competitive advantage when combined with other resources available to the firm.

1.5 Delimitations

We have delimited the aim of this study to traditional companies that are facing industry disruption by focusing the analysis on an incumbent, multinational manufacturing company. This is due to two reasons. First, incumbent firms face a bigger challenge with digital transformation than digital-native firms who, because of their very nature, have a comparatively easier time integrating and leveraging digital technologies. This is due to, for example, organisational and cultural rigidity, or resistance to change, making the re-skilling for digital transformation of their workforce especially important. Second, because digital transformation is more challenging for traditional firms, those who are successful stand to gain an important competitive advantage over those who are not, and are more likely to experience high growth (Forth, de Laubier, Chakraborty, Charanya, & Magagnoli, 2022).

Further, while digital transformation affects every function of a firm, we chose to focus on operations (instead of, for instance, marketing or finance), with particular attention to manufacturing and supply chain. This choice was made both to ensure the scope and quality of our research given the timeframe and because these functions make up the core of a manufacturing firm. Further, by focusing our attention in this direction, we derive deeper findings that are relevant and transferable to most functions in incumbent firms (Bell, Bryman, & Harley, 2022).

1.6 Overview of the thesis

The thesis is structured into eight sections for a comprehensive examination of the subject matter. Section 1 serves as an introduction, outlining the background, research question, and purpose of the study. Section 2 delves into the relevant literature, exploring Digital Transformation (2.1) and the Resource-Based View (2.2), including complementarities between resources (2.2.1) and dynamic capabilities (2.2.2), which guide the analysis of our empirical findings.

Section 3 introduces the theoretical framework, elucidating how a firm achieves a competitive advantage through Digital Transformation and the role of middle managers' skills and mindsets in this process. Section 4 details the research methodology, encompassing methodological fit (4.1), data collection (4.2), data processing (4.3), quality concerns (4.4), and ethical considerations (4.5). Subsequently, Section 5 presents the empirical findings from the pre-study (5.1) and main study (5.2), establishing the groundwork for analysis.

Section 6 offers an analysis of the research results through the lens of prior literature, specifically dynamic capabilities theory, by applying the conceptual model outlined in Section 3 to address the

research question. The analysis results are discussed more thoroughly in Section 7, and the thesis concludes by circling back to the original research question, followed by implications and directions for future research in Section 8.

2. Literature Review

This section reviews the current knowledge surrounding the study's topic. First, to capture the context of the study, digitalisation and its impact on the manufacturing industry is explored (2.1). Second, the current understanding of Dynamic Capability Theory and the Resource-Based View is summarised (2.2), providing the basis for the theoretical lens of this study. Finally, the literature gap is identified and explored (2.3).

2.1 Digital Transformation

This section begins by clearing up the concepts of digitisation and digitalisation and their meanings in the context of this study (2.1.1). Second, we examine how this relates to the world of manufacturing in the form of Industry 4.0 (2.1.2). Finally, it is explored how these concepts relate to Digital Transformation (2.1.3).

2.1.1 Digitisation and Digitalisation

The terms digitisation and digitalisation are widely used to describe organisational change caused by technological developments and are often used interchangeably despite their slight differences in meaning (Sebastian et al., 2017). Therefore, it seems fitting to address and define the terminology for the purposes of this thesis.

Westerman, Bonnet, & McAfee (2014) note that digitisation concerns converting analog information into a digital format, whereas digitalisation is the usage of digital technologies for transforming business processes and operations. In this light, digitisation can be seen as a driving force enabling the transformation of industries and businesses (Westerman et al., 2014). Simply allowing for the conversion of analog data into digital format makes it simpler to store, process, analyse and use large quantities of information, leading to the possibility of implementing new business models and opportunities being developed.

Building on digitisation, digitalisation enables firms to apply digital technologies to transform and optimise their processes and operations, leading to improved ways of creating and capturing value (Lasi, Fettke, Kemper, Feld, & Hoffmann, 2014). Further, through the use of AI and big data analytics, firms are enabled to create new products and services, improve customer services and optimise production processes. Thus, while digitisation describes improvements in the efficiency of existing processes, digitalisation leads to fundamental changes in business models and value creation (Andersson, Movin, Mähring, Teigland, & Wennberg, 2018; Henriette, Feki, & Boughzala, 2015).

2.1.2 Industry 4.0

Advancements in digitisation and digitalisation have laid the foundations for Industry 4.0 and the technological disruptions associated with it. Primarily through improvements in collecting, storing, processing and analysing large quantities of real-time data, the development of improved digital systems, intelligent supply chains and smart factories have been made possible. Some of the key technologies driving this development are cloud computing and big data analytics, as well as Internet of Things (IoT)

and Artificial Intelligence (AI), enabling the connection of machines and devices and paving the way for improved data collection and analysis (Li, Su, Zhang, & Mao, 2018). As a result, manufacturing firms are able to greatly improve production processes, increase productivity and develop new business models and act on new opportunities (Forth, Labier et al., 2022).

Much emphasis has been placed on the potential of new technologies such as AI and cloud computing in Industry 4.0, with PWC (2018) arguing that AI alone could revolutionise the industry of manufacturing through the optimisation of the production process and improvements in the quality of products. Kagermann et al. (2014) further discusses how Industry 4.0 impacts logistics in manufacturing, arguing that by implementing and integrating new physical and digital systems, manufacturing firms can achieve increased flexibility and efficiency in supply chains in particular. Conversely, Kagermann et al. (2014) further acknowledges the emergence of challenges facing firms in adopting Industry 4.0, primarily in the form of facing a need for new skills and adapting to disruptions in traditional business models. Industry 4.0 is thus enabled by digitisation, digitalisation and technological developments, and represents a disruptive change in the manufacturing industry.

Disruptive Effects on Manufacturing

With the developments in digitisation, digitalisation and Industry 4.0 come a number of disruptive effects felt by incumbent manufacturing firms adapting to a changing digital environment. This usually includes a need to continuously develop new competencies and capabilities while adapting organisational structures, as well as responding to the threat of new entrants enabled by new technologies (Bughin et al., 2018; Kagermann et al., 2014). Therefore, firms may be forced to rethink their existing strategies when faced with new digital business models that disrupt traditional value chains (Nieuwenhuis, Ehrenhard, & Prause, 2018).

As explored above, however, these challenges are accompanied by opportunities for firms that are capable of adapting to these changes (Bughin et al., 2018). For instance, firms that successfully adapt to Industry 4.0 and its technological developments may be able to create additional revenue streams through innovative products and services that lead to competitive advantages and allow for the capture of new market opportunities (Kagermann et al., 2014; Porter & Heppelmann, 2014). In order to capture the benefits of these opportunities, however, a firm must be able and willing to invest in developing both the necessary technologies and organisational changes required to capitalise on them (Kaeser, 2018).

2.1.3 Digital Transformation

In order for a firm to mitigate the threats caused by digitisation and digitalisation and capitalise on the opportunities presented, they must address the technological changes (Porter & Millar, 1985). As Henriette et al. (2015) explains, digitalisation tends to lead to wide-reaching change within the affected organisations. A typical response to this shift is for a firm to undergo a digital transformation in one form or another (Chen, Williams, & Agarwal, 2012; Yoo, Henfridsson, & Lyytinen, 2010). In Helfat et al. (2009)'s words, this may include a strategy transformation, including "a redirection of capability investments to adjust to changes in the environment."

Digital Transformation is yet another phenomenon with a wide variety of definitions. In a recent literature review, for instance, Vial (2019) identifies no less than 23 unique definitions from 28 separate sources. Some notable examples include Fitzgerald et al. (2014) defining it as “the use of new digital technologies to enable major business improvements” and Liu, Chen, & Chou (2011) viewing it as “organisational transformation that integrates digital technologies and business processes in a digital economy.”

Regardless of the definition used, however, there exist a number of unifying traits identified by Vial (2019) that seem to remain constant when defining DT. These include: (1) the focus on an entity (2) employing a process of improvement (3) triggering significant changes (4) enabled by digital technological developments. Thus, for the purposes of this study, digital transformation is viewed as strategic organisational change within a firm brought about by technological developments (Hess, Matt, Benlian, & Wiesböck, 2016).

To summarise, digitisation and digitalisation impact manufacturing firms in the form of Industry 4.0. This often leads to disruption for incumbent firms, impacting all levels of firm strategy (Helfat et al., 2007), while simultaneously providing opportunities for firms able and willing to act on them (Kagermann et al., 2014). As a result, these firms must often undergo a digital transformation to adjust to changes in the environment.

2.2 Resource-Based View & Dynamic Capabilities

The disruptive nature of Industry 4.0 on manufacturing firms is likely to create capability gaps as the firm strives to adapt (Lavie, 2006). This involves firms reconfiguring their existing capabilities and resources to remain relevant and valuable in the new environment (Eisenhardt & Martin, 2000; Teece et al., 1997). To do so, Vial (2019) argues that organisations should strive to achieve dynamic capabilities to respond to disruption and capitalise on the opportunities. This section thus reviews the literature on the Resource-Based View (2.2.1) and its extension, dynamic capabilities (2.2.2).

2.2.1 The Resource-Based View

The Resource-Based View is a management theory that focuses on a firm’s resources as the source of competitive advantage (Barney, 1991). RBV posits that firms can achieve superior performance by acquiring, developing, and leveraging a unique set of valuable, rare, inimitable, and non-substitutable (VRIN) resources and capabilities (Barney, 1991; Wernerfelt, 1984). In the context of digital transformation and skill-building, the RBV provides a valuable framework for understanding how incumbent firms can effectively adapt to the rapidly evolving digital landscape and seize new digital opportunities by rearranging and leveraging the resources at their disposal.

As digital transformation requires firms to invest in new technologies, develop innovative business models, and upskill their workforce, the RBV emphasises the importance of identifying and nurturing the specific resources and capabilities that drive success in the digital era (Bharadwaj, El Sawy, Pavlou, & Venkatraman, 2013). In terms of skill-building, the RBV highlights the pivotal role of human capital in driving digital transformation initiatives. By focusing on the development of digital competencies and mindsets, firms can enhance their adaptability and competitiveness in the face of rapid technological change and evolving market dynamics (Teece et al., 1997).

2.2.1.1 Complementarities

One of the key tenants of RBV is that of complementation, referring to the synergistic effects that arise when resources and capabilities are combined and deployed in a coordinated manner, forming unique bundles (Krakowski, Luger, & Raisch, 2022; Milgrom & Roberts, 1995). In the context of human skills and digital technologies, complementarities can be observed when the effective utilisation of digital technologies is enabled and enhanced by the presence of skilled employees who possess the necessary knowledge and expertise to exploit these technologies for the organisation's benefit.

Several factors contribute to the emergence of complementarities between human skills and digital technologies. First, the successful implementation of digital technologies often requires employees to possess a deep understanding of the underlying principles and potential applications of these technologies (Peppard & Ward, 2004). Second, as digital technologies continue to evolve, organisations must invest in ongoing skill development to ensure that their workforce remains abreast of the latest advancements and can adapt to changing technological requirements (Davenport, 1993).

By recognizing and fostering these complementarities, organisations can optimise the returns on their investments in digital technologies and human capital. For example, through targeted training and development initiatives, firms can equip their employees with the requisite skills to effectively deploy digital technologies, thereby enhancing the overall efficiency and effectiveness of their operations (Andreeva & Kianto, 2012). Moreover, by fostering a culture of continuous learning and innovation, organisations can remain agile and responsive to the dynamic nature of the digital landscape, ultimately safeguarding their long-term competitiveness and performance (Teece et al., 1997).

2.2.2 Dynamic Capabilities

While the Resource-Based perspective provides an understanding of firm resources, the purposes of this thesis require a deeper understanding of how firms can adapt internal resources in response to a changing external environment. As such, the framework of dynamic capabilities, originally introduced by Teece (1997) is deemed a suitable lens for analysing how incumbent firms adapt to external disruptions such as the development of new technologies. A further clarification distinguishes dynamic capabilities as processes and routines that shape or renew a firm's resources (Romme, Zollo, & Berends, 2010), while capabilities on their own can be viewed as simply the ability of a firm to effectively make use of its resources (Drnevich & Kriauciunas, 2011).

2.2.2.1 Defining Dynamic Capabilities

It is important to note that several separate, commonly used definitions exist of dynamic capabilities (Schilke, Hu, & Helfat, 2018). To summarise the most commonly occurring definitions, Teece et al. (1997) originally defined the term as “the firm's ability to integrate, build, and reconfigure internal and external competencies to address rapidly changing environments.” Another common view instead defines it as “the firm's processes that use resources - specifically the processes to integrate, reconfigure, gain and release resources - to match or even to create market change.” (Eisenhardt and Martin, 2000). Helfat et al. (2007), meanwhile, define it as “the capacity of an organisation to purposefully create, extend or modify its resource base.” For the purposes of this thesis, and in order to best study the chosen research question,

the original definition by Teece et al. (1997) was chosen, taking the stance that dynamic capabilities, once achieved by a firm, lead to a competitive advantage.

Regardless of definition, two common themes remain relatively stable, forming the basis of this study's application of the theory. First, dynamic capabilities are viewed as a firm's ability to change its competencies and resources, and second, this allows the firm to adapt to a changing external environment. Building on this, the thesis centres around Teece (2007) development of the theory involving *sensing*, *seizing* and *reconfiguring*. This choice was made as digitalisation and technological change put an emphasis on a firm's sensing and seizing capabilities in particular when exploring and adapting to new technologies.

Sensing refers to a firm's capability of identifying and interpreting changes and developments in the external environment. This involves everything from gathering information to analysing the information and interpreting its meaning for the organisation's strategic direction. Organisations that have well-developed sensing capabilities are better positioned to detect and respond quickly to changes, allowing them to take advantage of opportunities or deal with threats as they emerge. (Teece, 2007).

Seizing considers the firm's capability of acting on identified opportunities and threats, capitalising on environmental changes. This often involves having the appropriate business model set up, as well as aligned company culture and values that allow the firm to effectively and rapidly employ strategic changes as needed.

Reconfiguring, finally, refers to the firm's capability of reconfiguring its resources and processes while adapting to changes in the external environment. Having strong reconfiguring capabilities means being able to fundamentally change a given business model, allowing a firm to beat the competition and remain relevant in quickly changing environments.

2.2.2.2 The Role of Dynamic Capabilities in Digital Transformation

As Warner and Wäger (2019) argue, the ubiquitous nature of the development of digital technologies is changing the purpose and nature of dynamic capabilities. Thus, building dynamic capabilities has become a strategic imperative for incumbent firms if they wish to ensure survival in the age of Industry 4.0 (Warner and Wäger, 2019). Soule, Puram, Westerman, & Bonnet (2016) further state that digital organisations must develop the ability to "rapidly take advantage of emerging digital possibilities," emphasising the need for firms to develop change capabilities related particularly to digitalisation (Soule et al., 2016).

Warner and Wäger (2019) thus elaborate on dynamic capabilities in the case of digital, arguing for distinguishing digital sensing, seizing and reconfiguring capabilities from Teece's original definitions of the capabilities. In terms of *digital sensing*, firms must develop their capabilities in order to implement disruptive technologies to properly utilise big data (Warner and Wäger, 2019). This goes in line with previous scholars arguing that incumbents influenced by digitalisation must develop the capability of scanning their environment for technological trends that pose risks of disrupting the organisation (Day & Schoemaker, 2016; Birkinshaw, Zimmermann, & Raisch, 2016; Helfat & Raubitschek, 2018). *Digital seizing*, meanwhile, enables entrepreneurial methods for rapidly responding to unexpected threats and

opportunities using new digital technologies (Warner and Wäger, 2019). This is further supported by Day and Schoemaker (2016) positing that seizing opportunities brought on by new technologies requires firms to implement new methods like rapid prototyping. Finally, *digital reconfiguring* capabilities emphasise the need for firms to acquire digital technologies that enable quick responses to changes in markets and technology (Eisenhardt and Martin, 2000; Teece et al., 1997). Thus, the nature of disruption posed by digitisation, digitalization and Industry 4.0, warrants an investigation into dynamic capabilities in the specific context of digitalisation.

2.2.2.3 Dynamic Capabilities and the Role of People and Skills

Accompanying digital transformation often comes a change in the roles assumed by employees of an organisation (Vial, 2019). Similarly, with new forms of decision-making processes and automation enabled by digital technologies (Neumeier, Wolf, & Oesterle, 2017; Dremel, Wulf, Herterich, Waizmann, & Brenner, 2017) the role of skills and the development thereof in the organisation's workforce becomes increasingly relevant (Hess et al. 2016; Watson, 2017). As Jaiswal, Arun, & Varma (2022) put it "The demand for skills due to technological advancement will assume unprecedented importance in the near future." Thus, Vial (2019) argues that DT will force employees to "depend more heavily on their analytical skills to solve increasingly complex business problems." Finally, the challenge of guiding employees in this transition will extend beyond the function of HR, likely adding more pressure on the role of managers in the organisation (Karimi and Walter, 2015; Singh & Hess, 2017).

Given this, it stands to reason that skills in general, and the skills of managers in particular, play an important role in the development of a firm's dynamic capabilities in the face of digital transformation.

2.3 Research Gap

Based on the literature reviewed in this section, it is widely acknowledged that the concepts of dynamic capabilities, competitive advantage and the resource of skills in an organisation are tightly interlinked. There exists, however, a lack of academic studies of these interrelations in the context of digital transformation (Vial, 2019). While research does exist on dynamic capabilities and their role in digital transformation, as well as employee skills as a valuable resource in organisations (Hess et al., 2016), little focus has been placed on individual employees. Even when previous research focuses on skills and mindsets for digital transformation, the unit of analysis is the organisation (Jaiswal et al., 2022; Warner & Wäger, 2019) or at most, C-level executives or strategy makers (Hess, Matt, Benlian, & Wiesböck, 2016; Westerman et al., 2014), while middle management's role and skills, despite their importance for organisational change (Huy, 2002), have been largely understudied (Nadkarni & Prügl, 2021).

A need thus exists to analyse the achievement of dynamic capabilities from an individual perspective focused on the specific skills and mindsets of middle managers, particularly against the backdrop of the disruption caused by digitalisation (Karimi and Walter, 2015). To reduce this research gap, this thesis aims to investigate how firms relate to the skill set and mindsets of their middle managers, as well as how they go about developing these. This is addressed by our research question "*How do middle management skills and mindsets enable incumbent firms to successfully achieve digital transformation?*".

3. Theoretical Framework

3.1 Introduction

A successful digital transformation, especially in large organisations, is the result of several factors, both internal and external to the firm. Advancements in digital technologies, organisational structures and processes, the role of a firm's employees and other stakeholders, and environmental factors all contribute to a firm's ability to integrate and leverage digital technologies and have been studied by digital transformation researchers through a variety of different lenses (Vial, 2019). As outlined in Section 1, we chose to focus our research on one of these components, the role of middle management. To answer our research question, we draw from and combine existing theories and fields of study in the form of RBV, dynamic capabilities and Digital Transformation Literature.

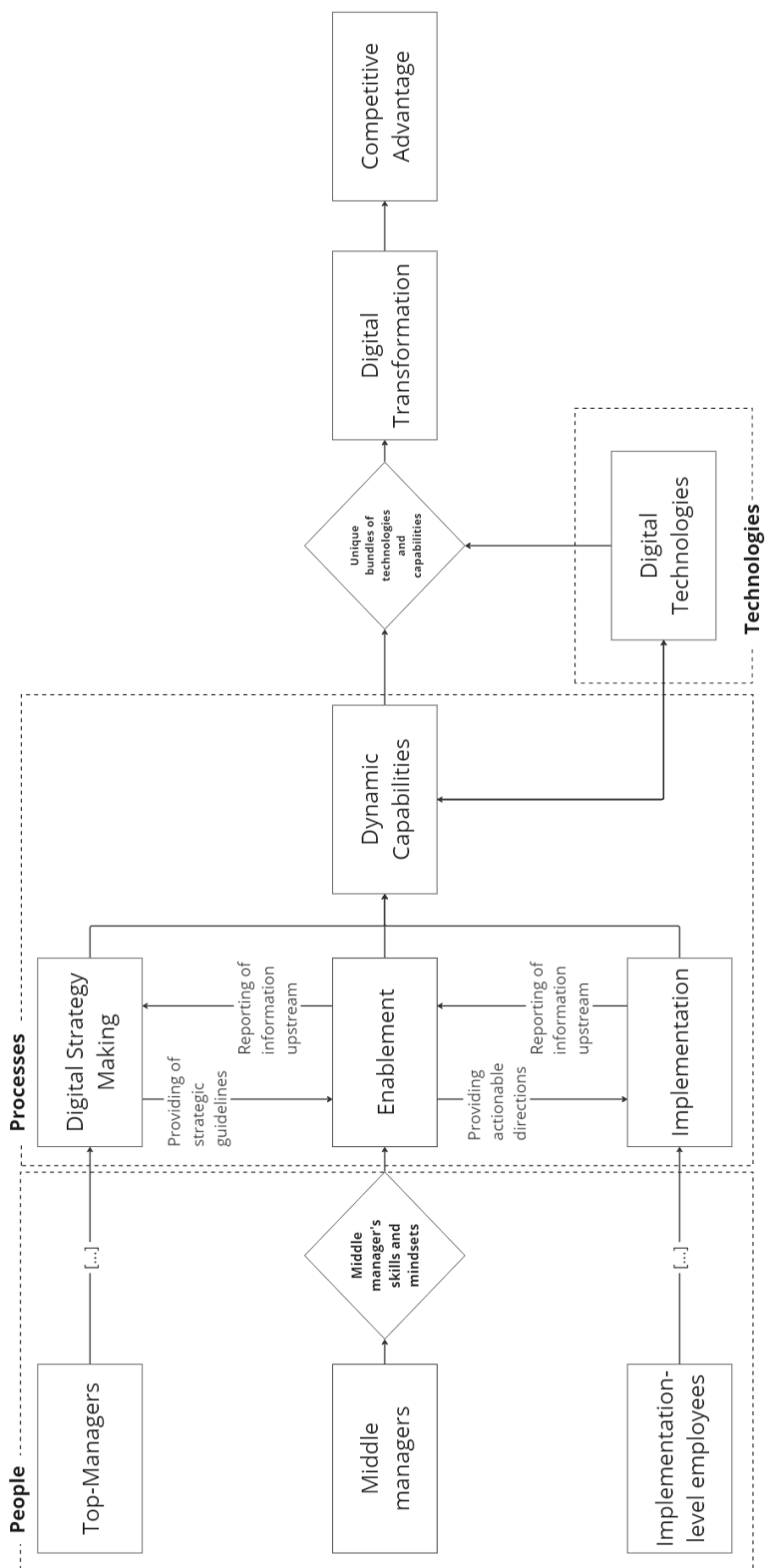
Given the complexity of both the environment we aim to analyse, and the theoretical lenses considered, building a conceptual model (**Figure 3.1**) can aid in our analysis and sensemaking (Shoemaker, Tankard Jr, & Lasorsa, 2003). First, a model allows for representing a complex process - in this case achieving competitive advantage through digital transformation - in a simple and understandable manner. This is done by making its main components explicit, processes and causal relationships. Second, a conceptual model can serve as a mediator between theory and the real world (Morgan, Morrison, & Skinner, 1999), by representing the real world in a simplified way, making it possible for researchers to apply theory and derive scientifically salient observations. In our research, the development and application of the conceptual model allow us to outline the process that leads to competitive advantage through Digital Transformation, and analyse it using the lenses of Dynamic Capability Theory and RBV.

In developing the conceptual model, we followed the guidelines outlined by Shoemaker et al. (2003). In particular, we found functional models to be the most fitting to our research question, which according to Shoemaker et al. (2003) usually take the shape of "box-and-arrows" models. This kind of model is effective for representing complex and dynamic systems with several components and causal relationships. In our case, the functional model highlights the mediating role of middle management, and by extension that of middle management skills and mindsets. These are essential to building dynamic capabilities, particularly digital dynamic capabilities, which allow firms to adopt and leverage digital technologies to achieve a competitive advantage (Warner & Wäger, 2019).

The following section explores in detail the conceptual model (**Figure 3.1**), and how employee skills and mindsets, in particular those of middle management, influence an incumbent, non-digital firm's digital transformation, resulting in a competitive advantage.

Figure 3.1

Conceptual Model of Digital Transformation



3.2 From Skills to Digital Transformation

This section explores the theoretical framework in the conceptual model (**Figure 3.1**). First (3.2.1) describes the two components of digital transformation, the technology-centric and actor-centric components, the former indicated in **Figure 3.1** as *Technologies*, while the latter as *People* and *Processes*, and how their combination of the two leads to a competitive advantage. Second, the actor-centric component is further explored in (3.2.2), in the form of *People* and the *Processes* they enable, focusing on middle managers, this study's subject.

3.2.1 Technology-centric and Actor-centric Components of Digital Transformation

Conceptually, digital transformation can be split into two concepts; first, a technology-centric component focused on disruptive technological developments (Nadkarni & Prügl, 2021). Second, an actor-centric component involving people and processes (Nadkarni & Prügl, 2021). The technology-centric and the actor-centric components are interrelated and mutually influential. Digital technologies spark, and often force, change in a firm's processes (Hess et al., 2016). The growth in popularity of ERP systems in the last two decades has driven firms to pursue organisational change, reengineer their business processes and train their workforce in order to reap the full benefits of these technologies (Klaus, Rosemann, & Gable, 2000). At the same time, the actor-centric component influences a firm's ability to identify and capture opportunities arising from digital technologies and transform processes and structures to integrate and leverage them to obtain a competitive advantage (Warner & Wäger, 2019). In this sense, the actor-centric component of digital transformation can be analysed through the lens of dynamic capabilities, as it describes the ability of a firm to face rapidly changing environments by leveraging internal and external resources, including digital technologies (Teece, Pisano, & Shuen, 1997).

Because of the interdependence between the technology-centric and the actor-centric components, it is crucial for the success of a firm's digital transformation that the firm possesses both digital technologies and dynamic capabilities. In digital-native firms and innovative start-ups, the technological aspect is likely the most important as they are - due to their nature - more flexible and inclined to change their processes and ways of working to adopt and implement new digital technologies (de la Boutetière et al., 2018). On the other hand, incumbent, non-digital native firms likely have years-, and often decades-old processes and their workforce and organisational structure might not be as flexible and open to change. For these firms, developing dynamic capabilities allowing them to sense and seize new digital opportunities and transform themselves is just as, if not more, important than the technology itself (Warner & Wäger, 2019).

Resource Bundles and Competitive Advantage

Digital technologies and dynamic capabilities can be viewed as resources for the firm, and thus analysed under the lenses of RBV as potential sources of competitive advantage (Barney, 1991; Wernerfelt, 1984). As these are complementary resources, the combination of both is crucial for a competitive advantage in the context of digital transformation. A firm possessing dynamic capabilities and digital technologies can create unique bundles of capabilities and technologies that can leverage the synergies between these resources and are harder for competitors to imitate (Krakowski et al., 2022). In particular, digital technologies provide the tools and platforms necessary for innovation and efficiency improvements, while

dynamic capabilities enable firms to effectively leverage these technologies by sensing opportunities, seizing them, and reconfiguring resources accordingly (Teece, Pisano, & Shuen, 1997).

3.2.2 The Actor-Centric Component

While both the technology-centric and actor-centric components are necessary for digital transformation, because of the nature of our research question, this study mostly focuses on the latter, while for the former, we draw on previous literature on the topic as explored in Section 2.

In line with the focus on the actor-centric component of digital transformation taken in our study, the model expands on the factors that contribute to the development of dynamic capabilities. According to Teece et al. (1997), dynamic capabilities lie in a firm's managerial and organisational processes; in turn, managerial and organisational processes are the results of the actions of individuals who define goals and strategies, manage and allocate resources, and drive organisational change (Garvin, 1998). Consequently, it can be said that dynamic capabilities are the direct consequence of the actions of a firm's workforce. The same reasoning can be applied to Digital Transformation: a firm's ability to adopt, integrate and leverage new digital technologies and seize new digital opportunities is the direct result of the actions of the firm's workforce.

Top, Middle and Implementation Levels

Firms, especially large, incumbent firms, are very complex entities, with a wide array of roles and functions. However, for simplicity and generalizability, we split an incumbent firm's workforce into top managers, middle managers, and implementation-level employees. Each of these has very different functions, responsibilities and skill sets. We define top managers as those individuals who establish overarching goals and strategies and set the vision of the firm. Their roles might include long-term strategic planning, and providing leadership and guidance for employees at the implementation levels in the organisational structure. Top management includes a firm CEO and other C-suite executives, as well as divisional and functional leaders and other key executives. Implementation-level employees are a broad and varied class of roles that may include shop floor workers, analysts, IT, marketing or HR personnel, and supply chain operators. Despite the huge diversity of roles, the common denominator is that implementation-level employees are in charge of the implementation and, while some may be in charge of a small group of other employees (e.g., a team leader in a manufacturing plant), they rarely take decisions that go beyond their direct area of influence.

Lastly, middle managers are in-between top managers and implementation-level employees. While middle managers are usually not directly involved in strategy making, and are not in charge of the implementation, they are in charge of execution (Nadkarni & Prügl, 2021), translating the strategies developed by top management into concrete, actionable and role-specific directions for implementation-level employees, and manage the upstream flow of information and feedback from lower parts of the organisation. Because of their connecting role between top management and implementation-level employees, middle managers are a key component in enabling any digital transformation initiative (Huy, 2002; Nadkarni & Prügl, 2021). At the same time, middle managers are often the most change-averse of the three layers (Thornberry, 2001). What enables (or prevents) middle managers to act as drivers of digital transformation, instead of inhibitors, are their skills and mindsets.

Coincidentally, in light of digital transformation, middle managers are poised to experience a more significant impact on their skillset compared to top managers and implementation-level employees, primarily due to their intermediary position within the organisational hierarchy (Nadkarni & Prügl, 2021), as they must not only adapt to new technologies themselves but also facilitate the adaptation and learning of the workforce they manage (Huy, 2002) and therefore need a diverse set of skills and mindsets, including both technical and soft skills (Northouse, 2021).

3.3 Limitations of the Conceptual Model

The conceptual model presented above possesses certain limitations that arise either from the inherent constraints of conceptual models in general or from specific assumptions made to facilitate the analysis of the subject matter and generate pertinent theoretical insights.

Conceptual models serve as simplified portrayals of reality (Shoemaker et al., 2003) and are not designed to encompass every contributing factor to a phenomenon, particularly complex ones like digital transformation. Instead, they focus on the essential components and mechanisms necessary for addressing the research question. This approach allows for the exploration of the research topic but also necessitates reliance on certain assumptions or simplifications. Firstly, the model aligns with RBV and dynamic capabilities research by primarily concentrating on a firm's internal environment while presuming that external factors, such as Porter's five forces (Porter, 1989), do not significantly influence the success of a firm's digital transformation. Secondly, the model regards digital technologies and the disruption they cause as external variables beyond a firm's control, to which they must react and adapt. Although this is a reasonable simplification for most firms, some large organisations may exert influence over the pace of technological progress and disruption, for instance, by developing new technologies or lobbying for or against technological advancements. Thirdly, the model categorises a firm's workforce into three broad classes (top managers, middle managers, and implementation-level employees). While this simplification facilitates generalizability, it overlooks the considerable diversity of roles within these categories, which undoubtedly impacts the skill sets required for digital transformation processes.

In summary, the model described in this section offers a simplified yet accurate representation of the research subject, guiding our investigation and contributing to the development of theoretically relevant insights. Recognizing these limitations, future research could expand the model by incorporating additional factors (e.g., Porter's Five Forces) or assumptions.

4. Methodology

This section describes the applied research approach and the methodological choices made in the study. The first section (4.1) explores the methodological fit of the study. The second section (4.2) describes the process of data collection. The third section (4.3) summarises the processing and analysis of the gathered data, and the final section (4.4) addresses how the chosen methodology aims to optimise the quality of the study.

4.1 Methodological Fit

This thesis adopts a qualitative method, which aligns well with the exploratory nature of the object of research and research question. This approach was deemed suitable for three reasons. First, it allowed for richer material to be gathered, targeting an in-depth understanding of social phenomena. Second, the qualitative approach enabled deeper insights to be gathered, leading to a better understanding of how the skills and mindsets influenced the case company's capabilities and how they were interconnected. Third, the study applies an exploratory approach aimed at uncovering an underexplored field of research. Although this approach may entail some transparency limitations (Bell, Bryman, & Harley, 2022), we believe that the advantages mentioned outweigh these drawbacks, making it suitable for this study.

4.1.1 Research Approach

In this study, we employ an abductive research approach, which combines the benefits of both inductive and deductive methods (Bryman & Bell, 2022; Suddaby, 2006), as described by Dubois & Gadde (2002). This approach allows for a dynamic interaction between the theoretical framework and empirical findings, facilitating theory development rather than theory generation. The abductive approach involves modifying the original framework based on unexpected findings and insights gained during the research process, leading to the refinement of existing theories on middle management skills and mindsets and their impact on incumbent firms' competitive advantage through digital transformation. This approach was deemed well-matched with the resources at hand and the structure of the study, where the empirical scope was developed successively, while continuously refining and adjusting the theory (Dubois & Gadde, 2002).

4.1.1.2 Research Scope

The chosen method results in the research being more intensive than extensive, with a smaller number of units researched in favour of a larger number of variables. While this increases the risk of generalisation from a smaller population sample, this method was deemed more likely to uncover relevant data from the case at hand (Jacobsen, Sandin, & Hellström, 2002).

4.1.2 Case Company

The case company was selected with the research topic in mind, where the access to data and collaboration with the firm allowed for the research question to be developed in tandem with the case company in order to find the best possible fit between the current situation of the case company, the availability and quality of data, and the scientific and practical value of the research topic (Bell, Bryman,

& Harley, 2022). The company in question is a large, incumbent manufacturing firm in an industry that is currently undergoing disruption due to the proliferation of digital technologies, as discussed in Section 2.1. With the current commonality of such technological disruption and the common size and structure of the firm at hand, the case company can be seen as a representative case as it exemplifies a typical form of an organisation facing a common situation (Yin, 2003). As Flyvbjerg (2006) argues, this would allow for generalisation through context-dependent knowledge produced from the case study.

Actively seeking adaptation to the digital landscape, the case company is not only investing in technology but also focusing on training its workforce for digital transformation. As a large multinational firm, it employs a substantial number of middle managers, displaying varying degrees of digital literacy. This diversity provides a unique opportunity to examine extreme cases, encompassing both highly digitally-minded and non-digital-minded individuals. Moreover, insights gleaned from this case company are expected to be generalizable to incumbent firms across other industries facing similar challenges (Bell et al., 2022; Eisenhardt & Graebner, 2007).

Additionally, we were granted a unique opportunity to access the company's resources and expertise, encompassing both digital transformation initiatives and role-specific knowledge. This access enabled a rich analysis of the case company's experiences, shedding light on the complex interplay between middle managers' roles and digital transformation efforts (Yin, 2009). Altogether, the opportunity to gain access to valuable data and insights and the relevance of the research topic made the case company a suitable choice for the thesis. Since this thesis further studies a contemporary phenomenon in a real-life context, a single case study is considered appropriate, especially given the thesis' abductive approach (Yin, 2009).

4.2 Data Collection

The process of data collection is outlined in the below section, divided into two separate stages: a pre-study (4.2.1) consisting of a round of preliminary interviews and a deep dive into archival data guided by a key informant, and the main interview phase (4.2.2) made up of 13 interviews, with interview design and sampling based on the pre-study. It is worth noting that the entire process was guided by a key informant within the case company who provided perceptive information about the company, as well as relevant archival data and access to relevant interview subjects (Bell et al., 2022).

4.2.1 Pre-Study

In order to broaden the authors' understanding of both the industry and the research topic at hand, a pre-study was conducted in parallel with the initial research phase (Bell et al., 2022). The purpose of this pre-study was two-fold. First, to explore the relevance and fit of the research question on the case company, and second, to guide in the selection of research methods and shape the design of the interview guide. To achieve this, a collection of both internal and public documents relating to the case company were analysed, followed by a series of five pilot interviews with key members of the firm.

Table 4.1*List of pre-study participants*

Pseudonym	Role	Length	Format	Date
DE_1	Digital Lead	60 minutes	In Person	30/1 - 2023
RE_1	HR	30 minutes	In Person	1/2 - 2023
DE_2	Digital Lead	60 minutes	In Person	8/2 - 2023
RE_2	HR	30 minutes	Teams	30/1 - 2023
DE_3	Group Digital	60 minutes	Teams	2/2 - 2023

This preliminary investigation provided several benefits. First, it provided empirical guidance and pointed us in the direction of what was deemed important within the case company, narrowing down the research scope and area of investigation. Second, it provided confirmation that managers' skills were indeed a question worth exploring for the case company's path to achieving dynamic capabilities. Finally, it helped develop and polish the interview guide for the main round of interviews. Overall, this pre-study has to be viewed as an exploratory endeavour, aimed at setting the basis for later stages of the research, and thus, theoretical saturation (Bell et al., 2022) was not the goal as it was in the main round of interviews (4.2.2). As such, five interviews were considered sufficient to proceed to the main study. Promising findings from the pre-study were later refined or confirmed in later stages of our study.

4.2.2 Interviews

This section highlights the interview process of the study, detailing the interview sample used (4.2.2.1), explaining the interview guide (4.2.2.2), and giving an overview of the interview design (4.2.2.3).

4.2.2.1 Interview Sample

In this study, a total of 18 interviews were conducted, of which five were part of the pre-study and thirteen of the main study (see **Tables 4.1, 4.2 and 4.3**). A purposive sampling approach was taken, selecting interviewees based on their relevance in answering the research question. Specifically, criterion case sampling was deemed suitable as we had both significant access to employees within the case company, as well as clear criteria for the optimal interviewee (Bell et al., 2022). Here, the interviewees were divided into two sub-groups, each with their own set of criteria. The first group - digital experts - were selected based on their affiliation with the case company's central, "group" operations, and having insights and involvement in the company's digital transformation efforts. The second group - role experts - were selected specifically based on their involvement in the development and upskilling of middle managers within the case company. Furthermore, within the two groups, diverse interviewees were chosen to ensure that research insights would not be influenced by any individual factor such as role, department, or background; this was done to increase the generalisability of the findings. Limitations to this are

discussed in Section 8.4. This division of sample groups was made to ensure rich, varied answers and insight to triangulate our findings based on theory.

Interview saturation was starting to become apparent after around 10 interviews of the main round, after which three more were conducted to ensure saturation. This was deemed satisfactory as no new concepts or themes occurred at this point. This is in line with Guest, Bunce, & Johnson (2006) who suggest that saturation is often reached with about twelve interviewees in homogenous groups such as within the case company.

Table 4.2

List of interviewees (digital experts)

Pseudonym	Role	Length	Format	Date
DE_1	Digital Lead	60 minutes	Teams	30/3 - 2023
DE_3	Group Digital	60 minutes	Teams	14/3 - 2023
DE_2	Digital Lead	60 minutes	Teams	30/3 - 2023
DE_4	Digital Lead	60 minutes	Teams	21/3 - 2023
DE_5	VP	30 minutes	Teams	12/4 - 2023
DE_6	Digital Consultant	30 minutes	Teams	3/4 - 2023
DE_7	Digital Consultant	30 minutes	Teams	6/4 - 2023
DE_8	Mid Manager	60 minutes	Teams	29/3 - 2023
DE_9	IT Lead	60 minutes	Teams	3/4 - 2023

Table 4.3

List of interviewees (role experts)

Pseudonym	Role	Length	Format	Date
RE_2	HR	30 minutes	Teams	11/4 - 2023
RE_3	Mid Manager	60 minutes	Teams	16/3 - 2023
RE_4	Mid Manager	60 minutes	Teams	27/3 - 2023
RE_5	Mid Manager	60 minutes	Teams	11/4 - 2023

4.2.2.2 Interview Guide

For the main round of semi-structured interviews, an interview guide was developed drawing both on insights gained from the pre-study (4.2.1) and the literature review, and following the guidelines from Bell et al. (2022). Over the course of the data collection process, the interview guide was continuously adjusted to ensure the relevance of the questions, by removing or modifying outdated questions, or adding new ones to pursue new opportunities for exploration (Adams, 2015). Furthermore, two variations of the interview guide (**Appendix 1.2.1 and 1.2.2**) were developed to better fit the expertise of the two groups of interviewees (digital experts and role experts).

After informing the interviewee about their anonymity and asking for permission to record and transcribe the conversation, the interview guide consisted of three main sections. First, an introductory section aimed at setting boundaries for the interview and familiarising the interviewee with the topic of discussion by providing some basic definitions (e.g., what we define as a middle manager) and asking broad, open-ended questions. In some cases, the open-ended questions allowed for several follow-up questions that led to exploring unbeaten paths, taking up a large part of the interview and providing useful and unexpected insights. The following section consisted in presenting the interviewees with six barriers to digital transformation that were identified during the pre-study, with the intent of testing and gaining the interviewee's perspective on their significance and possible solutions, in particular in regard to middle managers. It should be noted that, despite its structured nature, this section was not followed rigidly and that the six barriers were used more as topic areas to be covered (Bell et al., 2022). Lastly, a final section was left for possible questions that were not covered during the interview but could have potentially provided useful insights in light of the interviewee's role and expertise.

4.2.2.3 Interview Setting

The interviews for the pre-study were executed either in person or via Microsoft Teams, with two conducted online to accommodate interviewee preferences or due to their location outside of Sweden. In the main round, it was ultimately decided to conduct all thirteen interviews online over Microsoft Teams, as a means of ensuring consistency after a majority of the interviews necessitated this format. These interviews were carried out in English and ranged from 30 to 60 minutes in duration, contingent upon the interviewee's availability. Each interview involved a single participant, and to guarantee the data-collection quality, both interviewers were present, one spearheading the conversation while the other documented notes and occasionally posed follow-up questions. Additionally, all interviews were recorded and transcribed to further ensure the integrity of the data collection and facilitate subsequent analysis.

4.2.3 Data Collection Limitations

It is important to note that a number of factors stemming from the nature of the study and the methodology applied might negatively influence the accuracy resulting findings. First, individual biases, such as selection bias or social desirability bias, might influence the objectivity of the interviewees' responses (Bell et al., 2022). Second, despite being informed about their anonymity, it is possible that some interviewees might have been unwilling to share certain information (especially when critical of the firm), either for fear of repercussion or due to cognitive dissonance. Third, our own biases, such as confirmation bias or researcher bias, may have influenced both the collection and interpretation of the

data. Finally, while a diverse interviewee sample was chosen to ensure the generalisability of the findings, the relatively small sample size might result in a skewed sample that might not capture the full picture of the organisation as a whole. (Bell et al., 2022).

All these factors are likely to influence the data to some extent, leading to the necessity to take a somewhat critical stance in its interpretation. Throughout the data collection process, precautions were further taken to ensure the quality of the data, as explored in Section 4.4.

4.3 Data Processing and Analysis

As the data was collected, a thematic analysis approach was applied to categorise the data according to emerging themes. The data analysis and collection were carried out in unison in an iterative approach, with the collection process being updated along the way based on early findings in the analysis. As part of this process, interviews were transcribed within 24 hours, and a first round of open coding was conducted separately by each author as a way to minimise the impact of biases (Miles & Huberman, 1994). This coding was then compared and discussed, with disagreements resolved through an analysis of why the disagreements occurred, and what it meant for the empirical findings. The findings of this coding were then incorporated into future data collection as we went along, primarily through a slightly modified interview guide. Finally, a second coding round was conducted when all data was gathered, repeating the process of individual coding and a subsequent comparison and discussion.

Through this process, the analysis of the pre-study led to the identification of 6 organisational barriers, based on repetition among interviewees and on the criterion of their impact on the firm's DT efforts (Ryan & Bernard, 2003). Following an abductive approach, these barriers then contributed to the criteria of the main interviews' coding, resulting in the first-order concepts being identified based on repetition and on the criteria that they are skills or mindsets that contribute either directly to the firm's DT efforts or to overcoming one or more of the identified barriers. These concepts were then grouped into overarching themes based on categories developed by the authors, and ultimately into three aggregate dimensions capturing the overarching areas in which middle managers' skills and mindsets have an impact on a firm's DT efforts.

4.4 Quality of the Study

This section covers the quality aspect of our research and data-gathering. To address the quality of this study two primary criteria were applied, starting with the classical quantitative criteria of reliability and validity adapted to a qualitative study (Bell et al., 2022).

4.4.1 Reliability

External reliability, as defined by Bell et al. (2022), refers to the extent to which a study is replicable. Achieving this in qualitative research is challenging due to the dynamic nature of social settings and the rapidly evolving context of digital transformation. To enhance the replicability of this study, the research design, methodology, case company and sampling, and data collection and analysis have been comprehensively documented (Drost, 2011).

Internal reliability concerns the subjective interpretations of researchers (Bell et al., 2022). To ensure internal reliability, several measures were implemented during the study and data collection process. First, both interviewers attended each interview, with findings discussed immediately afterwards to establish a shared understanding. Second, individual coding was undertaken by both researchers and subsequently compared. Third, both authors continuously used memos to keep on track with the focus of the research and enable deeper reflection (Bell et al., 2022). Additionally, researchers coded the qualitative data twice, reinforcing reliability (Linneberg & Korsgaard, 2019). It is important to acknowledge that perfect reliability is difficult to achieve, particularly in qualitative research, due to individual biases and study limitations (addressed in Section 8.4) (Drost, 2011). However, the measures implemented in this study are believed to provide a sufficient level of reliability within the scope of this thesis.

4.4.2 Validity

Internal validity concerns the alignment between researchers' observations and the theoretical concepts developed (Bell et al., 2022). Bryman, Bell, and Harley (2022) argue that qualitative research is advantageous in this respect, as it often involves prolonged engagement with a social group. In this study, the conceptual model described in Section 3 and its application for analysis ensure a strong connection between empirical findings and theory-based insights. Furthermore, Linneberg and Korsgaard (2019) suggest that the coding process used in the study contributes to enhancing internal validity.

Further, the following steps were taken to ensure internal validity in this study. First, triangulation was applied, aiming to improve the credibility of the data through different data sources, methods and researchers (Korstjens & Moser, 2018). This involved *data triangulation*, where different sources of data, such as interviews, key informants, and archival data, were analysed. It further involved *methodological triangulation* as the data was gathered using different research approaches, and *investigator triangulation*, where efforts were taken by the authors to separately gather and interpret data to the extent possible. Second, a form of respondent validation was used by continuously presenting the key informants with our findings as a way of seeking corroboration of our interpretations. Lastly, efforts were made to present the methods and processes used in the data collection and analysis to the reader with as much transparency as possible.

Conversely, external validity pertains to the generalizability of research findings. Due to the inherent nature of case studies and limited sample sizes, achieving external validity in qualitative research can be challenging (Bell et al., 2022). To mitigate this, interviewees for both the pre-study and the main study were selected to represent a diverse population in terms of roles, genders, backgrounds, and nationalities. This strategy aimed to maximise the generalizability of findings within the resource and time constraints of the study. Additionally, interview data were supplemented by sources external to the company, including academic literature and non-academic resources (e.g., industry or consulting reports). Although perfect external validity is unattainable given the study's nature and limitations, Section 8.2 discusses potential future research directions that could enhance the generalizability of our findings.

4.5 Ethical Considerations

To address the ethical concerns of qualitative research our study adheres to the ethical principles of autonomy, beneficence, and justice as outlined by Orb, Eisenhauer, & Wynaden, 2001. We respected

participants' autonomy by obtaining informed consent, clearly outlining the study's objectives, and ensuring their right to withdraw from the study at any point without consequence. Beneficence was upheld by safeguarding the participants' well-being through non-intrusive interview methods, maintaining their confidentiality and anonymity by assigning pseudonyms, and ensuring that the research contributed positively to the knowledge of the topic. Lastly, justice was observed by selecting a diverse and representative sample, avoiding unequal treatment based on roles, genders, backgrounds, or nationalities, and acknowledging the contributions of all participants in the analysis.

5. Empirical Findings

This section presents the study's empirical findings, gathered through the data collection methods described in Section 4. First, the preliminary findings of the pre-study are presented (5.1), including an introduction of the case company and their digital transformation journey (5.1.1) and the findings produced by the conducted pilot interviews (5.1.2). Second, the findings from the main round of interviews are presented (5.2), complete with identified codes and select interviewee quotes to support them. For a complete overview of identified codes and their prevalence among the interviews, see **Appendix 2**.

5.1 Pre-Study Findings

Part of the pre-study aimed to identify the objectives and challenges the company was experiencing in the face of DT. As such, this section details the findings surrounding the company's DT efforts, including where they stand today, the efforts they've made so far and where they want to reach (5.1.1), as well as a number of challenges identified that stand in their way (5.1.2). This then forms the backdrop against which the contribution of skills and mindsets of middle managers are analysed.

5.1.1 The Current State of Digital Transformation at the Case Company

Digital is starting to get a seat at the table. We're sending a very clear signal that we have a focus on digital now.

DE_2

The first goal of the pre-study was to assess the current situation of the case company, information which would form a basis for later research. As an incumbent, non-digital native firm, it is clear that the company is aware of the importance of digital transformation for them and has made it a strategic priority to move in this direction. To this aim, large effort has been put into aligning different parts of the company, agreeing on common definitions, priorities and strategies in regard to digital transformation. The decision-making process on these issues has been centralised, and new metrics for measuring success in this regard are under development. Furthermore, new roles have been created with the goal of facilitating the alignment, and progress in the firm's digital transformation efforts, and new upskilling programs are being developed. Overall, according to pre-study participants, the firm is in line with industry standards when it comes to digital transformation.

During the pre-study, the participants were asked about their understanding of digital transformation. In general, the findings were in line with the current understanding of the phenomenon in the literature, with participants describing digital transformation not only from a technology-side, but also in terms of processes and people (Nadkarni & Prügl, 2021; Verhoef et al., 2021; Vial, 2019). It should be noted however that, as the participants of the pre-study are all actively engaged in the firm's digital transformation, their understanding of the phenomenon might not be representative of all the firm's employees. Indeed, when in the main study a similar question was asked to people not directly involved with digital transformation, they tended to focus on individual technological solutions (e.g., artificial intelligence, automatisisation). This indicates that, while the people involved with digital transformation

have - unsurprisingly - a thorough understanding of it, other parts of the organisation don't, and still likely require education on the topic. In this regard, the firm has already engaged with awareness initiatives, which have shown promising results, and established a digital ambassadorship program aimed at furthering this mission.

5.1.2 Six Challenges to Digital Transformation

Pre-study participants were further asked about the challenges and barriers to digital transformation that they experienced in the firm. The results of this inquiry can be grouped in six challenge areas that affect the firm, and that should be addressed as part of its digital transformation. While not all these challenges strictly relate to digital transformation, they all have implications for the firm's efforts in this regard.

Vertical Alignment

Vertical alignment problems consist of the misalignment, in terms of goals, scopes and ways of working, between different layers of the organisation. As an example, employees closer to the shop floor might not understand the reason or the implication for strategic choices taken by top managers and that directly affect them, and may be unwilling, or unable, to comply. In terms of digital transformation, this might result, e.g., in employees being unwilling to adopt new digital solutions throughout the company, because they do not understand the strategic value or have not been made part of the decision-making process.

Horizontal alignment

Horizontal alignment refers to the lack of consistency between business areas and factories that operate within the same hierarchical level of the organisation. Similar to vertical alignment, inconsistencies in goals, strategies, and practices across various departments can hinder the successful implementation of digital transformation initiatives. When departments have different priorities and ways of working, it becomes challenging to adopt new digital solutions across the organisation consistently. This lack of alignment might result in fragmented adoption of digital technologies, making it difficult to realise the full potential of digital transformation efforts and leading to inefficiencies and missed opportunities.

Leadership Expectation Management

Leadership expectation management involves the challenge of aligning the aspirations of leaders with the realities and demands of implementing digital transformation initiatives. In some cases, leaders may have ambitious goals for digital transformation, which can be beneficial in driving innovation and change. However, it is essential to ensure that these goals are grounded in a thorough understanding of the resources, time, and effort required for successful implementation. By fostering open communication channels between leaders and employees responsible for executing digital transformation strategies, the organisation can better align expectations with practical realities. This collaborative approach can help to prevent frustration and enhance the overall progress of digital transformation efforts.

Knowledge Siloing

Knowledge siloing refers to the lack of knowledge and information sharing between different parts of the organisation. This challenge becomes particularly problematic during digital transformation efforts, as the

sharing of knowledge, best practices, and lessons learned is essential for the effective implementation of new digital solutions. When knowledge is siloed within certain departments or teams, the organisation may face difficulties in scaling and replicating successful digital initiatives across the entire company. Additionally, the lack of shared knowledge and understanding can contribute to misalignment and confusion, making it more challenging to create a cohesive digital transformation strategy that spans the entire organisation.

Resistance to Change

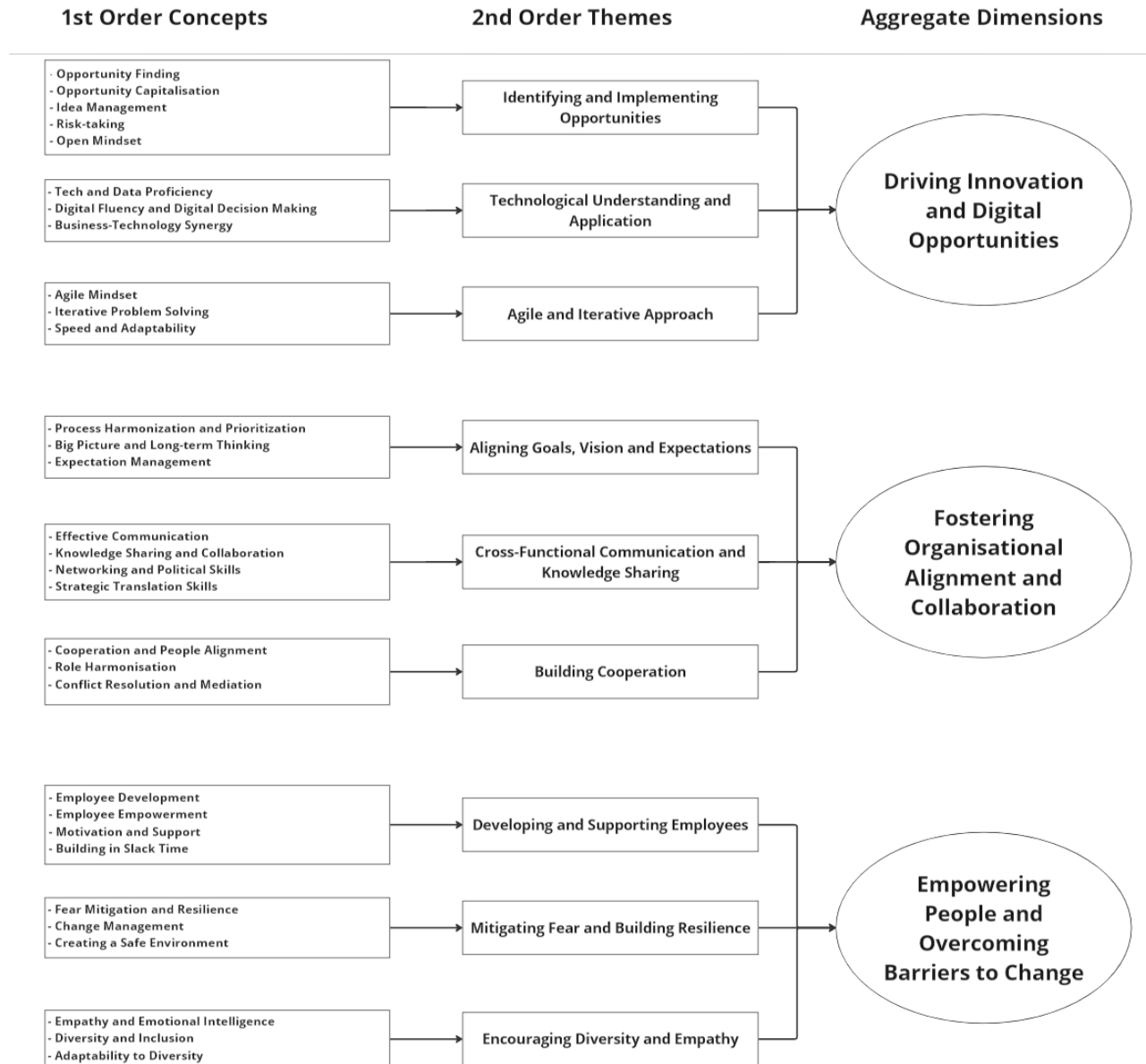
Resistance to change is a common challenge in the context of digital transformation. Employees might resist adopting digital technologies or embracing new ways of working for various reasons, such as fear of replacement, barriers to adoption, not seeing the benefits, high perceived risks, or a general reluctance to change established practices. This resistance can slow down the pace of digital transformation and hinder the organisation's ability to realise the potential benefits of new digital solutions. Overcoming this resistance requires effective change management strategies, including clear communication of the rationale and benefits of digital transformation, as well as support for employees throughout the process.

Flexibility and Adaptation Issues

Flexibility and adaptation issues arise when the organisation's structure, culture, or other factors are too rigid, making it difficult to implement change effectively. While the company might recognize the need for digital transformation and have a clear vision of the desired direction, the organisation may struggle to adapt and modify its existing systems, processes, and culture to facilitate the necessary changes. Addressing these issues requires a reevaluation of the organisation's current structures and practices, as well as a willingness to embrace new ways of working that support digital transformation initiatives.

5.2 Main Findings

This section covers the findings identified in the main round of interviews, divided into three aggregate dimensions of driving innovation and digital opportunities (5.2.1), fostering organisational alignment and collaboration (5.2.2) and empowering people and overcoming barriers to change (5.2.3) following the framework described by Gioia, Corley, & Hamilton (2013) (**Figure 5.1**). Here, we present the results of our grouping, in the form of aggregate dimensions, second-order themes and presenting the underlying first-order concepts, which are the result of the coding process. For readability purposes, in regard to first-order concepts, this section only presents the findings of the coding process, without discussing them in detail. For a description of each first-order concept, see **Appendix 3**.

Figure 5.1*Grouping of empirical findings*

5.2.1 Driving Innovation and Digital Opportunities

The aggregate dimension highlights the pivotal role middle managers play in driving digital transformation through the identification and exploitation of digital opportunities, acquiring a comprehensive understanding and application of technology, and promoting an agile and iterative approach to problem-solving.

5.2.1.1 Identifying and Implementing Opportunities

Middle managers are at the forefront of discovering digital opportunities that can generate value for the organisation. This theme encompasses the proactive search for novel digital ideas, the thorough evaluation and prioritisation of these ideas, and the subsequent implementation of selected projects.

Five codes were identified relating to identifying and implementing opportunities (see **Appendix 2**).

Opportunity Finding

Among the participants in the main study, nine interviewees emphasised the importance of identifying digital opportunities as they emerge. Interestingly, our research found that middle management is not the main *locus* of idea generation (which is usually the lower level of the organisation).

Opportunity Capitalisation

Nine interviewees mentioned the crucial role of capitalising on digital opportunities once they were identified; this includes implementing, scaling and creating value from opportunities.

There's an abundance of technology out there. It's very easy to try to cherry-pick anything but being focused, understanding what are my key business drivers and then what way can technology help me to reach those. - DE_5

Idea Management

Nine interviewees highlighted the importance of idea management skills, including idea generation, evaluation and sharing.

Risk Taking

Eight interviewees underscored the importance of the ability and willingness to take risks for middle managers, both in their personal roles and within their larger teams.

The biggest mistake you can make is waiting for years before implementing something. It's already a big mistake. - DE_3

Open Mindset

Eight interviewees mentioned that, in the context of digital transformation, it is important for middle managers to maintain an open mindset that allows them to overcome preconceptions and recognize new opportunities.

5.2.1.2 Technological Understanding and Application

To effectively drive digital initiatives, middle managers must possess a solid understanding of technology and data. This theme underscores the significance of developing technical skills and data analysis capabilities, fostering digital fluency, and adeptly combining business and technology knowledge. Middle managers should be able to identify appropriate technologies to solve business problems, make informed digital decisions, and serve as champions for digital transformation.

Three codes were identified relating to technological understanding and application (see **Appendix 2**).

Tech and Data Proficiency

Among the study participants, ten of them mentioned the necessity of middle managers to have at least a degree of understanding of existing digital technologies and data analysis processes in order to have an informed opinion on matters related to digital transformation.

Digital Fluency and Digital Decision Making

Seven interviewees mentioned that, besides knowing existing technological solutions (see tech and data proficiency), it is important for middle managers to be able to understand and pick up new digital technologies, and where possible integrate them in their decision making process.

It's not AI that will replace you at work. But you will be replaced by a person able to use AI. - DE_3

Business-Technology Synergy

According to five interviewees, middle managers need to have the skills not only to understand the uses and limitations of digital solutions, but also the implications and impact on the firm's business processes.

It is very important that [managers] know the impact of digital and how it can support the organisation where it makes sense. - DE_2

5.2.1.3 Agile and Iterative Approach

Digital transformation often requires organisations to rapidly adapt to changing circumstances and iteratively improve solutions. Middle managers should embody an agile mindset and promote agile ways of working. By emphasising iterative problem solving, optimization, and a flexible approach to challenges, middle managers can increase the organisation's responsiveness and ability to capitalise on digital opportunities.

Three codes were identified relating to agile and iterative approach (see **Appendix 2**).

Agile Mindset

Six interviewees highlighted the importance of having an agile mindset as a crucial trait for succeeding in digital transformation. This mindset involves being open to experimentation and quickly adapting to changing circumstances while still delivering value.

To really progress with digitalization, we need to have a quite agile approach... For instance, what we need to avoid is to work for a month preparing a solution. - DE_3

Iterative Problem Solving

Effective, iterative problem-solving skills were underscored by four interviewees as a key trait for the success of digital transformation. This approach entails a systematic but fast-paced method for addressing challenges, followed by iterative experimentation and testing.

To make things faster, better and improve the processes ... This is, I think, the aim of the game. - RE_4

Speed and Adaptability

In addition to agility, eight interviewees emphasised the need for speed and adaptability when dealing with digital transformation.

5.2.2 Fostering Organisational Alignment and Collaboration

This aggregate dimension highlights the essential role middle managers play in aligning goals, vision, and expectations within the organisation, facilitating cross-functional communication and knowledge sharing, and promoting cooperation and harmonisation among different departments. Middle managers must effectively bridge the gap between various stakeholders, ensuring a coherent approach to digital transformation and fostering a culture that encourages collaboration, transparency, and adaptability.

5.2.2.1 Aligning Goals, Vision, and Expectations

Middle managers are crucial in ensuring that the digital transformation strategy is aligned with the organisation's overall vision and that individual goals and priorities are set accordingly. They are responsible for maintaining a big-picture perspective, managing expectations around the potential impact and timeline of digital initiatives, and fostering a forward-thinking culture that embraces digital opportunities.

Three codes were identified relating to aligning goals, vision, and expectations (see **Appendix 2**).

Process Harmonization and Prioritisation

Eight interviewees mentioned skills required for the harmonisation of goals and processes throughout the organisation, as well as goal setting and prioritisation.

What we want to do there is to standardise and harmonise the technology layer so that we use the same technology base everywhere. - DE_5

Big Picture and Long-Term Thinking

Six interviewees mentioned the need of middle managers with the ability and mindset to think about the long-term implications of their decisions, as well as the implications for areas outside of their direct area of concern.

Expectation Management

Furthermore, four interviewees highlighted skills that are necessary to set expectations among both leadership and implementation-level employees in terms of goals, challenges and timelines.

Leadership has their wish list. You have these cool ideas, but then someone has to listen to the people below. If something is not possible and feasible, and then let them be open because you can't let them not talk to you about it. - DE_9

5.2.2.2 Cross-Functional Communication and Knowledge Sharing

Digital transformation often necessitates collaboration across departments and functions. Middle managers must effectively communicate and share knowledge with their peers and subordinates. By promoting transparent communication, active listening, and knowledge sharing, middle managers can bridge silos and create a more collaborative environment. Networking and political skills also enable middle managers to build relationships that facilitate the flow of information and resources.

Four codes were identified relating to cross-functional communication and knowledge sharing (see **Appendix 2**).

Effective Communication

Seven interviewees directly cited effective communication skills, both in written and oral form, among middle managers as essential for digital transformation, as well as the ability to tailor their messaging to different audiences and convey complex ideas in an understandable manner.

Without [middle managers], you cannot get a digital transformation successful because it will break the chain between the top leadership and all the other operational organisations. - DE_9

Knowledge Sharing and Collaboration

Eight interviewees cited skills and mindsets that lead to increasing knowledge sharing within the firm during our study, including willingness to share, collaboration skills and the aforementioned communication skills.

Knowledge sharing doesn't just happen by itself, a lot has to be done here. - DE_3

Networking and Political Skills

Nine interviewees mentioned networking and political skills, including relationship-building, connecting people and political skills, as important when navigating the complex organisational landscape of digital transformation.

Strategic Translation Skills

The ability to act as a translator between different stakeholders was brought up as important for middle managers by eleven interviewees. This includes an understanding of, as well as the ability to correctly reframe firm-level strategies. Interestingly, this was, together with employee development, the most cited among the first-order concepts that were identified in our study, indicating the importance of this concept.

It's people based, right? I mean it's getting close to people. You can't do this remotely. You have to be down there talking to them and understanding their process. - DE_4

5.2.2.3 Building Cooperation and Harmonisation

Middle managers play a vital role in ensuring that the organisation's digital transformation efforts are harmonised and integrated into existing processes. This theme emphasises the need for middle managers to promote cooperation, process integration, and conflict resolution to create a unified and coordinated approach to digital initiatives.

Three codes were identified relating to building cooperation and harmonisation (see **Appendix 2**).

Cooperation and People Alignment

Seven interviewees cited the ability to cooperate and align people, both within teams and throughout the organisation as necessary to foster a culture of collaboration that is beneficial for digital transformation processes.

Role Harmonisation

Seven interviewees emphasised the need of skills that allow to integrate roles and responsibilities across functions and hierarchies, thus increasing cooperation within the firm.

[Middle managers] job is to make sure that the harmonisation is happening and that they're regularly communicating upwards, and keeping a finger on the pulse in the levels below. - DE_9

Conflict Resolution and Mediation

Lastly, four interviewees mentioned the need for middle managers to have the skills necessary to mitigate conflicts within the organisation, including conflict resolution skills, mediation skills, and negotiation skills.

5.2.3 Empowering People and Overcoming Barriers to Change

This aggregate dimension emphasises the critical role of middle managers in supporting employees during digital transformation, fostering their growth and development, and creating a culture that mitigates fear, builds resilience, and values diversity and empathy in the workplace. By addressing these human aspects of digital transformation, middle managers can ensure that their organisations are better equipped to navigate the challenges and seize the opportunities that arise during the digital transformation journey.

5.2.3.1 Developing and Supporting Employees

To successfully navigate digital transformation, organisations need employees who are skilled, knowledgeable, and motivated. Middle managers must focus on employee development, providing training, continuous learning opportunities, and creating a supportive environment that encourages growth. They must also empower their team members by giving them autonomy and decision-making authority, motivate and support employees throughout the digital transformation journey, and create opportunities for deploying and applying their newly-acquired skills.

Four codes were identified relating to developing and supporting employees (see **Appendix 2**).

Employee Development

Among the main study participants, eleven of them mentioned skills that contribute to employee development, such as supporting employee learning, training and teaching skills, and continuous learning mindset. Together with strategic translation skills, this was the most-cited first-order concept within our population sample.

Employee Empowerment

Besides employee development, five participants mentioned employee empowerment skills such as giving autonomy and delegating responsibilities and creating a sense of accountability and ownership.

Motivation and Support

Six employees cited motivation and support skills as important, as middle managers need to encourage their employees in developing and applying their skill sets for digital transformation. This includes employee supporting skills, creating incentives and leadership skills.

Building in Slack Time

Lastly, six interviewees stressed the importance of creating, within the employees' working hours, time and opportunities to develop new skills, and experiment with new solutions.

The staff is fully busy with the work because it's an operational organisation or they don't have time, then innovation becomes hard because innovation requires time to set aside to be able to think, to be able to investigate, to be able to explore. - DE_9

5.2.3.2 Mitigating Fear and Building Resilience

Digital transformation can be disruptive, and employees may be fearful of the changes it brings. Middle managers need to help mitigate this fear by promoting a culture of risk and failure tolerance, effectively managing change, and creating a psychologically safe environment where employees feel comfortable sharing their concerns and ideas. By fostering trust and openness, middle managers can build a resilient workforce that can adapt to change and thrive in the face of uncertainty.

Four codes were identified relating to mitigating fear and building resilience (see **Appendix 2**).

Fear-Mitigation and Resilience

Six people mentioned the importance of mitigating fear of digital change among employees. According to our interviewees, this fear takes the form of either fear of replacement or fear of failure in using digital technologies. This fear is mitigated both by building an environment that tolerates failure which is seen as a learning opportunity, and through proper communication.

Change Management

Seven interviewees mentioned change management skills as important in reducing resistance to change, limiting the negative impacts of digital transformation on employees, and ensuring a smooth transition towards new business processes.

Creating a Safe Environment

Four interviewees highlighted the ability of middle managers to create a safe environment for open communication, experimentation, and innovation without fear of failure. This involves building a culture of trust and psychological safety, where employees feel supported and encouraged to take risks and learn from their mistakes.

It's all about encouraging people to actually open up and speak up and try to bring their improvements in.
- DE_9

5.2.3.3 Encouraging Diversity and Empathy

Digital transformation often necessitates an inclusive and diverse workforce that can approach problems from different perspectives and foster creativity. Middle managers should encourage diversity in their teams by promoting an inclusive culture and actively seeking a variety of viewpoints. They also need to demonstrate empathy and understanding, valuing each team member's unique contribution and providing support as needed. By cultivating a diverse and empathetic work environment, middle managers can enhance innovation and problem-solving capabilities, leading to more effective digital transformation efforts.

Three codes were identified relating to encouraging diversity and empathy (see **Appendix 2**).

Empathy and Emotional Intelligence

Six interviewees mentioned emotional intelligence and empathy as important for both driving employee development and reducing barriers to change, both of which have a positive impact on a firm's digital transformation.

Diversity and Inclusion

An interesting finding, highlighted by three interviewees, is the importance of diversity; in particular, interviewees mentioned the positive effect of diversity when it comes to identifying opportunities and potential solutions. To achieve this role, middle managers need to have skills such as the ability to foster inclusivity or cultural understanding.

[Middle managers] need to believe in diversity, not just diversity in terms of gender or nationality, but about personality. - RE_3

Adaptability to Diversity

On the topic of diversity, middle managers need not only to create a diverse environment but also to effectively engage with people with diverse backgrounds and cultures, especially in a large, international organisation such as our case company. Besides the aforementioned cultural understanding, this requires open-mindedness and the ability to adapt communication style and ways of working to diverse backgrounds.

6. Analysis

This section analyses the collected data in light of prior literature, specifically dynamic capabilities literature, and the conceptual model outlined in Section 3, with the aim of addressing the initial research question.

The analysis begins by examining, based on our research results, the processes and mechanisms that foster dynamic capabilities within a firm, with a particular emphasis on digital transformation, as well as the challenges that may impede these processes (6.1). Subsequently, Section 6.2 explores how the skills and mindsets of middle managers, as identified in Section 5, can contribute to these processes or aid in overcoming the associated barriers.

6.1 Dynamic Capabilities: Processes and Challenges

Revisiting the conceptual model delineated in Section 3 (**Figure 3.1**), the processes leading to a firm's capacity to address the disruption instigated by digital technologies can be examined through the lens of dynamic capabilities theory (Warner & Wäger, 2019). In this section, we offer a comprehensive overview, drawing from prior literature and our empirical findings, of the processes constituting an incumbent, non-digital native firm's dynamic capabilities and, consequently, its capacity to respond to an evolving digital environment (Teece, Pisano, & Shuen, 1997). In accordance with the extant literature (Teece, 2007), we categorise these processes into sensing, seizing, and reconfiguring. Each of these macro-areas is discussed separately in terms of processes and barriers, based on insights from our research (6.1.1). Subsequently, we address, in line with the central theme of this thesis, the specific role of middle managers in these processes. This discussion lays the groundwork for Section 6.2, where findings from the main study related specifically to middle managers (5.2) are analysed thoroughly to provide an overview of the roles and skills that middle managers require in these processes.

6.1.1 Sensing

Sensing processes encompass all the mechanisms that contribute to a firm's capacity to scrutinise both the external and internal environment, identify emerging trends and opportunities, and evaluate them in accordance with the firm's strategic direction (Teece, 2007). Naturally, sensing involves processes such as research and development (R&D) and market analysis, which directly lead to the creation of new solutions or the identification of novel trends. It is worth noting that a firm's sensing capabilities, particularly for large incumbents, encompass all organisational layers and various components (Warner & Wäger, 2019), rendering the development of such capabilities a complex endeavour.

Our findings indicate that new digital solutions to operational challenges (e.g., suggesting a new technological tool to enhance productivity on the shop floor) are more likely to emerge from lower levels of the organisation, typically due to their proximity to operational processes. It is thus imperative for firms to facilitate the discovery of new digital solutions across all organisational layers by encouraging, enabling, and establishing channels for idea generation and sharing, heightening awareness, and training their workforce to identify such solutions, ultimately fostering an environment conducive to sensing capabilities. These efforts can assume various forms. For instance, in the case company, digital

ambassadorship programs, awareness initiatives to familiarise employees with digital technologies, training programs, and forums for discussing these ideas have been implemented.

Barriers to Sensing

Several factors were found to impede a firm's sensing capabilities. Among the six barriers identified in our research (Section 5.1.2), knowledge siloing and resistance to change are seen to have the most significant impact on sensing capabilities. Resistance to change is a fundamental issue concerning sensing capabilities: if employees, at any organisational level, are unwilling or unable to see the need for change, they will be less likely to pursue and identify new digital opportunities and disseminate them throughout the organisation. Similarly, in a siloed organisation, limited knowledge sharing implies that even if potential digital solutions are identified, their circulation would be restricted. Finally, alignment issues, both vertical and horizontal, can affect sensing capabilities due to misaligned goals and objectives between different organisational components.

6.1.2 Seizing

Seizing processes are essential for capitalising on identified opportunities by investing, developing, and implementing them (Teece, 2007). Similar to sensing, seizing processes are not limited to single business units, but instead necessitate an aligned and coherent organisation in terms of strategic goals and expectations (Warner & Wäger, 2019), and the abilities necessary to evaluate digital solutions at different levels of the organisation. This alignment is essential for evaluating sensed opportunities or threats according to common and well-defined strategic goals, comparing them to alternatives, and deciding which opportunities to pursue and allocate resources to. In our research, we find that this process takes place at all levels of the organisation, but that the seizing skills required at each level varies. For example, implementation-level employees need the skills to communicate new potential solutions upstream; middle management needs to evaluate which of these solutions to bring to the attention of the firm's leadership, and provide supporting information for resource-allocation decisions (i.e., preparing a business case for a solution). Lastly, top management needs to be able to understand the implications and potential of each solution, and allocate resources accordingly.

Barriers to Seizing

When examining barriers to seizing, vertical alignment and leadership expectations present the most significant challenges. As vertical alignment issues result in different layers of the organisation having misaligned goals and scopes, they potentially lead to implementation-level employees' reluctance or inability to adopt new digital solutions or their inability to evaluate solutions based on the firm's strategic direction. Leadership expectations, on the other hand, can create hurdles when ambitious goals are not grounded in the practical realities of implementing digital transformation initiatives, and unrealistic leadership expectations risk hindering the seizing of identified solutions. Furthermore, flexibility and adaptation issues come into play when an organisation's rigid structures and cultures obstruct the effective implementation of necessary changes. Lastly, resistance to change, especially among those in charge of evaluating new opportunities and developing new solutions, can severely hinder a firm's seizing capabilities.

6.1.3 Reconfiguring

In digital transformation, reconfiguring processes refer to the firm's ability to formulate and execute digital strategies based on external and internal stimuli and rearrange its resources and processes (Karimi & Walter, 2015; Warner & Wäger, 2019). Similarly to sensing and seizing processes, reconfiguring processes are complex and require organisational alignment, and are likely to impact every part of the firm. Because of their complexity, Warner & Wäger (2019) posit that for most incumbent firms, reconfiguring processes are still at an early stage. The findings support this, as our case company only recently started an effort favouring its digital transformation, and in general, its receptiveness to change, in the medium-to-long term. This effort includes harmonising processes across different parts of the organisation, redefining reporting systems, and creating new roles with the goal of facilitating reconfiguring processes for digital transformation.

Barriers to Reconfiguring

As reconfiguring processes involve redefining organisational processes, flexibility and adaptation issues are likely the biggest challenges, as they significantly slow down the pace of change within the firm, hindering its ability to respond to a rapidly changing environment (Teece, Pisano, & Shuen, 1997). According to our research, this is certainly true for large incumbents such as our case company, as the complexity that comes with size naturally results in a slower-moving structure. Besides flexibility and adaptation issues, because of their all-encompassing nature, reconfiguring processes are likely to be affected in some way by all the barriers identified in (5.1.2). Vertical and horizontal alignment and realistic leadership expectations are crucial to ensure that an organisation's goals for reconfiguring processes are well-known, feasible and well-accepted throughout the firm. Similarly, overcoming knowledge siloing and resistance to change increases the likelihood of the successful execution of the processes that lead to a firm's reconfiguring capabilities.

6.1.4 Exploring the Role of Middle Managers

In regard to digital transformation, digital sensing, seizing and reconfiguring processes make up a firm's digital dynamic capabilities (Warner & Wäger, 2019). As seen in the previous section and in our empirical findings, these processes, especially for incumbent, non-digital native firms, require the contribution of every layer of the organisation to overcome the identified challenges and lay the basis for the firm's digital transformation.

Nevertheless, our research seeks to explore the role of middle management in particular in enabling these processes. In Sections 1 and 3 we described middle managers as the enablers of digital transformation and the *loci* of either change or change resistance (Huy, 2002). This was confirmed in our empirical findings by employees at different layers of the organisation. Following the framework developed in Section 5.2, the next section explores in depth how middle managers, and in particular which middle managers' skills and mindsets, contribute to sensing, seizing and reconfiguring processes.

6.2 Skills and Mindsets & Dynamic Capabilities

This section presents an analysis of middle management skills and mindsets identified in the empirical findings, in the form of the second-order themes *identifying and implementing opportunities* (6.2.1),

technological understanding and application (6.2.2), *agile and iterative approach* (6.2.3), *aligning goals, visions and expectations* (6.2.4), *cross-functional communication and knowledge-sharing* (6.2.5), *building cooperation and harmonisation* (6.2.6), *developing and supporting employees* (6.2.7), *mitigating fear and building resilience* (6.2.8), and *encouraging diversity and empathy* (6.2.9). In our findings, each of these represents a unique area of middle management contribution to the processes that make up a firm's dynamic capabilities, namely sensing, seizing and reconfiguring. To explore these individual contributions, each of the second-order themes are mapped based on their contribution to one or more of these processes (**figure 6.2**). A more detailed mapping, showing how each individual skill and mindset (i.e., first-order concepts identified in Section 5) relates to sensing, seizing and reconfiguring can be found in **Appendix 4**.

Table 6.2

Middle management's contribution to dynamic capabilities

Empirical Findings		Dynamic Capabilities Processes		
Aggregate Dimensions	Second-Order Themes	Sensing	Seizing	Reconfiguring
Driving Innovation and Digital Opportunities	Identifying and Implementing Opportunities	X	X	
	Technological Understanding and Application	X	X	
	Agile and Iterative Approach		X	
Technological Understanding and Application	Aligning Goals, Visions and Expectations		X	X
	Cross-Functional Communication and Knowledge Sharing	X	X	X
	Building Cooperation and Harmonisation		X	X
Fostering Organisational Alignment and Collaboration	Developing and Supporting Employees	X	X	X

Mitigating Fear and Building Resilience	X	X	X
Encouraging Diversity and Empathy	X		X

This mapping results in some interesting insights. First, the biggest areas of middle management contribution to dynamic capabilities relate to seizing capabilities, with eight out of nine themes influencing this category. Out of the nine themes, however, a majority was still found to influence both the firm's sensing and reconfiguring capabilities as well. This indicates that, in regards to dynamic capabilities - and by extension to digital transformation, as dynamic capabilities allow a firm to identify, integrate and leverage new digital technologies and effectively react to disruption caused by technological advancements (Warner & Wäger, 2019) - middle managers are influential in everything from supporting and enabling the identification and implementation of digital opportunities, and the reshaping of processes that allow the firm to adapt to them. This is in line with findings from theory and the conceptual model, according to which middle managers are the enablers and facilitators of digital transformation (Huy, 2002; Nadkarni & Prügl, 2021).

Further observed was that middle managers influence each capability through different mechanisms. First, sensing is enabled primarily through understanding opportunities and being able to communicate them, as well as supporting and developing employees to be open to change. Second, seizing is influenced by an understanding of the implementation of opportunities, improved communication and alignment, and the development of employees. Finally, reconfiguring capabilities are improved by favouring organisational alignment, in particular between top-level managers and implementation-level employees and different business units, and by increasing the firm's readiness to change. These mechanisms in turn allow for better flexibility and adaptability across the organisation, which is crucial for building reconfiguring capabilities.

Further, it is interesting to note that none of the second-order themes relates solely to sensing capabilities, but instead influences either both sensing and seizing, sensing and reconfiguring or all three macro areas. This implies that, while middle managers sometimes play a role in sensing new opportunities and idea generation, this is not their primary role, which is instead enabling the idea generation by creating the right environment and supporting other parts of the firm in the sensing processes. This role is reflected in our findings, according to which sensing new digital opportunities often comes from lower levels of the organisation, or even from external consultants in collaboration with the strategic level, while middle managers contribute mostly to seizing these opportunities, by evaluating and developing them, and providing support for resource-allocation decisions.

This grouping highlights the major areas of middle management contribution to building dynamic capabilities. The rest of this section will discuss in detail how each of these second-order themes influences these processes, and which are the middle management skills and mindsets that lead to these mechanisms.

6.2.1 Identifying and Implementing Opportunities

Based on our findings, the position of middle managers in the organisational hierarchy and their given role as connectors between organisational layers, put them in the unique position to have an overview of the perspectives of both top and bottom levels of the organisation. This allows them to identify, collect and evaluate potential digital solutions, further develop them and, if necessary, report them to top management. This is a role that, as seen previously, is important for both sensing and seizing capabilities.

In order to perform this role, our findings indicate that middle managers need to have the necessary skills in terms of opportunity finding and capitalization, and idea management (i.e., generate, develop and share ideas). In the context of digital transformation, these skills allow middle management to scan the internal and external environment for new digital solutions with the goal of implementing and scaling the most beneficial to the firm's digital transformation. To do this, the ability to take necessary risks, and having an open mindset that allows them to overcome preconceptions are important for overcoming the resistance to change that hinders sensing and seizing capabilities.

6.2.2 Technological Understanding and Application

A necessity for sensing and seizing capabilities lies in the firm possessing an understanding of technology and its potential applications (Warner & Wäger, 2019). This was shown in the findings, which highlighted the need for middle managers to possess skills and mindsets relating to data proficiency, digital fluency and an understanding of the business impact of a given technology. Interestingly, deep technical expertise was downplayed in the findings, with most interviewees stressing the need for a more general level of technological understanding among middle managers. This is in line with current literature (Nadkarni & Prügl, 2021) and our conceptual model, according to which middle managers act as enablers of digital transformation, therefore needing enough technical expertise mostly to evaluate new solutions (necessary for both sensing and seizing) rather than implement them, a role that pertains to more technically-oriented roles.

Furthermore, technological understanding, in the form of data proficiency, digital fluency and digital decision making, and understanding of business-technology synergies allows middle managers to overcome their own, and others' resistance to change, since it leads to a better understanding of the potential impact and benefits of new digital solutions.

6.2.3 Agile and Iterative Approach

In terms of seizing capabilities, an agile and iterative approach allows for a quicker, more flexible and efficient development of new solutions coming from different sources. This is explained by the fact that an iterative approach allows middle managers to test solutions and opportunities more rapidly and more often than a rigid one, enabling them to evaluate their potential before allocating significant amounts of time and resources to their development, but rather developing them in a more flexible and tailored way. This is especially important in large firms such as the case company, in which multiple idea generation channels exist, meaning that a large number of potential opportunities need to be constantly and rapidly evaluated.

An agile and iterative approach - requiring middle managers to have familiarity with agile methodologies and an agile mindset, operate in a quick and adaptable way, and possess iterative problem-solving skills (e.g., design thinking) - allows reducing organisational rigidity and adaptation issues, which hinder a firm's seizing capabilities.

6.2.4 Aligning Goals, Visions and Expectations

As previously discussed, organisational alignment, both vertical and horizontal, is necessary for a firm's seizing and reconfiguring capabilities. Our findings suggest that, given their central position and role in a firm's organisational structure, middle managers play an important role in achieving this alignment. To do so, they need skills in three areas. First, alignment and prioritisation skills allow middle managers to make sure that goals, objectives and priorities are shared throughout the organisation. In terms of seizing, this means that the firm will pursue opportunities that are in line with its strategic goals. This further allows for a smoother transformation of business processes, as the different layers of the organisation pursue and understand the same goals. Second, big-picture and long-term thinking mindsets are necessary, as middle managers need to understand the goals and implications of strategies and opportunities beyond their direct area of influence and the short term in order to be successful in their aligning role. Lastly, expectation management skills, both towards implementation-level employees and top managers are important to secure organisational alignment.

Besides improving vertical and horizontal alignment, these skills enable middle managers to improve the flexibility and adaptability of the organisation, benefitting both seizing and reconfiguring processes.

6.2.5 Cross-Functional Communication and Knowledge Sharing

Effective communication and knowledge sharing were found to be crucial for a firm to achieve dynamic capabilities in sensing, seizing, and reconfiguring processes, as they allow the firm to overcome barriers such as alignment issues, unrealistic expectations and knowledge siloing. Our findings indicate that a central function of middle managers lies in facilitating and enabling this communication between various parts and levels of the organisation, including promoting knowledge sharing both vertically and horizontally. To achieve this, they need to have the skills to effectively communicate messages across the organisation and facilitate the sharing of important knowledge. Furthermore, they also need to have the mindset and skills to network and maintain relations with important stakeholders, as well as the ability to translate between the various levels and functions of the organisation

In regards to sensing and seizing processes, knowledge sharing and strategic translation skills allow different parts of the organisation to share ideas and best practices and understand the firm's strategic priorities and goals by bridging gaps between organisational layers. Moreover, effective communication, networking and political skills may facilitate reconfiguring processes that could otherwise be hindered by resistance to change or adaptation issues.

6.2.6 Building Cooperation and Harmonisation

Especially when it comes to seizing and reconfiguring processes, it is important that the multiple parts of a firm are able to cooperate and work together, addressing alignment and knowledge-siloing issues. This is even more true for large organisations such as the case company, whose workforce is spread over

multiple organisational layers, functions and geographical regions. Based on our empirical findings, middle managers are pivotal in achieving this cooperation due to their roles and position in the organisation. In our research, two skill areas needed to achieve their role were identified. First, middle managers need to possess the skills to cooperate and maintain good working relationships within their teams, across functions and throughout hierarchical levels. Second, the skills to resolve and mediate conflicts as they arise contribute to building stronger unison and removing friction within the organisation.

6.2.7 Developing and Supporting Employees

Middle managers are key drivers and enablers of digital transformation, as they are responsible for implementing key digital processes (Nadkarni & Prügl, 2021). Because of this they also support and empower other parts of the workforce in developing and utilising the necessary skills for sensing, seizing and reconfiguring processes.

To do this, a range of employee development and support skills are required. Employee development skills, including direct teaching skills and creating learning opportunities, are important to allow employees to build a relevant skill set for digital transformation. Teaching and the creation of learning opportunities not only involve implementation-level employees working below middle managers but also top managers, through, e.g., developing digital skill-building workshops aimed at upskilling a firm's leadership. Besides helping other employees develop digital skills, middle managers can empower and motivate them to apply these learnings, for example by creating incentive programs. Lastly, middle managers should provide opportunities for employees to apply their newly-developed digital skills; this includes building enough slack time in employees' day-to-day roles to experiment with and apply experimental digital solutions.

6.2.8 Mitigating Fear and Building Resilience

The mitigation of fear and resistance to change at all organisational levels is important in building a firm's dynamic capabilities. In terms of sensing and seizing, fear and resistance to change inhibit the capability of a firm's workforce to find and take new opportunities by making them either too scared of, or unreceptive to change. Similarly, fear or unwillingness to change, or lack of resilience among the workforce will hinder a firm's reconfiguring capabilities, as they require the contribution of all layers of the organisation.

Our findings corroborate this notion, as interviewees identified fear mitigation and resilience building as significant aspects of the firm's capacity to transform amidst technological disruption. The role of middle manager was found to be crucial in cultivating these abilities. Based on our findings, to effectively achieve this, middle managers should possess expertise in three key domains. Firstly, middle managers need to possess the soft skills required to understand their subordinates' concerns and persuade them of the advantages of change while minimising its perceived intimidation. This may entail simplifying the perceived complexity of new technologies or ensuring job security. Secondly, middle managers must be capable of directly overseeing changes as they are implemented across the organisation. Lastly, middle managers ought to have the skills and involvement essential to foster a perceived safe environment among employees, further encouraging openness to change and adaptability to disruption. Equipped with these

skills, middle managers can positively influence the workforce to embrace the changes necessary for achieving sensing, seizing and reconfiguring capabilities.

6.2.9 Encouraging Diversity and Empathy

Our findings highlight the perception that diverse and inclusive teams within an organisation are integral in achieving sensing and reconfiguring capabilities. Primarily, varied backgrounds and personal attributes among employees were regarded as fostering innovative thinking and problem-solving, while a cohesive, inclusive team was deemed essential for effectively integrating and adapting to the profound changes required for transformation capabilities to materialise at the organisational level. Moreover, middle managers were seen as responsible for promoting this diversity and inclusion, primarily through three mechanisms.

First, middle managers must possess the skills and mindset to hire and train a diverse team while cultivating an inclusive environment that nurtures a robust team dynamic. Second, empathy and high emotional intelligence were identified as crucial skills for middle managers, both of which influence their ability to connect with and manage their teams effectively. Finally, it was considered indispensable for middle managers to have a mindset that embraces the diverse environment that ultimately enables an organisation to develop sensing and reconfiguring capabilities. Interestingly, in our case company, it was found that diverse teams, in terms of backgrounds, expertise and demographics, perform better in identifying opportunities. This indicates that besides building a more cohesive organisation, these skills likely benefit sensing processes as well.

Through this analysis, it thus becomes clear that the identified skills and mindsets among middle managers contribute to an incumbent firm achieving sensing, seizing and reconfiguring capabilities as proposed in dynamic capabilities literature. Thus, when it comes to a firm achieving dynamic capabilities, middle management is viewed as having a crucial role in three ways. First, they enable the organisation to achieve sensing and seizing capabilities by driving innovation and digital opportunities. Second, they contribute to sensing, seizing and reconfiguring capabilities by fostering organisational alignment and collaboration. Finally, they improve both sensing and seizing capabilities, as well as lay the groundwork for any large-scale transformational change to occur through empowering people and overcoming barriers to change. The next section dives deeper into understanding this enabling role of middle management in an incumbent manufacturing firm in the face of DT.

7. Discussion

This study analysed the role of middle managers in the light of incumbent manufacturing firms achieving dynamic capabilities and overcoming barriers to organisational processes in the face of technological disruption. This section aggregates these components to provide an overview of the role of middle management skills and mindsets in the bigger picture as the incumbent firm adapts to changes in the external environment. Here, the thesis reveals that while dynamic capabilities are seen as originating throughout the entire organisation, the middle manager is primarily influential in enabling the various parts of the organisation in a way that allows dynamic capabilities to be achieved.

Thus, the findings indicate that the role of middle manager is viewed as the enablers that link the strategic level of the organisation with the implementation level, and develop dynamic capabilities at an organisational level. This becomes particularly important within digital transformation as each organisational level is impacted by disruption brought on by innovation in digital technologies. This is revealed in the findings in two ways. First, as the implementation level is faced with new potential solutions impacting everyday work, middle managers empower and enable the employees in finding and implementing such new opportunities, as well as transmitting knowledge about them both vertically and horizontally throughout the firm. Second, as the strategic level is faced with the need to seize new market opportunities and reconfigure the organisation in the face of external threats and opportunities, it is seen as the role of middle managers to transmit, translate and implement the desired changes and goals to the rest of the organisation.

This enabling role of the middle manager is further supported by the finding that skills relating directly to digital technologies - such as technological expertise - are seen among all interviewees as less important than the soft skills related to empowering others, such as emotional intelligence. These findings complement previous literature such as Jaiswal et al. (2022) and Warner & Wäger (2019), which highlight the importance of technical skills (e.g., data analysis) within a firm in the context of digital transformation. Our findings suggest that, while technical skills are important within an organisation, it is crucial for middle managers to focus on facilitating the development and utilisation of these skills among others (i.e., implementation-level employees), rather than solely possessing them themselves, through the mechanisms discussed in Section 6.

Finally, we explored how the role, skills and mindsets of middle managers, in combination with those of top management and implementation-level employees, enable the firm to facilitate processes of sensing, seizing and reconfiguring (i.e., dynamic capabilities). Within the boundaries of RBV, these dynamic capabilities themselves can be considered a resource (Helfat et al., 2009; Teece, Pisano, & Shuen, 1997) that can be combined with other complementary resources to create unique bundles that allow the firm to achieve a competitive advantage (Krakowski et al., 2022). In the context of digital transformation, these dynamic capabilities, together with new digital technologies and tools can thus lead to the creation of bundles of skills, processes and digital technologies that allow the firm not only to survive the disruption brought by technological advancements but to achieve a competitive advantage by virtue of integrating and leveraging these disruptive technologies in its business. As we have seen in this thesis, the role of

middle managers is essential in this picture, as it allows the development of human skills and the processes that allow a firm to change in the face of technological disruption.

8. Conclusion

8.1 Answer to the Research Question

This thesis aimed to investigate middle managers' role within non-digital, incumbent manufacturing firms as they seek to leverage digital transformation to achieve a competitive advantage in a disruptive environment of technological change. This was guided by the research question:

How do middle management skills and mindsets enable incumbent firms to successfully achieve digital transformation?

With the findings and analysis presented so far, we argue that this question has been adequately answered. Through the analysed case company, it was found that middle managers take on the role of enablers within the organisation. Through this role, and with the aid of a number of skills and mindsets identified in this study, they contribute to several processes required for successful digital transformation, and help overcome organisational barriers to these processes. By utilising these skills and mindsets, they further perform a connecting role between different layers and functions within the organisation.

Thus, in terms of achieving organisation-wide dynamic capabilities in the face of technological disruption, the role of middle manager is highly influential through the transmitting and translating of information between the strategic and implementation level, transforming strategic guidelines into actionable directions, aligning the organisation, and enabling the overall workforce in achieving the dynamic capabilities of sensing, seizing and reconfiguring.

8.2 Academic Implications

This thesis stands out in the fields of dynamic capabilities and digital transformation for two reasons. First, we enhance the understanding of the actor-centric component of digital transformation, studied through the lenses of dynamic capabilities, particularly their role in a firm's digital transformation efforts and the challenges that might hinder them, building on previous literature such as Karimi & Walter (2015) and Warner & Wäger (2019) through a single case analysis. Second, the thesis expands on existing theory by exploring the role of employees in building dynamic capabilities and digital transformation, an under-explored aspect of both fields. This is done with a focus on middle managers, an important yet understudied role. By highlighting the significance of middle management, and providing a framework of skills and mechanisms that shape its contribution, this thesis thus expands existing theory to include the aspect of middle manager skills and mindsets in dynamic capabilities and digital transformation. These findings, combined with previous literature on the topic of employee skills in digital transformation such as Warner & Wäger (2019) and Jaiswal et al. (2022), can contribute to the development of new theories or practical frameworks related to employee upskilling for digital transformation.

8.3 Managerial Implications

The findings outlined in this thesis have practical relevance for firms that, like our case company, are incumbent, non-digital native organisations wishing to undergo a process of digital transformation. First, our research highlights the importance of middle management in these processes. While the importance of a firm's leadership and of strategy makers is clear, digital transformation is not, and cannot be, merely a top-down effort. As discussed in this thesis, each organisational layer within a firm has a role in facilitating the processes that lead to digital transformation and overcoming challenges that hinder it (6.2). To ensure this, facilitating the role of middle management in executing digital transformation strategies through the mechanisms outlined in Sections 5 and 6 should be a priority and a starting point in a firm's digital transformation.

Second, the thesis explores how and which middle management skills and mindsets determine their ability to drive the execution of digital transformation strategies. A surprising result of this research is the paramount importance of soft skills and mindsets (e.g., leadership skills, communication skills, willingness to learn, open mindset) compared to hard or technical skills (e.g., data analysis, knowledge of specific digital tools). This finding thus has implications for firms wishing to upskill their middle managers to allow them to optimise their enabling role in digital transformation, providing an understanding of which skills to focus on.

8.4 Directions for Future Research and Limitations

Owing to time and resource constraints, this thesis examines a single firm and a limited number of interviewees. Although the number of interviews conducted approached theoretical saturation, the study should be considered exploratory research. The small sample size and opportunistic case company selection make generalising conclusions challenging and increase potential human bias. Future research could build on this by, for instance, analysing a larger population sample or employing multiple case studies (Eisenhardt & Graebner, 2007).

Additionally, while efforts were made to ensure a diverse sample group for varied perspectives on the research topic, almost all interviewees (with three exceptions) were European. While most insights were consistent between European and non-European interviewees, certain differences were observed. For instance, non-European interviewees seemed to hold a more hierarchical view of the firm than their European counterparts. Thus, exploring how the mechanisms, skills, and mindsets examined in this thesis are influenced by cultural or geographical differences, and how to manage them in a firm operating across multiple regions, would be an interesting avenue for future research.

Apart from addressing the limitations of this study, future research could delve into specific interactions between middle managers and other organisational layers (e.g., middle managers to top managers, middle managers to implementation-level employees). Investigating these relationships could provide valuable insights into the dynamics and impact of communication across different hierarchical levels within an organisation, further enriching the understanding of the role of middle managers in fostering digital transformation.

Another potential research direction stemming from our findings pertains to upskilling. Specifically, how a firm can support its middle management in developing the skills and mindsets essential for digital transformation. This research question could be addressed through an experimental approach, such as implementing training programs for middle managers focused on digital transformation, and subsequently assessing their impact on performance or other relevant metrics. As such, the topic of middle manager skills and mindsets in digital transformation calls for experimental research, where quantitative studies could further the understanding of the quantifiable impact the presence of these skills has on firm performance.

9. References

- Adams, W. C. (2015). Conducting semi-structured interviews. *Handbook of Practical Program Evaluation*, 492-505.
- Andersen, P., & Ross, J. W. (2016). Transforming the LEGO group for the digital economy. Paper presented at the *Icis*.
- Andersson, P., Movin, S., Mähring, M., Teigland, R., & Wennberg, K. (2018). Managing digital transformation SSE Institute for Research, Stockholm School of Economics.
- Andreeva, T., & Kianto, A. (2012). Does knowledge management really matter? linking knowledge management practices, competitiveness and economic performance. *Journal of Knowledge Management*.
- Barney, J. (1991). Firm resources and sustained competitive advantage. *Journal of Management*, 17(1), 99-120.
- Bell, E., Bryman, A., & Harley, B. (2022). *Business research methods* Oxford university press.
- Bharadwaj, A., El Sawy, O. A., Pavlou, P. A., & Venkatraman, N. v. (2013). Digital business strategy: Toward a next generation of insights. *MIS Quarterly*, , 471-482.
- Birkinshaw, J., Zimmermann, A., & Raisch, S. (2016). How do firms adapt to discontinuous change? bridging the dynamic capabilities and ambidexterity perspectives. *California Management Review*, 58(4), 36-58.
- Brynjolfsson, E., Rock, D., & Syverson, C. (2018). Artificial intelligence and the modern productivity paradox: A clash of expectations and statistics. *The economics of artificial intelligence: An agenda* (pp. 23-57) University of Chicago Press.
- Bughin, J., Hazan, E., Lund, S., Dahlström, P., Wiesinger, A., & Subramaniam, A. (2018). Skill shift: Automation and the future of the workforce. McKinsey Global Institute, 1, 3-84.
- Burgelman, R. A. (1983). A process model of internal corporate venturing in the diversified major firm.

Administrative Science Quarterly, 223-244.

Chamorro-Premuzic, T. (2021). The essential components of digital transformation. *Harvard Business Review*.

Chen, P., Williams, C., & Agarwal, R. (2012). Growing pains: Pre-entry experience and the challenge of transition to incumbency. *Strategic Management Journal*, 33(3), 252-276.

Davenport, T. H. (1993). *Process innovation: Reengineering work through information technology*. Harvard Business Press.

Day, G. S., & Schoemaker, P. J. (2016). Adapting to fast-changing markets and technologies. *California Management Review*, 58(4), 59-77.

de la Boutetière, H., Montagner, A. & Reich, A. (2018). Unlocking success in digital transformations.

Retrieved from

<https://www.mckinsey.com/capabilities/people-and-organizational-performance/our-insights/unlocking-success-in-digital-transformations#/>.

Dremel, C., Wulf, J., Herterich, M. M., Waizmann, J., & Brenner, W. (2017). How AUDI AG established big data analytics in its digital transformation. *MIS Quarterly Executive*, 16(2).

Drnevich, P. L., & Kriauciunas, A. P. (2011). Clarifying the conditions and limits of the contributions of ordinary and dynamic capabilities to relative firm performance. *Strategic Management Journal*, 32(3), 254-279.

Drost, E. A. (2011). Validity and reliability in social science research. *Education Research and Perspectives*, 38(1), 105-123.

Dubois, A., & Gadde, L. (2002). Systematic combining: An abductive approach to case research. *Journal of Business Research*, 55(7), 553-560.

Eisenhardt, K. M., & Martin, J. A. (2000). Dynamic capabilities: What are they? *Strategic Management Journal*, 21(10-11), 1105-1121.

Eisenhardt, K. M., & Graebner, M. E. (2007). Theory building from cases: Opportunities and challenges.

Academy of Management Journal, 50(1), 25-32.

El Sawy, O. A., Kræmmergaard, P., Amsinck, H., & Vinther, A. L. (2020). How LEGO built the foundations and enterprise capabilities for digital leadership. *Strategic information management* (pp. 174-201) Routledge.

Fitzgerald, M., Kruschwitz, N., Bonnet, D., & Welch, M. (2014). Embracing digital technology: A new strategic imperative. *MIT Sloan Management Review*, 55(2), 1.

Flyvbjerg, B. (2006). Five misunderstandings about case-study research. *Qualitative Inquiry*, 12(2), 219-245.

Forth, P., de Laubier, R., Chakraborty, S., Charanya, T. & Magagnoli, M. (2022). The rise of the digital incumbent. Retrieved from <https://www.bcg.com/publications/2022/rise-of-digital-incumbents-building-digital-capabilities>.

Garvin, D. A. (1998). The processes of organization and management. *MIT Sloan Management Review*.

Gioia, D. A., Corley, K. G., & Hamilton, A. L. (2013). Seeking qualitative rigor in inductive research: Notes on the Gioia methodology. *Organizational Research Methods*, 16(1), 15-31.

Guest, G., Bunce, A., & Johnson, L. (2006). How many interviews are enough? an experiment with data saturation and variability. *Field Methods*, 18(1), 59-82.

Gurumurthy, R., Schatsky, D. & Camhi, J. (2020). Uncovering the connection between digital maturity and financial performance. Retrieved from <https://www2.deloitte.com/us/en/insights/topics/digital-transformation/digital-transformation-survey.html>.

Helfat, C. E., Finkelstein, S., Mitchell, W., Peteraf, M., Singh, H., Teece, D., . . . Winter, S. G. (2009). *Dynamic capabilities: Understanding strategic change in organizations* John Wiley & Sons.

Helfat, C. E., & Raubitschek, R. S. (2018). Dynamic and integrative capabilities for profiting from innovation in digital platform-based ecosystems. *Research Policy*, 47(8), 1391-1399.

Henriette, E., Feki, M., & Boughzala, I. (2015). The shape of digital transformation: A systematic literature review.

Hess, T., Matt, C., Benlian, A., & Wiesböck, F. (2016). Options for formulating a digital transformation

strategy. *MIS Quarterly Executive*, 15(2)

Huy, Q. N. (2002). Emotional balancing of organizational continuity and radical change: The contribution of middle managers. *Administrative Science Quarterly*, 47(1), 31-69.

Jacobsen, D. I., Sandin, G., & Hellström, C. (2002). *Vad, hur och varför: Om metodval i företagsekonomi och andra samhällsvetenskapliga ämnen* Studentlitteratur AB.

Jaiswal, A., Arun, C. J., & Varma, A. (2022). Rebooting employees: Upskilling for artificial intelligence in multinational corporations. *The International Journal of Human Resource Management*, 33(6), 1179-1208.

Kaeser, J. (2018). The world is changing. here's how companies must adapt. Retrieved from <https://www.weforum.org/agenda/2018/01/the-world-is-changing-here-s-how-companies-must-adapt/>.

Kagermann, H. (2014). Change through digitization—Value creation in the age of industry 4.0. *Management of permanent change* (pp. 23-45) Springer.

Karimi, J., & Walter, Z. (2015). The role of dynamic capabilities in responding to digital disruption: A factor-based study of the newspaper industry. *Journal of Management Information Systems*, 32(1), 39-81.

Klaus, H., Rosemann, M., & Gable, G. G. (2000). What is ERP? *Information Systems Frontiers*, 2, 141-162.

Korstjens, I., & Moser, A. (2018). Series: Practical guidance to qualitative research. part 4: Trustworthiness and publishing. *European Journal of General Practice*, 24(1), 120-124.

Krakowski, S., Luger, J., & Raisch, S. (2022). Artificial intelligence and the changing sources of competitive advantage. *Strategic Management Journal*, doi:10.1002/smj.3387.

Kraus, S., Jones, P., Kailer, N., Weinmann, A., Chaparro-Banegas, N., & Roig-Tierno, N. (2021). Digital transformation: An overview of the current state of the art of research. *Sage Open*, 11(3), 21582440211047576.

Lasi, H., Fettke, P., Kemper, H., Feld, T., & Hoffmann, M. (2014). Industry 4.0. *Business & Information Systems Engineering*, 6, 239-242.

- Laurent-Pierre Baculard, Laurent Colombani, Virginie Flam, Ouriel Lancry and Elizabeth Spaulding. (2017). Orchestrating a successful digital transformation. Retrieved from <https://www.bain.com/insights/orchestrating-a-successful-digital-transformation/>.
- Lavie, D. (2006). Capability reconfiguration: An analysis of incumbent responses to technological change. *Academy of Management Review*, 31(1), 153-174.
- LEGO. (2022). The LEGO group set to nearly triple size of digital team to accelerate digital transformation. Retrieved from <https://www.lego.com/en-hk/aboutus/news/2022/april/the-lego-group-set-to-nearly-triple-size-of-digital-team-to-accelerate-digital-transformation>.
- Li, L., Su, F., Zhang, W., & Mao, J. (2018). Digital transformation by SME entrepreneurs: A capability perspective. *Information Systems Journal*, 28(6), 1129-1157.
- Linneberg, M. S., & Korsgaard, S. (2019). Coding qualitative data: A synthesis guiding the novice. *Qualitative Research Journal*, 19(3), 259-270.
- Liu, D., Chen, S., & Chou, T. (2011). Resource fit in digital transformation: Lessons learned from the CBC bank global e-banking project. *Management Decision*, 49(10), 1728-1742.
- Miles, M. B., & Huberman, A. M. (1994). *Qualitative data analysis: An expanded sourcebook* sage.
- Milgrom, P., & Roberts, J. (1995). Complementarities and fit strategy, structure, and organizational change in manufacturing. *Journal of Accounting and Economics*, 19(2-3), 179-208.
- Morgan, M. S., Morrison, M., & Skinner, Q. (1999). *Models as mediators: Perspectives on natural and social science* Cambridge University Press.
- Nadkarni, S., & Prügl, R. (2021). Digital transformation: A review, synthesis and opportunities for future research. *Management Review Quarterly*, 71, 233-341.
- Neumeier, A., Wolf, T., & Oesterle, S. (2017). The manifold fruits of digitalization-determining the literal value behind.
- Nieuwenhuis, L. J., Ehrenhard, M. L., & Prause, L. (2018). The shift to cloud computing: The impact of disruptive technology on the enterprise software business ecosystem. *Technological Forecasting and*

Social Change, 129, 308-313.

Northouse, P. G. (2021). *Leadership: Theory and practice* Sage publications.

Orb, A., Eisenhauer, L., & Wynaden, D. (2001). Ethics in qualitative research. *Journal of Nursing Scholarship*, 33(1), 93-96.

Peppard, J., & Ward, J. (2004). Beyond strategic information systems: Towards an IS capability. *The Journal of Strategic Information Systems*, 13(2), 167-194.

Porter, M. E., & Millar, V. E. (1985). *How Information Gives You Competitive Advantage*

Porter, M. E. (1989). *How competitive forces shape strategy* Springer.

Porter, M. E., & Heppelmann, J. E. (2014). How smart, connected products are transforming competition. *Harvard Business Review*, 92(11), 64-88.

PWC. (2018). Fourth industrial revolution for the earth - harnessing artificial intelligence for the earth.

Retrieved from <https://www.pwc.com/gx/en/sustainability/assets/ai-for-the-earth-jan-2018.pdf>.

Romme, A. G. L., Zollo, M., & Berends, P. (2010). Dynamic capabilities, deliberate learning and environmental dynamism: A simulation model. *Industrial and Corporate Change*, 19(4), 1271-1299.

Ryan, G. W., & Bernard, H. R. (2003). Techniques to identify themes. *Field Methods*, 15(1), 85-109.

Schilke, O., Hu, S., & Helfat, C. E. (2018). Quo vadis, dynamic capabilities? A content-analytic review of the current state of knowledge and recommendations for future research. *Academy of Management Annals*, 12(1), 390-439.

Sebastian, I., Ross, J., Beath, C., Mockler, M., Moloney, K., & Fonstad, N. (2017). How big old companies navigate digital transformation. *MIS Quarterly Executive*, 16(3), 197-213.

Shoemaker, P. J., Tankard Jr, J. W., & Lasorsa, D. L. (2003). *How to build social science theories* Sage publications.

Singh, A., & Hess, T. (2017). How chief digital officers promote the digital transformation of their companies. *MIS Quarterly Executive*, 16(1)

Soule, D. L., Puram, A., Westerman, G. F., & Bonnet, D. (2016). Becoming a digital organization: The

- journey to digital dexterity. *Available at SSRN 2697688*,
- Statista. (2022). Digital transformation spending worldwide 2017-2026. Retrieved from <https://www.statista.com/statistics/870924/worldwide-digital-transformation-market-size/>
- Suddaby, R. (2006). From the editors: What grounded theory is not. *Academy of Management Journal*, 49(4), 633-642.
- Tabrizi, B., Lam, E., Girard, K., & Irvin, V. (2019). Digital transformation is not about technology. *Harvard Business Review*, 13(March), 1-6.
- Teece, D. J., Pisano, G., & Shuen, A. (1997). Dynamic capabilities and strategic management. *Strategic Management Journal*, 18(7), 509-533.
- Teece, D. J. (2007). Explicating dynamic capabilities: The nature and microfoundations of (sustainable) enterprise performance. *Strategic Management Journal*, 28(13), 1319-1350.
- Thornberry, N. (2001). Corporate entrepreneurship:: Antidote or oxymoron? *European Management Journal*, 19(5), 526-533.
- Verhoef, P. C., Broekhuizen, T., Bart, Y., Bhattacharya, A., Dong, J. Q., Fabian, N., & Haenlein, M. (2021). Digital transformation: A multidisciplinary reflection and research agenda. *Journal of Business Research*, 122, 889-901.
- Warner, K. S., & Wäger, M. (2019). Building dynamic capabilities for digital transformation: An ongoing process of strategic renewal. *Long Range Planning*, 52(3), 326-349.
- Watson, H. J. (2017). Preparing for the cognitive generation of decision support. *MIS Quarterly Executive*, 16(3).
- Wernerfelt, B. (1984). A resource-based view of the firm. *Strategic Management Journal*, 5(2), 171-180.
- Westerman, G., Bonnet, D., & McAfee, A. (2014). The nine elements of digital transformation. *MIT Sloan Management Review*, 55(3), 1-6.
- Vial, G. (2019). Understanding digital transformation: A review and a research agenda. *The Journal of Strategic Information Systems*, 28(2), 118-144.
- Yin, R. K. (2003). Case study research: Design and methods . thousands oaks. *Sage. Young, LC and*

Wilkinson, IR (1989).the Role of Trust and Co-Operation in Marketing Channels: A Preliminary Study.European Journal of Marketing, 23(2), 109-122.

Yoo, Y., Henfridsson, O., & Lyytinen, K. (2010). Research commentary—the new organizing logic of digital innovation: An agenda for information systems research. *Information Systems Research, 21(4)*, 724-735.

Appendices

Appendix 1 - Interview Guides

1.1 Pre-Study Interview Guide

Formalities & Introduction

- Thank you for taking the time for the interview.
- Who are we and what are we doing?

Ethical Considerations - Information and questions for the interviewee

- Participation in this study is strictly voluntary, and the interview can be aborted at any moment and without further explanation
- You are anonymous in this study, and your personal data will be neither passed on nor saved
- Do we have your permission to record and transcribe this interview?
- Do you have any questions for us before we begin?

Person-specific

- Name:
- Age:
- Role:
- Role in the digital transformation efforts:
- Time at the company:
- Time involved in digital:

General

- Tell us a little bit about digital transformation as it relates to your role and department
 - **How do you define digital? What does a digital workspace look like to you?**
 - How do you currently approach digital?
 - Where are you currently in digital?
- What has been done so far in terms of Digital to make the workforce more adaptable to change?
- Can you tell us what you see as the end-goal with these digital efforts? What would you hope to achieve?
- How do you see those targets being achieved?
- **What are some challenges you see with achieving the digital transformation?**
- **In your department, what would you say are the barriers for achieving DT?**
- **Would you say the skills and competencies exist in the workforce today to achieve your goals in digital transformation? What about the competition?**
- **What kind of resources will become more relevant within operations, besides skills?**

More Specific Questions

- How do you currently go about identifying technological opportunities?
- What are you doing in terms of seizing potential opportunities that digital technologies bring?

Finish

- Are there any other people you would recommend us to interview?
- Is there anything you would like to add before we finish?

1.2 Main Study Interview Guides

The following are the two versions of the interview guides employed in the main study, based on the two groups of interviewees, digital experts (1.2.1) and role experts (1.2.2). It should be noted that, as the chosen interview format was semi-structured interviews, these guides functioned only as general guidelines to remain within the boundaries of the study, and that not every question was asked to every interviewee.

Furthermore, while the differences between 1.2.1 and 1.2.2 might seem subtle, the questions (and especially follow-up questions) were asked in a way to reflect the area of expertise of the interviewee. For instance, in the second section, “The Six Identified Barriers”, questions for digital experts focuses on the firm’s digital transformation, digital technologies, or digital skills and mindsets, while role experts were questioned about their experience with business transformation initiatives, the challenges they face in their roles and their interactions with other layers in the organisation. Nevertheless, the interview guide for role experts includes some digital-specific questions that were asked in order to gauge their understanding of the firm’s digital transformation efforts.

1.2.1 Digital Expert Interview Guide

Ethical Considerations - Information and questions for the interviewee

- Participation in this study is strictly voluntary, and the interview can be aborted at any moment and without further explanation
- You are anonymous in this study, and your personal data will be neither passed on nor saved
- Do we have your permission to record and transcribe this interview?
- Do you have any questions for us before we begin?

1. Introducing questions

- *Briefly explain what we are doing and what the goal of the interview is.*
- *Define what a middle manager is.*

“Middle managers are those people who are not directly involved with strategic decisions, but are more operational. They translate strategy into day-to-day decision-making.”

- What is the single most important thing for digital that the company is doing or should be doing?

And what is the role of employees and, most importantly, middle managers in this? What can middle managers do for the success of digital?

- Specifically in terms of finding opportunities?
- Specifically in terms of producing value out of the opportunities?
- Specifically in terms of adapting the organisation (business model / WoW) to capitalise on the opportunities?
- **Ask follow-up questions based on the answer provided**

How do you see the roles and responsibilities of middle managers shift with digital, if at all?

2. The Six Identified Barriers

*“To be a bit more specific, in our first round of interviews we identified six main barriers for digital. We’d like to go through them one by one, see if there’s anything obvious missing and maybe ask your opinion on why these barriers are there (**what’s causing the barriers**) and **what’s the role of middle managers in addressing them**”*

Vertical alignment - (Issues with getting different layers of the organisation to agree on goals, scope and ways of working, creating difficulties for any one layer to implement changes)

- Why does this barrier exist? What’s the role of middle managers in targeting this specific challenge?

A:

Horizontal alignment - (lack of consistency between business areas and factories. Similar to vertical alignment, but within the same horizontal layers)

- Why does this barrier exist? What’s the role of middle managers in targeting this specific challenge?

A:

Leadership expectations/feasibility alignment - (Leaders seem to be detached from “reality” when it comes to demanding digital transformation, not fully understanding the realities and demands of implementation)

- Why does this barrier exist? What’s the role of middle managers in targeting this specific challenge?

A:

Knowledge siloing - (Lack of knowledge of what is being implemented in various parts of the organisation)

- Why does this barrier exist? What’s the role of middle managers in targeting this specific challenge?

A:

Resistance to change/Digital Aversion - (Employees might resist Digital (in any form) because of fear of replacement, barriers to adoption, not seeing the benefits, high perceived risks, etc...)

- Why does this barrier exist? What’s the role of middle managers in targeting this specific challenge?

A:

Flexibility and adaptation issues - (the company wants to change, and knows the direction but the organisational structure/culture/whatever is too rigid and it's hard to implement change (even compared to comparable competitors))

- Why does this barrier exist? What's the role of middle managers in targeting this specific challenge?

A:

- First of all, Is there anything obvious that is missing?
- *For each one.* Why does this barrier exist? What's the role of middle managers in targeting this specific challenge? *Focus on the broader context of the organisation, what the challenges mean for digital and how digital skills and mindset can contribute to addressing these challenges.*
 - **Follow up questions**

3. Skill-Specific Questions

- What separates a "good" digital employee from a "bad" one? And a middle manager?
 - Are they more specialists or generalists, at least compared to their non-digital counterparts?
 - **Follow-up questions**
 - Specifically in terms of finding opportunities?
 - Specifically in terms of producing value out of the opportunities?
 - Specifically in terms of adapting the organisation (business model / WoW) to capitalise on the opportunities?
- *If the conversation has been more focused on cognitive skills:* and what technical skills would you say become more and less important? (e.g., data analysis, understanding of code...)
- *If the conversation has been more focused on technical skills:* and what cognitive/human skills would you say become more and less important? (e.g., continuous learning, decision making, design thinking...)
- Which skills will be relevant regardless of digital?

Conclusion

- Is there anything we should've asked that we haven't?
- Also can you point us to middle managers/people who are a bit closer to the shopfloor and operational who we could interview?

1.2.2 Role Expert Interview Guide

Ethical Considerations - Information and questions for the interviewee

- Participation in this study is strictly voluntary, and the interview can be aborted at any moment and without further explanation
- You are anonymous in this study, and your personal data will be neither passed on nor saved

- Do we have your permission to record and transcribe this interview?
- Do you have any questions for us before we begin?

1. Introducing questions

- *Briefly explain what we are doing and what the goal of the interview is.*
- *Define what a middle manager is.*

“Middle managers are those people who are not directly involved with strategic decisions, but are more operational. They translate strategy into day-to-day decision-making.”

- Tell us about your role
- Can you briefly describe what digital means to you?
- How do you view the company’s digital efforts?
 - How do you see it affecting you and your work?
 - What needs can it solve?

And what is the role of employees and, most importantly, middle managers in this? What can middle managers do for the success of business transformation?

- Specifically in terms of finding opportunities?
- Specifically in terms of producing value out of the opportunities?
- Specifically in terms of adapting the organisation (business model / WoW) to capitalise on the opportunities?
- **Ask follow-up questions based on the answer provided**

How do you see the roles and responsibilities of middle managers shift with digital, if at all?

2. The Six Identified Barriers

*“To be a bit more specific, in our first round of interviews we identified six main barriers for digital. We’d like to go through them one by one, see if there’s anything obvious missing and maybe ask your opinion on why these barriers are there (**what’s causing the barriers**) and **what’s the role of middle managers in addressing them**”*

Vertical alignment - (Issues with getting different layers of the organisation to agree on goals, scope and ways of working, creating difficulties for any one layer to implement changes)

- Why does this barrier exist? What’s the role of middle managers in targeting this specific challenge?

A:

Horizontal alignment - (lack of consistency between business areas and factories. Similar to vertical alignment, but within the same horizontal layers)

- Why does this barrier exist? What’s the role of middle managers in targeting this specific challenge?

A:

Leadership expectations/feasibility alignment - (Leaders seem to be detached from “reality” when it comes to demanding digital transformation, not fully understanding the realities and demands of implementation)

- Why does this barrier exist? What’s the role of middle managers in targeting this specific challenge?

A:

Knowledge siloing - (Lack of knowledge of what is being implemented in various parts of the organisation)

- Why does this barrier exist? What’s the role of middle managers in targeting this specific challenge?

A:

Resistance to change/Digital Aversion - (Employees might resist Digital (in any form) because of fear of replacement, barriers to adoption, not seeing the benefits, high perceived risks, etc...)

- Why does this barrier exist? What’s the role of middle managers in targeting this specific challenge?

A:

Flexibility and adaptation issues - (the company wants to change, and knows the direction but the organisational structure/culture/whatever is too rigid and it’s hard to implement change (even compared to comparable competitors))

- Why does this barrier exist? What’s the role of middle managers in targeting this specific challenge?

A:

- First of all, Is there anything obvious that is missing?
- *For each one.* Why does this barrier exist? What’s the role of middle managers in targeting this specific challenge? *Focus on roles, skill, responsibilities, challenges to the interviewee’s role, and interactions with other parts of the organisation.*
 - **Follow up questions**

3. Skill-Specific Questions

- What would make an employee / manager ready for digital?
 - Are they more specialists or generalists, at least compared to their non-digital counterparts?
 - **Follow-up questions**
 - Specifically in terms of finding opportunities?
 - Specifically in terms of producing value out of the opportunities?
 - Specifically in terms of adapting the organisation (business model / WoW) to capitalise on the opportunities?

- *If the conversation has been more focused on cognitive skills:* and what technical skills would you say become more and less important? (e.g., data analysis, understanding of code...)
- *If the conversation has been more focused on technical skills:* and what cognitive/human skills would you say become more and less important? (e.g., continuous learning, decision making, design thinking...)
- Which skills will be relevant regardless of digital?

Conclusion

- Is there anything we should've asked that we haven't?
- Also can you point us to middle managers/people who are a bit closer to the shopfloor and operational who we could interview?

Appendix 2 - Coding

Gioia's grouping	Single codes	DE_1	DE_2	DE_3	DE_4	DE_5	DE_6	DE_7	DE_8	DE_9	RE_2	RE_3	RE_4	RE_5	Number
Driving Innovation and Digital Opportunities															
Identifying And Implementing Opportunities															
Opportunity Finding	Learning Mindset, Process Understanding, Innovation Skills, Willingness to Learn	X	X	X	X		X		X		X				9
Opportunity Capitalisation	Value Creation, Scaling Skills, Implementation Skills	X	X	X	X		X		X			X		X	9
Idea Management	Generating Ideas, Evaluating Ideas, Sharing Ideas	X	X	X		X			X		X	X	X	X	9
Risk Taking	Risk taking		X	X	X	X	X		X		X			X	8
Open Mindset	Open Mindset, Overcoming Preconceptions	X	X	X	X	X			X		X	X	X		8
Technological Understanding And Application															
Tech And Data Proficiency	Technological Understanding, Tech Skills, Data Understanding, Data analysis	X	X	X		X	X		X		X	X		X	10
Digital Fluency And Decision Making	Digital Fluency, Digital Ambassadorship, Digital Decision Making, Understanding of Digital, Digital Mindset	X	X	X	X		X				X	X	X		7

Gioia's grouping	Single codes	DE_1	DE_2	DE_3	DE_4	DE_5	DE_6	DE_7	DE_8	DE_9	RE_2	RE_3	RE_4	RE_5	Number
Business-Technology Synergy	Deep Expertise, Combining Business and Technology, Understanding the Parts, Relevance Understanding	X		X		X	X	X							5
Agile And Iterative Approach															
Agile Mindset	Understanding of Agile, Agile mindset	X		X	X	X			X		X				6
Iterative Problem Solving	Iterative Improvements, Optimization, Iterative Approach to Problem Solving			X	X		X	X							4
Speed And Adaptability	Speed, Flexibility, Adaptability			X	X		X	X			X	X	X	X	8
Fostering Organizational Alignment And Collaboration															
Aligning Goals, Visions And Expectations															
Process Alignment And Prioritization	Vertical Alignment, Vision Alignment, Goal setting, Organizational alignment, Prioritization	X	X	X		X	X	X	X		X				8
Big Picture And Long-Term Thinking	Strategic Understanding of the Firm, Future-Planning Mindset	X	X	X	X	X	X	X							6
Expectation Management	Leadership Expectations, Managing Expectations	X	X		X									X	4

Gioia's grouping	Single codes	DE_1	DE_2	DE_3	DE_4	DE_5	DE_6	DE_7	DE_8	DE_9	RE_2	RE_3	RE_4	RE_5	Number
<i>Cross Functional Communication And Knowledge Sharing</i>															
Effective Communication	Communication Skills, Rephrasing Skills, Transparent communication, Speaking up, Listening Skills	X	X	X	X	X	X		X			X			7
Knowledge Sharing And Collaboration	Knowledge Sharing, Willingness to share, Collaboration Skills		X	X		X	X		X		X	X			8
Networking And Political Skills	Networking Skills, Political Skills, Building relationships	X		X		X		X		X	X	X		X	9
Strategic Translation Skills	Strategic translation skills, Understanding of strategies, Reframing skills, Visualizing Skills	X	X	X		X			X		X	X		X	11
<i>Building Cooperation And Harmonization</i>															
Cooperation And People Alignment	Cooperation Skills, Merging Skills, Aligning Different Needs		X	X	X				X			X	X	X	7
Harmonization And Process Integration	Harmonization, Understanding needs of people outside of their role, Harmonizing processes	X	X		X	X	X			X					7
Conflict Resolution And Mediation	Conflict Resolution Skills, Mediation Skills, Negotiation Skills, Crisis Management Skills		X					X	X		X				4

Gioia's grouping	Single codes	DE_1	DE_2	DE_3	DE_4	DE_5	DE_6	DE_7	DE_8	DE_9	RE_2	RE_3	RE_4	RE_5	Number
Empowering People And Overcoming Barriers To Change															
<i>Developing And Supporting Employees</i>															
Employee Development	Supporting Skills, Training Skills, Teaching Skills, Continuous Training, Continuous Learning Mindset	X		X	X	X	X	X	X	X	X	X	X	X	11
Employee Empowerment	Empowering People, Empowerment Skills, Giving Autonomy	X	X		X							X	X		5
Motivation And Support	Motivating people, Motivational Skills, Providing Support, Leading by Example, Leadership Skills	X	X		X			X	X			X			6
Building In Slack Time	Building in Slack Time, Time-Planning and Optimization	X	X			X		X	X		X	X			6
<i>Mitigating Fear And Building Resilience</i>															
Fear Mitigation And Resilience	Fear Mitigation, Risk and Failure Tolerance, Reassuring Communication					X	X	X	X		X	X			6
Change Management	Change Management Skills, Managing Change, Change Readiness	X	X		X		X		X				X		7
Creating A Safe Environment	Psychological Safety, Trust Building, Encouraging Openness	X	X						X	X	X			X	4

Gioia's grouping	Single codes	DE_1	DE_2	DE_3	DE_4	DE_5	DE_6	DE_7	DE_8	DE_9	RE_2	RE_3	RE_4	RE_5	Number
<i>Encouraging Diversity And Emphaty</i>															
Diversity And Inclusion	Diversity, Fostering Diversity, Cultural Understanding, Inclusivity		X									X		X	3
Emphaty And Emotional Intelligence	Empathy, Emotional Intelligence, Understanding others, EQ Skills		X		X					X	X	X			6
Adaptability To Diversity	Adapting to different cultures, Adapting communication style, Open-mindedness		X							X		X			3

Appendix 3 - Full Description of First-Order Concepts

Driving Innovation and digital opportunities

Identifying and Implementing Opportunities

Opportunity Finding

Proactive monitoring of industry trends and fostering a team culture that encourages exploration of new opportunities are essential components of opportunity finding. While middle management is not the main source of idea generation, it plays a vital role in identifying emerging digital opportunities and facilitating idea-sharing within the organisation.

Opportunity Capitalisation

Opportunity capitalisation is the process of generating value from identified digital opportunities by developing relevant use cases that lead to revenue generation. This skill is crucial for middle managers to ensure that they can effectively implement, scale, and create value from the opportunities presented to them.

Idea Management

Idea management encompasses the identification, cultivation, and dissemination of ideas as they emerge within an organisation. Middle managers play a vital role in creating an environment that encourages creative thinking, recognizes promising ideas, and ensures effective communication and pursuit of these ideas throughout the organisation.

Risk Taking

Risk-taking is a critical characteristic for middle managers involved in digital transformation. A willingness to take risks in their personal roles and within their teams is essential for leveraging the potential of new opportunities as they arise and driving digital initiatives forward.

Open Mindset

In the context of digital transformation, an open mindset is crucial for middle managers. This mindset allows them to overcome preconceptions, adopt a forward-thinking approach, and actively seek innovative digital solutions that can enhance organisational performance.

Technological Understanding and Application

Tech and Data Proficiency

Middle managers need a general proficiency in digital technologies and data analysis processes for successful digital transformation. While in-depth technical expertise is not essential for all roles, a solid understanding of technology is critical for making informed decisions related to digital initiatives.

Digital Fluency and Digital Decision Making

Digital fluency entails understanding how digital technologies operate and the potential impact they can have when implemented. Middle managers must have effective decision-making skills based on digital understanding, including the ability to collect and analyse available data and make data-driven decisions.

Business-Technology Synergy

Middle managers need to comprehend the interrelations between business and technology. This skill involves determining the business value in new digital opportunities and understanding which technologies are viable opportunities based on the organisation's business strategy.

Agile and Iterative Approach

Agile Mindset

An agile mindset is a crucial trait for middle managers to succeed in digital transformation. This mindset involves being open to experimentation, quickly adapting to changing circumstances, and delivering value even under uncertainty.

Iterative Problem Solving

Effective iterative problem-solving skills are key for the success of digital transformation. This approach entails a systematic, data-driven method when addressing challenges, followed by iterative experimentation and testing, allowing for continuous improvement.

Speed and Adaptability

Speed and adaptability are crucial for middle managers dealing with digital transformation. This skill requires working quickly and efficiently in uncertain environments and having the capacity to pivot when faced with changing circumstances. Fostering adaptability ensures that teams and organisations remain agile and competitive in the rapidly evolving digital landscape.

Fostering Organisational Alignment and Collaboration

Aligning Goals, Vision, and Expectations

Process Harmonization and Prioritisation

Process harmonisation and prioritisation involve aligning goals, processes, and resources throughout an organisation. Middle managers must navigate complex organisational structures to ensure digital initiatives are adequately supported and aligned with the organisation's objectives. They are responsible for standardising and harmonising technology layers and prioritising initiatives to achieve the desired outcomes.

Big Picture and Long-Term Thinking

Middle managers must possess the ability to think strategically and maintain a long-term perspective when making decisions. They need to understand how various efforts impact the broader organisation and

balance immediate concerns with the organisation's long-term vision and goals. This skill enables middle managers to drive sustainable and impactful digital transformations.

Expectation Management

Expectation management involves setting realistic goals, challenges, and timelines for both leadership and implementation-level employees. Middle managers must maintain open communication and foster trust, helping to mitigate potential misunderstandings or misalignments that may arise throughout the digital transformation process.

Cross-Functional Communication and Knowledge Sharing

Effective Communication

Effective communication skills are essential for middle managers during digital transformation. They must convey complex ideas in an understandable manner, adapt their messaging to different audiences, and facilitate clear and concise verbal and written communication. Effective communication is crucial for bridging the gap between top leadership and operational organisations in the digital transformation process.

Knowledge Sharing and Collaboration

Middle managers need to encourage knowledge sharing and collaboration within the organisation, both vertically and horizontally. They should foster openness, transparency, and cross-functional collaboration, enabling connections between relevant knowledge sources. By creating an environment that supports knowledge exchange and collaborative problem-solving, middle managers can drive innovation and maximise the potential benefits of digital transformation initiatives.

Networking and Political Skills

Networking and political skills are essential for middle managers navigating the complexities of digital transformation. They must build relationships with stakeholders, understand power dynamics, and leverage these relationships to facilitate collaboration and the successful implementation of digital initiatives. These skills enable middle managers to overcome organisational barriers and achieve their objectives.

Strategic Translation Skills

Strategic translation skills involve understanding and reframing firm-level strategies for different stakeholders. Middle managers must translate business goals from the leadership level into actionable digital initiatives while communicating the value and potential impact of these initiatives to non-technical stakeholders. This skill allows middle managers to bridge the gap between technical and non-technical functions, ensuring a cohesive approach to digital transformation.

Building Cooperation

Cooperation and People Alignment

Cooperation and people alignment involve the ability to align individuals within teams and throughout the organisation to foster a culture of collaboration. Middle managers must ensure that various teams and

departments work together effectively and efficiently toward shared digital goals, promoting a collaborative environment.

Role Harmonisation

Role harmonisation requires integrating roles and responsibilities across functions and hierarchies, thus increasing cooperation within the firm. Middle managers must ensure that the harmonisation occurs and maintain regular communication across all levels of the organisation, promoting a more unified approach to digital transformation.

Conflict Resolution and Mediation

Conflict resolution and mediation skills are essential for middle managers to mitigate conflicts within the organisation. They need to possess conflict resolution, mediation, and negotiation skills to address disagreements and find solutions that satisfy all parties involved. By fostering open communication and mutual respect, middle managers can prevent conflicts from escalating and ensure a harmonious approach to digital transformation initiatives.

Empowering People and Overcoming Barriers to Change

Developing and Supporting Employees

Employee Development

Middle managers play a crucial role in continuous employee development for successful digital transformation. This involves not only providing training and upskilling support but also creating a continuous learning culture. As a result, employees are equipped with the necessary skills and knowledge to excel in a digitally-transformed environment, and the organisation benefits from a well-prepared workforce.

Employee Empowerment

Empowering employees is a vital skill for middle managers during digital transformation. This involves delegating responsibilities and autonomy, promoting an innovative culture, and instilling a sense of accountability and ownership. Empowered employees are more likely to contribute significantly to the organisation's digital transformation efforts.

Motivation and Support

The ability to motivate and support subordinates is essential for middle managers in digital transformation initiatives. This encompasses providing a clear sense of direction and purpose, assisting employees facing challenges, and rewarding success. A motivated and supported workforce is more likely to engage effectively in digital transformation initiatives.

Building in Slack Time

Several interviewees emphasised the importance of allocating slack time for digital transformation projects. This includes providing work hours for experimentation and iteration, reducing work burdens,

and allowing time for reflection and analysis. Creating slack time enables employees to explore new ideas and approaches without being hindered by excessive workload, leading to more innovative solutions.

Mitigating Fear and Building Resilience

Fear-Mitigation and Resilience

Mitigating fear and building resilience are critical skills for middle managers in digital transformation efforts. This involves actively listening to subordinates, addressing concerns, and supporting stakeholders in adapting to changing environments. Ensuring that employees feel heard and understood during the transition promotes a sense of resilience in the face of change.

Change Management

Effective change management is essential for middle managers in digital transformation processes. This includes mitigating resistance to change, communicating the need for change, and providing resources and support for team members during transitions. Implementing efficient change management practices helps facilitate smoother transitions and minimise the negative impacts of digital transformation on employees.

Creating a Safe Environment

The ability to create a safe environment for open communication, experimentation, and innovation without fear of failure is vital for middle managers. This involves building a culture of trust and psychological safety where employees feel supported and encouraged to take risks and learn from their mistakes, leading to a more innovative and open workplace.

Encouraging Diversity and Empathy

Empathy and Emotional Intelligence

Emotional intelligence and empathy are crucial skills for middle managers during digital transformation. These skills allow managers to understand human biases and build strong relationships with subordinates and stakeholders. Exhibiting empathy and emotional intelligence creates an environment where employees feel valued and understood, leading to greater engagement in digital transformation efforts.

Diversity and Inclusion

Middle managers should actively promote diversity and inclusion within their teams to improve idea generation and innovation during digital transformation. This entails encouraging a culture of inclusivity that supports collaboration between diverse employees and stakeholders. Embracing diversity in backgrounds, mindsets, and perspectives allows organisations to leverage a broad range of talent and ideas for enhanced innovation.

Adaptability to Diversity

Middle managers must be able to adapt to diversity within the organisation to bring out the full potential of employees with diverse backgrounds. This requires flexibility, openness to new perspectives and ideas, and a willingness to challenge existing norms and assumptions. An adaptable and open-minded middle

manager can help establish an environment that values and leverages diverse ideas and perspectives, driving more effective and innovative digital transformation outcomes.

Appendix 4 - Grouping of First-Order Concepts

Gioia's Grouping	Sensing	Seizing	Reconfiguring
Driving Innovation and Digital Opportunities	X	X	
<i>Identifying And Implementing Opportunities</i>	<i>X</i>	<i>X</i>	
Opportunity Finding	X		
Opportunity Capitalisation		X	
Idea Management	X	X	
Risk Taking		X	
Open Mindset	X	X	
<i>Technological Understanding And Application</i>	<i>X</i>	<i>X</i>	
Tech And Data Proficiency	X	X	
Digital Fluency And Decision Making	X	X	
Business-Technology Synergy	X	X	
<i>Agile And Iterative Approach</i>		<i>X</i>	
Agile Mindset		X	
Iterative Problem Solving		X	
Speed And Adaptability		X	
Fostering Organisational Alignment And Collaboration	X	X	X
<i>Aligning Goals, Visions And Expectations</i>		<i>X</i>	<i>X</i>
Process Alignment And Prioritization		X	X
Big Picture And Long-Term Thinking			X
Expectation Management		X	X

<i>Cross Functional Communication And Knowledge Sharing</i>	<i>X</i>	<i>X</i>	<i>X</i>
Effective Communication	X	X	X
Knowledge Sharing And Collaboration	X	X	X
Networking And Political Skills		X	X
Strategic Translation Skills		X	X
<i>Building Cooperation And Harmonisation</i>		X	X
Cooperation And People Alignment		X	X
Harmonization And Process Integration			X
Conflict Resolution And Mediation			X
Empowering People And Overcoming Barriers To Change	X	X	X
<i>Developing And Supporting Employees</i>	<i>X</i>	<i>X</i>	<i>X</i>
Employee Development	X	X	X
Employee Empowerment	X	X	
Motivation And Support	X	X	
Building In Slack Time	X	X	
<i>Mitigating Fear And Building Resilience</i>	X	X	X
Fear Mitigation And Resilience		X	X
Change Management			X
Creating A Safe Environment		X	X
<i>Encouraging Diversity And Empathy</i>	X		X
Diversity And Inclusion	X		X
Empathy And Emotional Intelligence			X
Adaptability To Diversity	X		X