The Impact of Digital Transformation on Operational Efficiency and Strategic Decision-Making in Industrial Companies

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ABSTRACT:
The contemporary industrial organizations have made digital transformation a significant competitiveness and innovation driver. This thesis will research on how digital transformation affects the efficiency of operations and strategy formulation of industrial firms and explore the obstacles to effective digital transformation. The study is a quantitative study that relies on a structured questionnaire that will be sent to the employees of industrial companies. One hundred valid responses were taken and processed with the help of statistical methods and descriptive statistics, correlation analysis, regression analysis, and analysis of variance (ANOVA). The results show that the digital transformation has a strong positive effect on the operational efficiency and strategic decision-making. Those organizations that embrace the use of digital technologies, including automation systems, data analytics, and integrated digital platforms, record higher productivity, a more efficient workflow, and quality decisions. It is also indicated in the results that digital tools facilitate data-driven strategic planning and make the process of decision-making faster and more accurate. Nevertheless, the research points to a number of obstacles that adversely affect the success of digital transformation, such as the unwillingness to change organisations, the absence of digital skills, the lack of training, the financial factors and the challenges of integrating the new systems with the old ones. On the whole, the research finds that digital transformation could be used to improve organizational performance in industrial firms to a great degree, although the strategy of its implementation, training of employees, and effective leadership support are essential.

Contents

CHAPTER 1: INTRODUCTION

1.1 Background of the Study

The digital transformation has become a force in transforming modern industrial companies and this transformation affects the functioning of the organizations, their decision making, and their competitiveness in the fast-changing global environment. Such areas of industrial activity as manufacturing, logistics, and energy are undergoing major structural changes as digital technologies become part of everyday life (Barreto et al., 2025). Automation, data analytics, artificial intelligence, cloud computing, the Internet of Things, and enterprise resource planning platforms are some of the tools and systems that are gradually incorporated into the industrial processes. These technologies promise to simplify the working processes, increase productivity, minimize the number of errors in operations, improve coordination, and assist more efficient managerial decisions (Imran et al., 2021). With the shift in industries toward interconnected and highly responsive systems, the digital transformation is not considered as a technological option anymore but a strategic need.

Although this trend is widely adopted, there are still numerous companies struggling with the ability to measure and quantify the real effects of digital transformation. In spite of the fact that the industrial companies invest much in the digital systems, the results are not always evident in the improvement of operational performance (Agustian et al., 2023). The digital technologies are usually supposed to provide higher efficiency, cost reduction, and quality of decisions, yet the companies do not have systematic evidence of such advantages. Digital transformation can be introduced successfully in most cases, although the complexity of industrial processes, the organization preparation, and the need to integrate technology and skills of the employees

frequently affect the implementation process. Consequently, not all organizations can transform the digital investments into operational or strategic benefits (Omol, 2024).

The given work is aimed at covering this problem, as the author attempts to investigate how digital transformation is connected to two key organizational outcomes in the industrial setting: operational efficiency and strategic decision-making. Industrial firms are extremely dependent on the efficiency of their processes and wise decision-making to be competitive (Westerman et al., 2014). Thus, it is significant to learn the ways in which digital technologies can impact these spheres to draft successful strategies and to make sure that investments do bring significant changes. Moreover, industrial sector faces various challenges in the process of digital adoption, such as lack of expertise, resistance, insufficient infrastructure and technological complexity, and financial limitations (Teece et al., 1997). These barriers are what need to be identified and understood by organizations aiming to derive the best out of the digital transformation.

Research Gap and Contribution of the Study

Despite the fact that the area of digital transformation has grown tremendously over the last few years, the current literature is more inclined to explore the effects of this phenomenon on either a strategic or an operational level, but not on both dimensions as part of a single empirical model (Verhoef et al., 2021). The strategic implications of digital transformation have been studied extensively in the literature, highlighting the importance of digital transformation in improving competitiveness, innovation, and long-term value creation (Verhoef et al., 2021; Vial, 2021). On the other hand, the other line of research is operational outcomes, including optimization of processes, automation, improving productivity, and cost effectiveness (Kraus et al., 2022; Eller et al., 2020). However, it is not the case that much empirical research simultaneously analyzes the

impact of digital transformation on the operational efficiency and strategic decision-making in industrial enterprises using the same dataset. This division forms a disjointed perception of its overall organizational effect.

Moreover, a significant portion of the current literature is based on conceptual frameworks, qualitative case study, or industry-specific analysis, limiting the extrapolation of the results to various industrial settings (Bharadwaj et al., 2013; Muehlburger and Krumay, 2024). Although such studies offer useful information, quantitative, employee-level data that would reflect the experience of digital transformation in various organizational functions and its potential translation into the tangible performance results is lacking. Recent research also highlights that micro-level perspectives are useful to explain the outcomes of the digital transformation but such evidence is limited in the industrial setting (Nambisan et al., 2019).

Besides, although prior research acknowledges various barriers to digital transformation, including resistance to change, lack of digital skills, technological complexity, and financial constraints, they are inclined to discuss them on a descriptive or a case-by-case basis (Kane et al., 2015; Vial, 2021). Empirical research on the interaction of these barriers with the digital transformation initiatives to affect the operational and strategic performance at the same time is lacking. Due to this, the extent to which these obstacles restrict the realization of the benefits of digital transformation in practice has not been studied sufficiently.

This paper covers these gaps by taking a quantitative survey-based research to check the combined impact of digital transformation on the efficiency of operations and strategic decisions in industrial firms. This paper offers a deeper and more empirically-reliable understanding of the digital transformation by incorporating the data on the employee level and the perceived

obstacles in comparison with performance outcomes (Vial, 2021). The study contributes to the literature by bridging the operational and strategic levels, enhancing the generalizability of the study, and providing practical suggestions to managers who would be interested in adopting effective digital transformation strategies.

1.2 Problem Statement

Digital technologies are rapidly being introduced in industrial firms, and a lot of organizations are still uncertain on the effect of these technologies on the major performance outcomes. It is not uncommon that managers are facing problems with deciding whether digital transformation actually results in a higher operational efficiency or to a better strategic decision-making (Kraus et al., 2022). Lacking solid prove, companies might end up taking huge risks of investing their funds in large scale without knowing how they are going to get the actual profits, without knowing what triggers success (Barney, 1991). The scarcity of organized, quantitative studies in the field leaves a gap that is to be filled by this study.

The other aspect of the issue is that the obstacles to digital transformation are still present in all industries. Low levels of digital capabilities, the inability to align technology with organizational functions and operations, lack of clarity on the implementation process, and problems with the integration of new technologies in the old ones are some of the problems facing many companies (Eller et al., 2020). Such issues usually limit the amount of organizations can gain through digital transformation efforts. Hence, the research will investigate these obstacles in a systematic way, including the manner in which they affect digital technology adoption and usage (Kane et al., 2015). In this way, the study adds to the more comprehensive research on the ways to effectively enact digital transformation by industrial companies and obtain tangible enhancements.

1.3 Significance of the Study

This is an important study because of a number of reasons. To begin with, it adds to the accumulating literature on digital transformation because it offers empirical evidence of the effect of digital adoption on operational and strategic performance of industrial companies. The need to comprehend these relationships stems out of the fact that digital transformation continues to emerge as a key factor in the competitiveness of organizations (Wu, 2022). The study provides information on how companies can develop more efficient operations, minimize waste, and enhance output through analysis of the effects of digital tools on operational efficiency.

Second, the study has provided useful recommendations to managers and industrial decision-makers. There are numerous companies, which are eager to implement digital transformation but are not clear about the most optimal implementation strategies and the kind of challenges they can experience (Bharadwaj et al., 2013). This study brings out common obstacles experienced in the adoption of digital and gives reasoning on how these obstacles may slow or restrain the positive aspects of the digital transformation (Xu et al., 2018). To the organizations intending to implement digitally or already implementing it, the results of this research will help them make better decisions and strategic plans.

Lastly, the study is pertinent to politicians and government bodies that are striving to facilitate industrial digitalization (Mühlburger & Krumay, 2024). The identification of obstacles and the results of the performance means that the research may be used as a reference to elaborate supportive policies, training programs, or industrial development initiatives that facilitate the process of successful digital transformation.

1.4 Aim of the Study

This research proposal intends to explore how digital transformation has influenced operational performance and operational strategy of industrial firms and also determine the key challenges that hinder firms to have optimum benefits of using digital transformation.

1.5 Research Questions

The research will address the following questions:

1. How does digital transformation influence operational efficiency in industrial firms?
2. How does digital transformation affect strategic decision-making processes in industrial organizations?
3. What barriers prevent industrial companies from maximizing the benefits of digital transformation?

1.6 Research Objectives

The objectives of the study are:

1. To analyze the impact of digital transformation on operational efficiency.
2. To examine the influence of digital transformation on strategic decision-making.
3. To identify barriers that limit successful adoption of digital transformation in industrial firms.

1.7 Scope of the Study

The business nature of the companies is in the manufacturing, logistics, and energy sectors, which are the scope of this research. The research will focus on the employees of various levels in the

organization such as managers, supervisors, and operational workers who will be directly involved or affected by the digital transformation programs (Rashed et al., 2024). The study will guarantee the validity of the data collected since the respondents are people with experience of dealing with digital systems and will be providing the information based on the actual experience and practice.

A structured questionnaire will be employed in the research to be given electronically to about 100 respondents (Nambisan et al., 2019). The variables to be measured in the study will be digital adoption variables, operational efficiency variables, decision making variables, and perceived barriers variables. The study is not based on the prospects of measuring long-term financial performance or market results; rather, internal operational and strategy aspects are the primary point.

1.8 Overview of the Methodology

To examine the effect of digital transformation, the research will use quantitative research design. The questionnaire will be formatted into a structured questionnaire, which will be distributed electronically and will be efficient in collecting data as well as making the questionnaire accessible to the respondents within various industrial environments (Kane et al., 2015). Purposive sampling will be applied in the selection of the participants that will have the relevant experience with the digital technologies.

Collected data will be measured with the help of statistical tools, to test the relations between variables. The respondent characteristics and general trends will be summarized using descriptive analysis, whereas more advanced inferential methods including correlation, regression, ANOVA, chi-square tests and factor analysis will be applied to examine and identify

associations, quantify predictive influences, and test construct validity (Tham, 2021). This methodology facilitates the finding being based on quantifiable evidence and it helps gain insights on the implications of digital change on organizational performance.

1.9 Structure of the Thesis

The thesis is organized into six chapters. Chapter 1 introduces the research by presenting the background, problem statement, research objectives, and significance of the study. Chapter 2 reviews relevant literature and theoretical frameworks related to digital transformation, operational efficiency, and strategic decision-making. Chapter 3 outlines the research methodology, including data collection methods, sampling procedures, and analytical techniques. Chapter 4 presents the results of the data analysis and interprets the findings. Chapter 5 discusses the findings in relation to existing literature and theoretical perspectives. Finally, Chapter 6 provides the overall conclusions, practical implications, limitations of the study, and recommendations for future research.

1.10 Summary

The digital transformation has persisted in transforming the structure of industrial companies by changing the way operations are carried out and decisions made. Despite the potential improvement opportunities provided by the digital technologies, several organizations cannot find out the actual impact and address the challenges of the adoption. The purpose of this work is to resolve these problems by discussing what the digital transformation can do to the efficiency of operations and the quality of strategic choices and which obstacles will prevent the successful completion of these changes.

CHAPTER 2: LITERATURE REVIEW

2.1 Introduction to the Literature Review

This literature review is aimed at critically evaluating the scholarly literature concerning the topic of the digital transformation and its impact on industrial enterprises, with specific focus on their operational efficiency and strategic decision-making. Since the digital transformation has emerged as a fundamental theme in the research of industrial management, the systematic review of the existing studies is needed to comprehend how the concept was defined, researched and analyzed, and investigated in various settings (Abdurrahman, 2025). The analysis of the literature enables this study to place itself in the current scholarly discussions and to find out the gaps and fragmentation of knowledge existing in the field.

This review is restricted to the studies related to industrial environment including manufacturing, logistics, and energy industries where the digital technologies are being incorporated into the operational and strategic processes. The review is particularly thorough in discussing three related dimensions, namely, digital transformation as an organizational phenomenon, its effects on operational efficiency, and its effect on strategic decision-making (Agustian et al., 2023). Moreover, the sources connected with the barriers to digital

transformation are also reviewed in a bid to comprehend why the envisaged benefits of digital initiatives are not always effectively manifested in practice.

This chapter is designed in such a way that it progresses through conceptual basis to a more precise empirical evidence. It starts with a contextualization of the digital transformation in industrial contexts and then critically reviews the literature that has related digital transformation with operational efficiency and strategic decision-making (Saunders et al., 2019). This chapter then examines significant theoretical perspectives and barriers that have been commonly identified and then synthesizes the literature to bring out gaps and inconsistencies (Ahmad et al., 2021). This analytical development is a clear background to the research questions of this study as it proves why the combined analysis of operational, strategic and dimension of barriers is timely and needed.

2.2 Concept of Digital Transformation in Industrial Contexts

Digital transformation has been discussed as a concept in various ways in academic literature, which is due to the variations in disciplinary focus and aims of research (Barney, 1991). Other researchers use digital transformation as the introduction and use of advanced digital technologies, including automation, data analytics, artificial intelligence, cloud systems, or the Internet of Things, in the process of organizations. In this respect, the digital transformation is considered as the phenomenon that is based on technologies and increases the operational capabilities in terms of efficiency, speed, and accuracy (Mühlburger and Krumay, 2024). This understanding is especially widespread among researchers in the area of manufacturing and industrial automation, in which technological innovation is frequently regarded as the major source of performance gains.

Digital transformation however encompasses the implementation of new technologies, but other scholars believe that it is an organizational change process which should be understood as a whole. In this perspective, digital transformation entails radical transformations in business models, business organizations, decision-making, and culture at the workplace (Chen & Zhang, 2023). These studies are based not on the evaluation of the sole technological equipment but on the alignment of the digital technologies with the organizational potential, human resources, and strategies (Cherepanov and Popov, 2022). The given point of view is particularly applicable to industrial settings where intricate production systems and interdependent processes demand co-ordinated alterations at a number of different organizational levels.

The difference between the technological-oriented and the organizational-change-oriented definition implies that the digital transformation cannot be viewed comprehensively through the narrow technological prism (Romanova and Kuzmin, 2021). Although digital tools can open up new opportunities of operation they all come down to their implementation within organizational practices and managerial routines. In the industrial market, including logistics and energy, e.g., the implementation of digital monitoring opportunities can lead to the enhancement of the availability of data, yet, without the modifications in decision-making patterns and skills of the employees, the advantages are not likely to be significant (Barreto et al., 2025). This points to the significance of treating the concept of digital transformation as a socio-technical process, rather than a technical upgrade.

Moreover, the industrial setting is typified by the existence of legacy systems, high capital requirements and operational constraints that make the process of digital implementation hard. Consequently, researchers are gradually placing more and more importance on the necessity of

organizational preparedness, change management, and alignment as the concept of a digital transformation in the industrial setting (Baslyman, 2022). This more general insight offers a more realistic basis of understanding why the digital transformation efforts would work in certain industrial companies and fail to bring the expected results in others. The conceptual plurality of the literature highlights the necessity of an integrative research that will encompass the technological and organizational aspect of the digital transformation (Civelek et al., 2023).

2.3 Digital Transformation and Operational Efficiency

A major part of the digital transformation literature focuses on how it affects operational efficiency, especially in the industrial and manufacturing settings. Online technology like automation solutions, data analytics systems, smart sensors, and enterprise systems of integration are more often linked with the enhancement of processes optimization, productivity, and cost decrease (Wujarso, 2023). It is claimed by numerous studies that digital technologies make it possible to monitor the operations in real-time and minimize the number of manual errors, as well as improve coordination in all activities conducted in the production and supply chain. In this regard, the concept of digital transformation is considered one of the most important facilitators of leaner operations and improved output (Feng & Ali, 2024)

The findings of a number of empirical studies show that efficiency gains are strong after the adoption of digital in the industrial settings (Baslyman, 2022). These studys reveal how automation and data-driven systems simplify processes, reduce manufacturing time, and enhance the use of resources. Digital technologies are commonly associated with productivity growth in manufacturing settings, namely, predictive maintenance, automated quality control, and improved scheduling (Lin and Xie, 2023). This kind of findings implies that in case

technologies are well implemented and coordinated with the purposes of operations, they might contribute greatly to operational efficiency.

Nevertheless, the results provided in other studies are more mixed or limited, which makes the presumption that digital transformation inevitably results in efficiency improvements rather problematic (Hamann-Lohmer et al., 2023). According to some studies, the introduction of digital tools does not necessarily translate into instant performance improvement, and even in the short term, it can destabilize the current processes. These studies contend that the outcome of efficiency is much dependent on the contextual factors but not the adoption of technology (Mavlutova et al., 2022). The variation in the quality of implementation, employee expertise and system integration is often the reason behind the difference in outcomes of similar technologies across companies.

The quality of its implementation is a very significant factor in defining the results of its efficiency because the ill-conceived or piecemeal digital projects are frequently unable to produce the intended results. Moreover, the competency and digital skills of the employees have an impact on the effectiveness of the new systems in the daily business (Keskar and Malaga, 2023). Unless properly trained and their use is accepted by the user, digital tools might stay underutilized to restrict their productivity effect. Another important factor is system integration especially in the industrial setting where the infrastructure is based on legacy. The effectiveness of the gains may be limited or compensated with the complexity when the new digital solutions are not completely implemented with the existing systems (Belhadi et al., 2022).

The two opposite findings indicate that the impact of digital transformation on operational efficiency is not a certainty but mostly context-specific. The potential of using digital

technologies to make the work more efficient is great, yet the actual outcome is determined by the level of organizational preparation, the abilities of people, and the consistency of the implementation policies (Feng and Ali, 2024). That is why there is a necessity to use empirical studies that do not only concentrate on whether digital transformation brings efficiency, but on the conditions under which such enhancements are achieved in industrial firms.

2.4 Digital Transformation and Strategic Decision-Making

The strategic decisions of industrial organisations have been connected more and more with the process of digital transformation. Digital systems include data analytics systems, dashboards, enterprise resource planning systems and artificial intelligence applications, and are usually linked to increased access to information and better analytical capabilities (Kim and Kim, 2022). The tools will allow organizations to gather, compute and visualize huge amounts of operational and market information in ways that allow more informed strategic planning and monitoring (Borovkov et al., 2021). Digital systems are considered useful facilitators of data-driven decision-making in industrial settings, where complex trade-offs are common concerning the production capacity, the supply chain coordination, and the investment planning.

There is a significant amount of literature that highlights the use of digital technologies to enhance the speed and accuracy of strategic decisions. Digital tools can help to minimize delays in information by delivering real-time insights and predictive analytics to accelerate the reaction to changes in the environment (Jacociunas et al., 2024). Dashboards and built-in reporting systems assist with aligning the data of operations with the strategic goals and managers track the performance indicators and evaluate the strategy options more systematically. In this view,

digital transformation maximizes the strategic alignment by connecting operational activities to organizational objectives with clear and open flow of information (Imran et al., 2022).

Nevertheless, there is also a warning by other studies not to consider digital technologies to be universally helpful in strategic decision-making. Other researchers note that the excessive use of data-driven systems can simplify complicated strategic decisions and diminish the managerial discretion. Uncertainty, ambiguity, and the long-term consideration are part of the strategic decisions, which cannot be described by quantitative information only (Brdesee and Alsaggaf, 2022). Tacit knowledge, intuition and contextual knowledge are often used by experienced managers in industrial firms to make strategic decisions especially in cases where data is incomplete or dynamic.

Digital tools, in their turn, are practiced based on organizational culture and decision-making norms. In companies where the hierarchy is very high or the level of digital maturity is low, digital insight can be disregarded or can be selectively utilized to support predetermined actions. On the other hand, companies that have team oriented cultures and are good in analysis will tend to incorporate digital information in the strategic debate (Ahmad et al., 2021). This difference implies that the digital transformation is not influencing the strategic decision-making process solely based on the technological factor but also depends on social and organizational elements (Jacociunas et al., 2024).

On the whole, the literature demonstrates the clash between decision rationality based on data and human judgment in the strategic decision-making process. Although digital systems can improve speed, accuracy and alignment, they do not take away the managerial interpretation and contextual reasoning (Brdesee and Alsaggaf, 2022). This gives the emphasis on studying the

interactions of digital transformation and organizational practices and decision cultures, as opposed to believing that digital tools inevitably improve strategic performance.

2.5 Theoretical Perspectives Supporting the Study

The connection among the digital transformation, efficiency in operations and the strategic decision-making can be well elucidated using the existing strategic management theories, especially the Resource-Based View (RBV) and Dynamic Capabilities Theory (Kero and Bogale, 2023). These views offer theoretical bases to explain why digital technologies could add to the performance of organizations and why the effects of their implementation are not even across the industrial companies.

Resource-Based View differentiates that competitive advantage is created through resources that are both valuable and rare and hard to imitate, as well as, well-organized within the firm. In this light, digital technologies like data analytics platforms, integrated information systems, automation technologies, and artificial intelligence can be taken as strategic resources in the event that they are used to enable unique operational competencies or allow making better decisions (Civelek et al., 2023). Digital systems that create real-time visibility of the production process or allow predictive maintenance in an industrial setting can increase efficiency and reliability. RBV however points out that sustained advantage is never produced solely by technology (Cherepanov and Popov, 2022). When the digital tools become readily available to the rivals or when they are not well incorporated into the routine of the organization, the strategic value of the tools will be minimal.

This limitation leads to the factor of complementary resources, such as human capability, management, and processes within the organization. Digital technologies demand employees

with the ability to analyze information, managers with the ability to convert insights into actionable strategic plans and structures that facilitate cross-functional coordination (Sun et al., 2024). In the absence of these enabling factors, digital resources might not be utilized to their full potential or may not generate significant results. Thus, RBV describes the kind of digital resources that are important but it does not entirely cover the process through which the companies create and implement such resources in the long run (Karikova, 2023).

Dynamic Capabilities Theory expands on this insight to emphasize the capacity of a firm to feel the environment, take advantage of the opportunity by making suitable investments and re-organizing the resources to address any form of change (Civelek et al., 2023). Dynamic capabilities, when applied in the context of digital transformation, describe how organizations can adjust to technological change through their constant refresh of digital capabilities in terms of skills, processes, and decision-making processes (Abdurrahman, 2025). The industrial companies frequently work in the area of the technological complexity and uncertainty, and adaptability and learning is the key to the success in the long run.

By combining the RBV and Dynamic Capabilities Theory, we have a more detailed explanation of digital transformation. RBV recognizes digital technologies as a possible source of strategic assets and Dynamic Capabilities Theory describes how companies utilize, adapt and renew these assets to attain operational efficiency and efficient strategic decision making (Feng and Ali, 2024). This synthesis points to the fact that the effects of the digital transformation do not solely rely on the availability of the digital resources but also on the ability of an organization to learn, integrate and reorganize continuously according to the strategic aims (Keskar & Malaga, 2023).

2.6 Barriers to Digital Transformation in Industrial Firms

Although there is a growing demand of sophisticated digital technologies, industrial companies still are affected by several impediments that impede effective digital transformation. The literature reflects a long list of barriers which may be divided into several broad subgroups including organizational, human, technological and financial or structural barriers (Karikova, 2023). These obstacles tend to work with each other and the digital transformation process is not something simple and easy as technological advancement.

In the studies concerning industrial settings, organizational impediments are often mentioned. One of the most frequently mentioned obstacles is resistance to change, which is especially likely to occur in companies that have already developed routines and have a hierarchical organization. The digital initiatives can be viewed as a disruption or even a threat to the current jobs and practices by employees and managers and thereby may lead to unwillingness to adopt new systems (Borovkov et al., 2021). A major factor also includes the culture of the organization, with the one that is strict in culture or has low levels of openness to innovation, facing greater challenges of digital transformation. In these situations, the digital tools can be introduced into the workflow officially but not adopted on a daily basis or in the strategies (Kim and Kim, 2022).

Another stream of literature focuses on human-related obstacles and identifies lack of skills and inadequate training among the key limitations. The digital transformation takes not only technical skills but also analytical and problem-solving skills. The digital skills required by employees in most industrial companies to use advanced systems are not available, and training programs are ineffective and do not correspond to operational requirements (Uzule and Verina,

2023). Consequently, the use of digital technologies can be less than full, which restricts their effectiveness and influence on efficiency and decision-making.

Technological barriers are also quite evident especially in the industrial context where there are old systems and intricate structures. Most of the companies have old equipment and information systems that cannot easily be integrated with the new digital solutions. Such interoperability absence raises the complexity of the implementation process and can decrease system reliability, deterring further digital investment (Hamann-Lohmer et al., 2023). Fragments of technology result in parallel systems in certain situations which augment operation load as opposed to alleviating it.

Economic and organizational obstacles also limit the digital transformation initiatives. The cost of investments, unpredictability of payback, and lack of funds may cause digital projects to be stalled or shrunk, particularly in capital-intensive markets (Imran et al., 2021). The implementation is also impeded by structural constraints which may include divided responsibilities or ambiguous governance frameworks.

Although previous literature offers massive lists of the barriers, not many studies empirically investigate the impacts of these obstacles on operation efficiency and strategic decision-making performance (Jacociunas et al., 2024). The barriers have been frequently discussed in a descriptive but not in an analytical manner and so there has been little knowledge on how they perform. This gap underscores the necessity to conduct empirical studies that can format the perceived barriers to quantifiable organizational consequences, which is majorly the aim of the current study.

2.7 Synthesis of Literature and Research Gap

Based on the reviewed literature, the topic of digital transformation has become one of the key themes of the research on industrial management, operations, and strategy. In the literature, a general trend can be observed because digital technologies are linked to enhance the efficiency of processes, the availability of data, and the support of decisions (Kane et al., 2015). The studies whose main objective is operational efficiency put emphasis on automation, analytics, and integrated systems as the solution to optimizing a workflow and enhance productivity, whereas the studies whose primary goal is strategic decision-making identify the significance of data-driven insights and real-time information in strategic planning and control (Karikova, 2023).

To be more specific, there are some significant limitations and contradictions that can be seen after a closer look at the literature. Among the weaknesses is the propensity among current research to look at the two concepts of operational efficiency, and strategic decision-making as independent concepts (Kero and Bogale, 2023). Most of the research concentrates only on the operational performance, like productivity or reduction of costs, but does not dwell on how digital transformation also determines the strategic decision making. On the other hand, the studies focused on strategy often ignore the operational implications and consider digital transformation as a strategic or managerial problem (Keskar and Malaga, 2023). This dichotomy hinders the knowledge of the interaction of operational and strategic aspects in digital transformation of industrial companies.

The other limitation is related to methodological approaches. The literature contains a considerable number of works based on conceptual frameworks, case studies, or qualitative studies, which are helpful, yet restrict the scope of generalization. Relatively few quantitative,

employee-level data available helps describe the experience of digital transformation across the roles of an organization and the impact that it has on the efficiency of operations and the strategic decision-making process (Kim and Kim, 2022). Consequently, empirical evidence is disjointed and contextualized.

Moreover, the digital transformation barriers are also commonly recognized, yet they are not commonly incorporated into performance analyses. Majority of the studies determine barriers in a descriptive manner without empirically evaluating the inhibiting effect of these barriers on operational or strategic performance (Lin and Xie, 2023). This leaves a loophole on the actual implication of barriers on organizational performance.

This study fills these gaps by taking a quantitative, survey-based design which also looks at the area of digital transformation, operational efficiency, strategic decision-making, and perceived barriers in industrial firms (Mühlburger and Krumay, 2024). The combination of these dimensions provides the study with a more comprehensive and empirical based comprehension of the digital transformation within the industrial setting.

2.8 Chapter Summary

The chapter has critically evaluated the literature on the digital transformation among industrial firms, especially on its conceptual basis, operational implications, effects of strategic decisions, and barriers that have been highlighted by most reports. The review pointed out that digital transformation is perceived as a process as well as an organizational and strategic change than as a change in technology. Although numerous studies claim about possible effectiveness improvements and decision-making benefits, the literature presents both positive results and

negative results in addition to the necessity to consider the contextual factors like the quality of implementation, human resources, and organizational culture.

The review of previous literature found that there are a few major gaps in the literature; these gaps are the division of operational and strategic views, the prevalence of qualitative and conceptual methods, the unavailability of employee-level quantitative data, and the dearth of integrating barriers into performance evaluations. These loopholes indicate the necessity of a multifaceted empirical study that encompasses various aspects of digital transformation in the industrial context.

Going on the findings, the second chapter gives the research methodology that will be adopted in this study. Chapter 3 presents the research design, sampling strategy, data collection procedures, and the method of analysis to be used in the empirical study of the relationships outlined in the literature and to fill the research gaps that were presented in this chapter.

CHAPTER 3: RESEARCH METHODOLOGY

3.1 Introduction

This chapter provides the research methodology used to test the effect of digital transformation on the operation efficiency and strategic decision-making in industrial companies. This chapter adopts the Research Onion framework proposed by Saunders et al. (2019) to systematically structure the research methodology, including research philosophy, approach, design, data collection, and analysis techniques. The main objective of the study is to explore the effects of digital technologies on the internal operational performance and management decision processes besides establishing the obstacles that curtail the successful achievement of digital transformation benefits. To attain these goals and coherent responses to the research questions, a systematic and befitting approach in terms of methodology is needed (Lin and Xie, 2023).

In this regard, this chapter presents the steps and methods of undertaking the research in a logical and scientific way. It presents the general research design chosen in the research and its appropriateness. The chapter also explains how many people the study was done about, the type of sampling to use and the sample size that was used (Mavlutova et al., 2022). Moreover, it talks about the method of data collection used, the research instrument design, and its data analysis techniques. Some ethical considerations, as well as validity and reliability issues are also taken to allow the findings to be credible.

3.2 Research Design

The research design is a quantitative one as it aims to examine the relationship that exists between operational efficiency and strategic decision-making and digital transformation in

industrial firms. The quantitative approach is suitable as it gives the researcher an opportunity to develop quantifiable data that can be statistically examined to determine patterns, relationships, and levels of influence of the variables used in the study (Teng et al., 2022). Quantitative methods make the study more objective, and allow generalizing the research results within the limits of the research.

Quantitative design is especially appropriate in this study since it allows measuring perceptions of employees towards digital transformation initiatives and their influence on performance in an organization. Having made use of structured questionnaires, as well as statistical methods, the research can test the existence of relationships among the variables and assess the degree and direction of correlation (Hamann-Lohmer et al., 2023). This method also facilitates testing of hypotheses and inferential statistics which are critical in making valid conclusions.

The design used is a survey-based and cross-sectional one, which implies that the data is gathered about the respondents at one time. This is an effective design because of the time limitation and the aim of obtaining up-to-date experiences and perception of digital transformation in industrial organizations (Belhadi et al., 2022). The aspect of the study is the measurement of relations between digital transformation, operational efficiency, strategic decision-making, and perceived barriers, instead of analyzing changes over time.

3.3 Population of the Study

The sample of this research includes employees in the industrial firms that executed or are planning to execute the initiatives of digital transformation. Specific to the study, it is targeting the organizations within the manufacturing, logistics and energy industries because these industries strongly rely on efficiency in operations and integration of technology (Muijs, 2022).

Such industries are also prone to the digital transformation because of the growing applications of automation, data analysis, and the digital management systems.

The respondents targeted are managers, supervisors and operation employees working in these industrial organizations. Managers and supervisors can be added as they are the very ones that participate in strategic planning, decision-making, and implementation of digital initiatives. Operational employees are also deemed key players because they are the ones who deal directly with the digital systems in their day-to-day lives and are the ones to tell the operational effects of the digital transformation themselves (Nyimbili & Nyimbili, 2024).

These collections of respondents are appropriate to the research as they have practical experience and first-hand knowledge about the digital technologies in industrial processes. Their views will be useful insights into the impact of digital transformation on the efficiency and decision-making at various organizational levels (Obilor, 2023). The study provides a holistic knowledge of digital transformation results within the organization because it will include employees holding different positions.

3.4 Sample Size and Sampling Technique

3.4.1 Sample Size

The research sample will consist of 100 respondents, who are the representatives of industrial organizations, who are engaged in the manufacturing, logistics and energy business. One hundred and thirty questionnaires were sent with 100 valid responses being received, which translates to a response rate of about 77. It is also considered that this size is enough to conduct a quantitative study as it can be analyzed statistically (correlation and regression techniques may

be used), yet it is not excessively large to conduct a study since data collection and analysis are feasible (Saunders et al., 2019). Additionally, other researchers in the same field of digital transformation and organizational performance have also used comparable sample sizes which is why the selection is suitable.

The determination of the right sample size is significant since it may help to make the results reliable, as well as representative of the studied population. The number of respondents selected is adequate to obtain various perceptions and experiences associated with digital transformation, operational efficiency, and strategic decision-making (Tajik et al., 2025). Moreover, the sample is appropriate, which corresponds to other empirical studies on the topic of digital transformation and industrial management.

3.4.2 Sampling Technique

Purposive sampling is the sampling method used by the study (Nyimbili and Nyimbili, 2024). The reason of using this non-probability technique is that the respondents will be chosen on the basis of certain variable, especially the experience and the participation of the respondents in the digital transformation programs in their organisations (Obilor, 2023). The purposive sampling will also make sure that the sampled participants have the right knowledge and experience in digital systems thus improving the quality and relevance of the gathered data.

3.5 Data Collection Method

The proposed research will be based on primary data, collected personally with respondents and, therefore, they will be accurate and related to the research objectives. The structured electronic questionnaire was used as the main source of primary data, and it was distributed online to the employees that were employed in the selected industrial companies (Rahayu et al., 2024). To

enhance accessibility and stimulate the engagement of the respondent within various organizations and localities, the use of an online questionnaire was selected.

The electronic questionnaire gave the respondents time to complete the survey at their own convenience and it was time-saving since it enhanced response rates and minimized time. The online data collection is also cheap, because there is no need of printing, physical distribution costs are done away with. Moreover, it allows an efficient handling of data and minimizes the risk of errors of data entry because all answers are automatically ensured in digital form.

The questionnaire was made to emphasize issues to do with digital transformation practices, operational efficiency, strategic decision-making, and perceived barriers. To enable quantitative analysis, closed-ended questions with a Likert scale were applied (Sun et al., 2024). In general, the data collection method was chosen because it was efficient, reliable, and reached a broad range, but it did not compromise the consistency with the quantitative research design that was chosen to conduct this study.

3.6 Research Instrument (Questionnaire Design)

The main research tool I will employ in this study is a structured questionnaire, which is meant to gather quantitative data that would be of interest to the study objectives. The formulation of the questionnaire was formed on a thorough analysis of the available literature on the topic of digital transformation, operational efficiency, strategic decision-making, and organizational barriers (Tajik et al., 2025). It is well organized and logical in order to make it easy to understand and get accurate answers to the questions by the participants.

The questionnaire will have five major parts. Section A deals with the demographics, including age, sex, working position, number of years of experience, and so on, which allows understanding

the background of respondents. Section B looks at the digital transformation practices and this is determined by the level of digital technology use and how digital the organization is. Section C deals with the operational efficiency, items connected to the process efficiency, improvement in productivity, and reduction of errors (Teng et al., 2022). Section D dwells on strategic decision-making, evaluates the utilization of digital data to make decisions, the speed of decision-making process, and the quality of the process. Section E examines obstacles to digital transformation such as resistance to change, skills, and challenges in integrating technologies and financial constraints.

All the measurement items will be evaluated on a five-point Likert scale (Strongly Disagree, 1 to Strongly Agree, 5) in order to be quantitatively analyzed.

3.7 Variables of the Study

The paper analyzes how digital transformation and organizational performance are interconnected by defining and classifying the main variables of research. These variables are categorized as independent, dependent, and moderating variables to make the analysis and interpretation clear.

3.7.1 Independent Variable

Digital transformation is the independent variable in this study. It is a measure of the level of uptake and utilization of digital technologies in the industrial companies, which include automation systems, data analytics, artificial intelligence, cloud computing, and integrated digital platforms (Uzule & Verina, 2023). Digital transformation is gauged by such indicators as the use of technologies, their integration within the organization, and the degree of organization digital maturity.

3.7.2 Dependent Variables

Operational efficiency and strategic decision-making are the dependent variables. Operational efficiency is known to be the enhancement of process performance, productivity, cost reduction, and minimization of errors caused by digital transformation. Strategic decision-making is concerned with effectiveness, fastness, accuracy and data-driven managerial decision.

3.7.3 Moderating Variable

Barriers to digital transformation is the moderating variable that consists of organizational resistance, digital skills, technological integration problems and financial constraints. Such obstacles can affect the quality and orientation of the association between digital transformation and organizational performance.

3.8 Data Analysis Techniques

The statistical software, including the Statistical Package of the Social Sciences (SPSS), will be used to analyze the data obtained with the questionnaire (Singh, 2022). Descriptive as well as inferential statistical methods will also be used to answer the research questions as well as test the relationship between variables.

Respondent characteristics and general trends in the data will be summarized by use of descriptive statistics (Abdurrahman, 2025). This encompasses the use of frequencies and percentages to define demographics variables, mean and standard deviation to determine central tendency and variability of responses in regard to digital transformation, operational efficiency, and strategic decision-making.

To assess the relationships and hypotheses, inferential statistics will be used to test. Strong and direction relationships will be established using correlation analysis (Rahayu, 2024). The

predictive effect of the digital transformation on the operational efficiency and strategic decision-making will be evaluated by regression analysis. The analysis will involve ANOVA to find the differences in perceptions between the groups of respondents and the chi-square test will be applied to determine relationships between categorical variables (Muijs, 2022). Also, factor analysis will be done to confirm the structure of measurement constructs and validity of constructs.

3.9 Validity and Reliability of the Instrument

Validity and reliability of the research instrument should be ensured to ensure that the findings produced are credible and accurate. Validity is the degree to which the questionnaire is able to measure what it is supposed to measure. The content validity was also maintained in this study by ensuring that the questionnaire items were developed in line with the academic literature related to the topic under consideration. In the case that was deemed necessary, expert review was also undertaken to affirm the relevance and clarity of the measurement items.

Reliability can be described as the redundancy and constancy of the measurement tool. The Alpha coefficient of Cronbach will be used in testing the internal consistency of the questionnaire. This is the statistical measure used to determine the relationship between the items in each construct. With a Cronbachs Alpha of 0.70 and above, a value above this is said to be decent and the reliability is satisfactory. Constructs whose values are below this mark will be re-examined and improved upon, where a need arises. These processes are used to make sure that the instrument yields reliable and repeatable results.

3.10 Ethical Considerations

To ensure that the rights and well being of the participants are preserved, this study complies with the set principle of ethical research. The respondents will take part in the study on a voluntary basis and no pressure or coercion will be applied to them. Before the questionnaire is filled, the study participants will be notified of the study purpose and give an informed consent. The research process does not compromise on confidentiality and anonymity. Individual responses are anonymized and no personal identifiers are gathered, which are only used to analyse the responses on an academic basis. The information acquired is kept under strict security and can only be accessed by the researcher. Moreover, the data received through the respondents can be utilized solely in academic and research activities and the results are reported in a group fashion where one can not identify individuals or organizations. The ethical considerations will help the study to be transparent, ethically right and respectful towards participants thus making the research findings more credible and trustworthy.

CHAPTER 4: DATA ANALYSIS AND RESULTS

4.1 Introduction

The chapter shows the statistical results and analysis of the study performed on the role of the digital transformation in terms of the operational efficiency and strategic decision-making of industrial companies. This analysis is aimed at answering the research questions contained in Chapter 1 and testing the relationships suggested in the conceptual framework in an empirical way (Abdurrahman, 2025). The research design used was a quantitative research design through a structured questionnaire sent to the personnel working in the industrial organizations.

One hundred and valid responses were reviewed. The questionnaire was divided into five sections, which addressed the digital transformation adoption, efficiency in operation, strategic decision-making, and obstacles to digital transformation. The construction of each construct was done based on a five-point Likert scale with 1 (Strongly Disagree) to 5 (Strongly Agree). To facilitate the analysis, composite scores were developed by taking the average of the responses of the five items that were assigned to each construct.

The statistical analysis was performed with the help of a few methods that are in line with the methodology, which is explicated in Chapter 3. These were descriptive statistics, correlation, multiple regression and analysis of variance (ANOVA). The data were summarized with the help of descriptive statistics and gave an overview of the variables. Correlation analysis was used to test the strength and direction of the relationship between variables. Regression analysis was used to determine the predictive value of digital transformation and barriers to operational efficiency and strategic decision-making. Lastly, ANOVA was implemented to find out whether there were any differences between levels of digital adoption.

4.2 Descriptive Analysis of Key Variables

The descriptive statistics have been initially computed in order to analyze the general patterns of the key constructs in the research. The statistics can give the idea of the overall attitudes of respondents to the adoption of digital transformation, operational efficiency, strategic decision-making, and the barriers to digital transformation.

The analysis indicated that the average score in digital transformation adoption was moderate, implying that a large portion of organizations in the sample have already started adopting digital transformation in their operations, meaning automation systems, data analytics, and digital platforms (Agustian et al., 2023). The average scores of operational efficiency and strategic decision-making were fairly high as well, which means that the respondents tended to view the digital technologies as a source of positive influence on productivity, workflow efficiency, and quality of the decisions made.

Conversely, barriers to digital transformation scored moderately, meaning that organizations are entering digital technologies but continue to experience barriers. Such obstacles can be employee resistance to change, lack of digital skills, training opportunities, challenges of integrating new systems with the existing infrastructure, and financial limitations regarding the implementation of the digital technologies (Ahmad et al., 2021). The descriptive analysis, therefore, indicates that there is an active digital transformation process in most industrial organizations, though it is associated with various organizational and technical challenges.

4.3 Correlation Analysis

The correlation analysis based on Pearson was used to analyze the relationships between the key variables. Correlation coefficients indicate the strength and the direction of relationship between

two variables, whereby it takes either negative or positive values. Positive values denote the increasing relationship between two variables whereas negative values denote the increasing relation between one variable and the reducing variable.

Table 4.1 Correlation Matrix

Variable	**Digital Adoption**	**Operational Efficiency**	**Strategic Decision-Making**	**Barriers**
Digital Adoption	1.000	0.858**	0.843**	-0.291**
Operational Efficiency	0.858**	1.000	0.891**	-0.508**
Strategic Decision-Making	0.843**	0.891**	1.000	-0.467**
Barriers	-0.291**	-0.508**	-0.467**	1.000

Note: p < 0.01

The findings indicate a number of significant connections. To begin with, operational efficiency is highly and positively related to the digital transformation adoption (r = 0.858). This shows that the more organizations are digitally technology adopted, the more operational efficiency is reported to exist within them. Practically, the introduction of the digital system seems to facilitate the workflow, decrease the number of mistakes, and boost productivity.

Second, strategic decision-making is also strongly positively correlated with the use of digital transformations (r = 0.843). This implies that organizations that have highly developed digital

systems have a better access to information, data-driven insights, and better analytics, which can be used to make more effective strategic choices.

Third, the findings indicate that both operational efficiency and strategic decision-making have a negative relationship with the barriers to digital transformation. The correlations of barriers and operational efficiency are-0.508, and the correlations of barriers and strategic decision-making are-0.467. The findings indicate that the perceived barriers increase with an increase in the perceived level, decreasing the perceived benefits of digital transformation.

4.4 Regression Analysis

Although correlation analysis depicts variables with respect to one another, it is not a way of determining whether a given variable predicts another. Thus, the multiple regression analysis was used to identify the degree to which the adoption of digital transformation and barriers have a role in operational efficiency and strategic decision-making.

Two regression equations were estimated. The former model investigated the impact of the digital change and obstacles on operational efficiency, and the latter investigated their impact on strategic decision-making.

Table 4.2 Regression Results for Operational Efficiency

Predictor	**B**	**Std. Error**	**T**	**Sig.**
Constant	1.735	0.266	6.520	0.000
Digital Adoption	0.807	0.048	16.712	0.000
Barriers	-0.301	0.049	-6.090	0.000

The regression findings also show that adoption of the digital transformation is a major positive predictor of the operational efficiency. The value of the coefficient 0.807 implies that the growth in digital adoption by one unit results in a significant growth in operational efficiency, other things being constant.

This observation collaborates the argument that digital technologies help in enhancing performance of operations. Next-generation workflows with automated systems, real-time data analytics, and built-in digital platforms have the potential to automate processes, lower the number of mistakes in the manual form, and enhance resource optimization.

Meanwhile, digital transformation obstacles reflect a very high negative impact on operational performance. The negative value of the coefficient of -0.301 shows that there is lower operational efficiency in the organization where there is more barriers, which may be resistance to change, absence of training, or financial constraint.

These findings prove that not only adherence to technology but also the capacity of the organization to address the challenges of the implementation has an impact on the success of the digital transformation.

Table 4.3 Regression Results for Strategic Decision-Making

Predictor	**B**	**Std. Error**	**t**	**Sig.**
Constant	1.810	0.263	6.872	0.000
Digital Adoption	0.718	0.048	15.032	0.000
Barriers	-0.231	0.049	-4.721	0.000

The second regression model will analyze how digital transformation and barriers impact on strategic decision-making. The findings indicate that strategic decision-making is greatly

enhanced in case of adoption of digital transformation. The coefficient of positive value (B = 0.718) shows that the more organizations are more digital the greater chances of making quicker, more precise and more data-driven decisions.

Digital technologies also offer managers access to masses of real time data and more sophisticated analytics, allowing managers to project trends, analyze risks and build more knowledgeable strategies. But once again, the barriers present a strong negative effect. The coefficient of -0.231 is indicative of the fact that barriers diminish the level of strategic decision-making. The strategic benefits of digital transformation might not be achieved fully when organizations are not resistant to digital initiatives, are insufficiently skilled with regard to digital, or have difficulties in system integration.

This data demonstrates the need to focus on organizational and technological obstacles to make sure that the digital transformation initiatives will yield the desired benefits.

4.5 Analysis of Variance (ANOVA)

A one-way ANOVA test was applied to conduct a further analysis of the association between the adoption of digital transformation and the results of organizations. This analysis aimed at finding out the existence of a significant difference between operational efficiency and strategic decision-making at various levels of digital adoption.

Table 4.4 ANOVA Results for Operational Efficiency

Source	**SS**	**df**	**MS**	**F**	**Sig.**
Between Groups	71.076	4	17.769	53.211	0.000
Within Groups	31.724	95	0.334		

The results of the ANOVA show that there are significant differences in the operational efficiency among the levels of digital adoption ($F = 53.211$, $p < 0.001$). This implies that the higher the adoptions of organizations are digitally, the higher the operational efficiency will be in comparison to low adoptions.

These findings corroborate previous studies on the correlation and regression analysis that support the role of digital transformation in the enhancement of operation performance.

Table 4.5 ANOVA Results for Strategic Decision-Making

Source	**SS**	**df**	**MS**	**F**	**Sig.**
Between Groups	53.510	4	13.378	44.598	0.000
Within Groups	28.496	95	0.300		

Likewise, the results of ANOVA of strategic decision-making between the levels of digital adoption are significantly different ($F = 44.598$, $p < 0.001$). Companies that have been more digitally transformed in terms of adoption state robust strategic decision-making skills. This implies that digital transformation does not only improve the processes in the organization, but also empowers the strategic capability of the organization by allowing it to plan and make decisions faster using data.

4.6 Summary of Findings

This chapter discussed this statistical analysis of the research designating the connection between digital transformation, operational efficiency, strategic decision-making, and obstacles to digital transformation in industrial businesses. The analysis of correlation revealed that there are strong positive correlations between the level of adoption of digital transformation and the

operational efficiency and the strategic decision-making. Meanwhile, obstacles to digital transformation had an adverse relationship with these results.

The regression analysis also affirmed that the digital transformation adoption is a key predictor of the change in the operational efficiency and strategic decision-making. On the other hand, obstacles considerably lower the beneficial influence of digital transformation (Barreto et al., 2025). Lastly, ANOVA analysis showed that the organization that has high degrees of digital adoption performs much better in terms of operational and strategic performance than organizations that have low degrees of digital adoption.

On balance, the results are good empirical evidence of the thesis that the digital transformation is an important factor in enhancing the functioning of industrial organizations. Nevertheless, the outcomes also emphasize the necessity to overcome the organizational barriers regarding skills differences, change resistance, and financial limitations to achieve the maximum of digital transformation benefits.

CHAPTER 5: DISCUSSION

5.1 Introduction

This chapter presents the results of the study that explored the effects of the digital transformation on the operational efficiency and strategic decision making in industrial companies. The aim of the discussion is to analyze the statistical findings of Chapter 4 using the research questions and theoretical framework. The chapter also contrasts the results with the literature that exists and provides their implication to digital transformation in organizations.

The research questions that the study sought to answer were three. First, it evaluated the impacts of digital transformation on the efficiency of operations at industrial companies. Second, it explored how digital transformation has influenced the strategic decision-making process. Third, it examined the obstacles that prevent the organizations to attain the full advantages of digital transformation (Baslyman, 2022). Its findings offer valuable information on the benefits of

digital technologies to the performance of organizations as well as present the challenges that businesses encounter when adopting digital programs.

5.2 Digital Transformation and Operational Efficiency

The close positive correlation between digital transformation and operational efficiency can be regarded as one of the primary results of this research. Both correlation and regression analyses indicated that the increase in the degree of digital adoption correlates with the positivity of improvements in the work process (Belhadi et al., 2022). Companies that embrace the use of digital technologies, including automation systems, data analytics platforms, and integrated digital tools, are more likely to record increased efficiency in their work.

This observation upholds the fact that digital transformation allows firms to simplify the workflow, minimize the number of manuals, and maximize the use of resources. By introducing digital tools as part of the business operations, it is possible to automate routine processes and process data faster and more effectively (Borovkov et al., 2021). Consequently, there is an opportunity to concentrate on higher-value activities of employees, and the processes of operations are accelerated and made more reliable.

The findings can be aligned with those of the prior researches highlighting the importance of digital technologies to enhance the productivity and the performance of operations. The digital systems and automation, as observed by many researchers, enable efficiency through the reduction of delays in the processes, better coordination and synchronization of the operation of various departments, as well as the ability to monitor the operations in real time (Brdesee and Alsaggaf, 2022). The results of this research thus support the premise that digital transformation is one of the major contributors of operational efficiency in industrial enterprises.

Theoretically, the findings are in line with the Resource-Based View (RBV) of the firm. Based on this theory, organizations gain competitive advantage through the acquisition and use of valuable and unique resources. In terms of digital transformation, artificial intelligence and enterprise resource planning systems, as well as data analytics platforms, can be considered strategic resources that can improve organizational capabilities. Those firms that manage to incorporate these digital resources in their operations can attain greater degrees of efficiency and productivity.

Nevertheless, the findings also indicate that the returns of the digital transformation are not predetermined (Cherepanov et al., 2022). Although digital use enhances efficiency, there is a correlation on its success in implementation and integration of the technology in the organizational processes. Companies that return to digital technologies without integrating them with the operations strategies could show minimal improvement. Hence, organizational changes, including employee training, process redesign, and leadership commitment, should be used to support digital transformation.

5.3 Digital Transformation and Strategic Decision-Making

The other critical conclusion of this research is that digital transformation is positively impacting the strategic decision-making process to a considerable extent. As the statistical analysis demonstrated, the more successful organizations are in digital adoption, the more quality strategic decisions they make (Civelek et al., 2023). These organizations are in a better position to access information and the processing of data is faster and these organizations are equipped with better analytical tools which can aid in decision-making.

The digital technologies enable organizations to gather and process large amounts of data in diverse sources. The use of data analytics will enable the manager to determine the trends, anticipate the trends in the market, and to analyze alternative strategic choices in a more efficient way (Feng and Ali, 2024). This will result in more informed decisions and enhance the capability of the organization in responding to the changes in the business environment.

The results confirm the assumption that digital transformation complements organizational intelligence. Digital systems can help managers shift their decision-making processes based on intuition to evidence-based decisions because they offer real-time data and foresight. This transition happens especially in industrial settings where uncertainty in the market and complexity in operations demand timely and correct decisions.

The outcomes also coincide with the Dynamic Capabilities Theory that has stressed the significance of organizational dynamism in changing environments. Dynamic capabilities are the capability of an organization to incorporate, develop and restructure internal as well as external assets to react to the environmental changes (Hamann-Lohmer et al., 2023). Digital technologies intensify these capabilities by offering the means necessary to feel opportunities, analyse the information in the market and change strategies in accordance to it.

To illustrate, through digital platforms, organizations can track the supply chain operations, performance of their production and customer demand trends. These lessons help managers to take preemptive decision-making as opposed to reactive decisions. Consequently, organizations that have undergone digital transformation have a better chance of adapting to the technological and market changes (Imran et al., 2021). The results thus substantiate the fact that digital transformation is not only a tool but also a strategy. Digital technologies bring about long-term

competitiveness in organizations by complementing the decision-making process of organizations which is based on data.

5.4 Barriers to Digital Transformation

Despite the numerous advantages of digital transformation, it is equally important that the outcomes of the present study reveal some barriers to its success as well. As it was analyzed, there exists a significant negative correlation between the barriers to digital transformation and the operational efficiency and strategic decision-making (Jacociunas et al., 2024). This implies that companies that have more difficulties in the process of digital implementation have a low performance outcome.

Resistance to change among the employees is one of the most recurrently reported obstacles. Most employees will be not sure about new technologies or feel that automation will deprive them of employment. This resistance is capable of slackening digital efforts and lowering the success of technology adoption. To address this challenge, it is necessary to have effective management, effective communication, and participation of employees in digital transformation processes.

The other significant obstacle is the absence of digital skills and training. The application of high tech technologies needs technologically knowledgeable and analytical employees. Most organizations however have difficulty locating workers who can possess the required skills (Kane et al., 2015). Digital tools might also not be fully exploited or used properly without proper training programs and hence their potential.

The financial constraints are also a significant challenge. Digital transformation may demand a huge investment in infrastructure, software systems, and training employees. In particular,

smaller organisations might not be able to set aside enough financial resources to invest in digital efforts. Consequently, the use of digital can be slow or partial. Also, the integration issue may slow down the process of digital transformation (Karikova, 2023). Organizations usually run on old systems that are not easily connected to current digital technology. The ability to integrate new digital tools with the current systems may also be complicated and time-consuming and adversely affect the timeline of implementation and efficiency in operations in the period of transition. These obstacles underline the necessity of assuming a holistic strategy to digital transformation. The successful digital initiatives demand technological investment, as well as organization preparation, staff training, and strategic leadership.

5.5 Overall Interpretation of Findings

The results of the current research, when combined, show that digital transformation can significantly enhance the performance of both operations and strategic decision-making of industrial firms. The more organizations use digital technologies, the more successful they will be in their operation and make more informed strategic decisions.

Meanwhile, the obstacles of resistance to change, lack of digital skills, financial limitations, and system integration risks might decrease the efficiency of digital transformation projects. The challenges have to be dealt with in order to maximize the benefits of digital technologies.

The findings hence underscore that digital transformation is an organizational change process and not an upgrade in technology. The key factors that companies have to focus on are alignment of digital technologies to their strategic goals, investment in employee capabilities and creation of an enabling organizational culture.

CHAPTER 6: CONCLUSION

6.1 Introduction

This chapter offers the general findings of the investigation about the influence of digital transformation on the efficiency of operations and strategic decision making in the industrial companies. This study aimed at exploring the effect of adoption of digital technologies on the

performance of organizations and also to determine the challenges posed that impact on successful adoption of digital transformation initiatives.

This research was inspired by the fact that digital transformation continues to gain significance in the contemporary industrial setting. As the new wave of technologies like artificial intelligence, data analytics, cloud computing, automation, and the Internet of Things rapidly evolves, businesses are facing the urge to revamp their business and decision-making procedures (Kero and Bogale, 2023). Nevertheless, with the massive investments in digital technologies, not all companies are able to measure the impact of these developments on the functions of the company and the success of its strategies in a definite way.

The quantitative research methodology was employed to gather data of 100 respondents who were employees in industrial organizations. The relationships between the adoption of digital transformation, operational efficiency, strategic decision-making, and obstacles to digital transformation were studied through a statistical analysis, including correlation, regression, and ANOVA (Keskar and Malaga, 2023). The findings of the analysis are useful in understanding the effects that digital technologies have on the performance of organizations and the obstacles that organizations should face in the process of the transformation.

6.2 Summary of Key Findings

The results of this paper indicate that there are overall several significant connections between organizational performance and digital transformation. First, the researchers established a positive strong relationship between operation efficiency and digital transformation adoption. In the organizations with an increased rate of digital adoption, the organizations reported more productivity, fewer operational errors, and more efficient processes in their workflow (Kim &

Kim, 2022). Since digital technologies like automation systems and integrated digital platforms are used, the companies can streamline operations, as well as enhance the coordination among various departments. These are the gains that lead to increased performance in operations.

Second, the findings showed that digital transformation has a profound positive effect on the strategic decision-making process in industrial organizations. Those companies that make use of digital technologies enjoy better access to the information, better analytics, and quicker information processing. These tools enable managers to make improved and prompt strategic decisions (Lin and Xie, 2023). Consequently, the organizations can foresee the changes in the market, assess the risks and create effective strategic plans.

Third, the paper has found out that obstacles to digital transformation impact negatively on how efficiently operations are organized and the decision-making process. Organizations that encounter more challenges in the digital implementation process are likely to have poorer performance outcomes. These obstacles are organizational change resistance, employee digital skills, training opportunities, financial constraints, and integration challenges of the new technologies with the existing systems (Mavlutova et al., 2022). The results thus indicate that, although the digital transformation has great benefits to industrial organizations, the effectiveness of the implementation process and the barriers that companies face during this process largely determine the success of the process.

6.3 Contributions of the Study

In a number of ways, this research has a contribution to both the academic knowledge and managerial practice. Theoretically, this research is in line with the concepts of the Resource-Based View (RBV) and Dynamic Capabilities Theory. The results prove that digital technologies

can serve as strategic resources which can enhance the performance of the organization. Those companies which can successfully implement digital systems in their business obtain the features which allow improving their efficiency and decision-making (Mühlburger and Krumay, 2024). Simultaneously, the research confirms that organizations need to learn how to change and re-arrange their resources in response to change in technology.

Practically, the research has valuable information that can be applied to managers and decision-makers in industrial firms. According to the results, the idea of investing in digital technologies is important and the need to deal with organizational obstacles that can contribute to unsuccessful implementation is also present (Muijs, 2022). Managers are to understand that digital transformation is not merely a technological update but an overall organizational process that must be strategized, supported by leaders, and involving employees. The results also indicate that the focus should be on training and developing skills so that the companies are able to have their employees able to support the digital systems. Even the best technologies can not lead to any significant changes in the organizational performance unless sufficient human capabilities are available.

6.4 Implications to Industrial Organizations.

The findings of this research also have a range of significant implications to any organization that is looking to apply digital transformation strategies. To begin with, a strategic approach towards digital transformation has to be embraced within organizations. Instead of the digital technologies being applied in remote locations, the companies must implement digital systems in their processes of operation as well as in decision-making systems (Nyimbili and Nyimbili, 2024). This combined strategy will be able to reap the largest advantages of digital adoption and

make sure that technologies will be able to improve operational efficiency as well as strategic performance.

Second, companies must invest in employee education and online competencies. The implementation of digital technologies will need a workforce with the technical and analytical level of skills (Obilor, 2023). Organizations can use training programs, professional development initiatives, and cooperating with educational institutions to develop the human capabilities needed to undergo a digital transformation.

Third, leadership is vital in the management of initiatives of digital transformation. The organizational leaders should ensure they inform their employees about the benefits of the digital transformation and assist them during the transition process. Effective leadership has the ability to minimize resistance towards change and develop a culture that supports innovation and technological progress.

Lastly, businesses ought to deal with monetary and technological issues related to the digital transformation. By planning carefully, implementing in phases, and cooperating with technology providers, companies will be able to control the costs and eliminate system integration challenges.

6.5 Limitations and Future Research.

Though this study is an important source of information about the connections between digital transformation and organizational performance, it has a number of limitations that should be noted. First, the research was based on a very limited group of respondents (Omol, 2024). Though the sample size was adequate to perform statistical analysis, bigger samples might give more

generalizable findings. Additional research in the future can be done to gather data in more industrial sectors and geographical locations.

Second, the study used the cross-sectional design, i.e. data were gathered in one point in time. The longitudinal studies conducted on the organizations over a period of time may yield greater understanding of how digital transformation changes over time and the long-term impacts of the transformation on the organization performance (Rahayu et al., 2024).

Third, the research concentrated on how the employees perceived digital transformation and its results. The future study can include more objective performance measures, including financial measures or productivity data, to supplement surveys.

There is also the potential of further research to examine other aspects of success in digital transformation including organizational culture, leadership style and technological infrastructure.

6.6 Final Conclusion

To sum up, this research has shown that digital transformation is an important factor in improving the efficiency of the operation and the strategic decision-making of industrial organizations. Companies which manage to implement and use digital technologies efficiently can facilitate operations, enhance productivity, and make better strategic decisions. But, the advantages of the digital transformation do not come automatically. To make the most of digital technologies, organizations need to overcome the resistance to change, low levels of digital skills, financial limitations, and technological integration problems Finally, the digital transformation has to be considered as a long-term strategic initiative that involves spending on technology, adjusting the organization and being a good leader.

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Appendix

QUESTIONNAIRE

Title:

The Impact of Digital Transformation on Operational Efficiency and Strategic Decision-Making in Industrial Companies

Instructions:

This questionnaire is part of an academic research study. Your responses will be kept **confidential** and used **only for academic purposes**. Please indicate your level of agreement with each statement by selecting one option.

Scale:

1 = Strongly Disagree

2 = Disagree

3 = Neutral

4 = Agree

5 = Strongly Agree

Section A: Demographic Information

Please tick (✔) the most appropriate option.

1. Gender

   ☐ Male

   ☐ Female

   ☐ Prefer not to say

2. Age

   ☐ Below 25

   ☐ 25–34

   ☐ 35–44

   ☐ 45–54

   ☐ 55 and above

3. Job Position

   ☐ Manager

   ☐ Supervisor

   ☐ Operational Employee

4. Years of Work Experience

   ☐ Less than 2 years

   ☐ 2–5 years

   ☐ 6–10 years

   ☐ More than 10 years

5. Industry Sector

   ☐ Manufacturing

   ☐ Logistics

   ☐ Energy

Section B: Digital Transformation

Please indicate your level of agreement with the following statements.

No.	Statement	1	2	3	4	5
1	My organization has adopted modern digital technologies in its operations.	☐	☐	☐	☐	☐
2	Digital tools are integrated into daily work processes.	☐	☐	☐	☐	☐
3	Automation technologies are widely used in operational activities.	☐	☐	☐	☐	☐
4	Data analytics systems are used to support organizational activities.	☐	☐	☐	☐	☐
5	The level of digital adoption in my organization is high.	☐	☐	☐	☐	☐

Section C: Operational Efficiency

No.	Statement	1	2	3	4	5
1	Digital technologies have improved process efficiency in my organization.	☐	☐	☐	☐	☐
2	Digital systems have increased employee productivity.	☐	☐	☐	☐	☐
3	Errors in operations have been reduced due to digital tools.	☐	☐	☐	☐	☐
4	Digital technologies have reduced operational delays.	☐	☐	☐	☐	☐
5	Overall operational performance has improved through digital transformation.	☐	☐	☐	☐	☐

Section D: Strategic Decision-Making

No.	Statement	1	2	3	4	5
1	Digital systems provide useful information for strategic decisions.	☐	☐	☐	☐	☐
2	Data analytics supports better strategic planning.	☐	☐	☐	☐	☐
3	Digital tools have improved the speed of decision-making.	☐	☐	☐	☐	☐
4	Decisions made using digital data are more accurate.	☐	☐	☐	☐	☐

No.	Statement	1 2 3 4 5
5	Digital transformation has enhanced the overall quality of strategic decisions.	☐ ☐ ☐ ☐ ☐

Section E: Barriers to Digital Transformation

No.	Statement	1 2 3 4 5
1	Employees resist changes introduced by digital transformation.	☐ ☐ ☐ ☐ ☐
2	Lack of digital skills limits effective use of digital technologies.	☐ ☐ ☐ ☐ ☐
3	Training provided for digital systems is insufficient.	☐ ☐ ☐ ☐ ☐
4	Integration of new digital systems with existing systems is challenging.	☐ ☐ ☐ ☐ ☐
5	Financial constraints limit digital transformation initiatives.	☐ ☐ ☐ ☐ ☐

Thank You Note

Thank you for taking the time to complete this questionnaire. Your responses are highly valuable and will contribute to academic research on digital transformation in industrial companies.