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2025
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Exploring growth-led versus efficiency-led digitalization strategies in manufacturing and distribution firms

Kerushan Govender

A research proposal submitted to the Faculty of Commerce, Law and Management, University of the Witwatersrand, in partial fulfilment of the requirements for the degree of Master of Management in the field of Digital Business

Cape Town, 2025

ABSTRACT

Digitalisation has become a critical driver of competitiveness in manufacturing and distribution firms, influencing their strategic orientations toward either revenue growth or cost efficiency. This study examines the contrasting approaches of growth-led and efficiency-led digitalisation, analysing how organisations leverage digital technologies either to enhance revenue streams or to optimise operational costs. Using a qualitative research design, the study employs focus group discussions with key decision-makers from South African manufacturing and distribution firms. Thematic analysis was conducted to identify patterns in how firms adopt and implement digital strategies, the challenges they face, and the outcomes achieved.

Findings indicate that growth-led digitalisation is characterised by customer-centric innovations, servitisation models, and data-driven expansion strategies aimed at increasing market reach and revenue. Efficiency-led digitalisation, on the other hand, prioritises automation, cost reduction, and process optimisation, allowing firms to maintain financial stability while improving operational performance. However, the study also highlights that these strategies are not mutually exclusive; many firms integrate both approaches, using efficiency gains to support growth initiatives.

The study contributes to the literature on digital transformation by providing empirical insights into the strategic trade-offs and synergies between revenue generation and cost efficiency in digitalisation efforts. Practical implications suggest that firms should align their digital investments with broader business goals while maintaining flexibility to adapt to evolving market conditions. Future research could explore sector-specific digitalisation trends and the role of emerging technologies in balancing growth and efficiency objectives.

KEYWORDS

Digitalisation, Growth Strategy, Efficiency Strategy, Servitisation, Manufacturing, Distribution, Digital Transformation

DECLARATION

I, Kerushan Govender, declare that this research report is my own work except as indicated in the references and acknowledgements. It is submitted in partial fulfilment of the requirements of the degree of Master of Management in the field of Digital Business at the Graduate School of Business Administration, University of the Witwatersrand, Johannesburg. It has not been submitted before for any degree or examination in this or any other university.



Kerushan Govender

Signed at Century City

On the 28th day of February 2025.

ACKNOWLEDGEMENTS

First and foremost, I extend my gratitude to my supervisor, **Laurence Beder**, whose encouragement and guidance played a pivotal role in keeping me on track. There were moments when the pressures of life and entrepreneurship felt overwhelming, but his regular check-ins, thoughtful notes, WhatsApp messages, and emails provided the push I needed to keep moving forward.

I would also like to express my appreciation to my team at **Blacfox**, who accommodated my commitments and made allowances for me to focus on this project. In particular, my **Chief of Staff, Stephan Engelbrecht**, deserves special recognition for his instrumental role in managing the logistics, setups, and coordination that enabled this research to take shape.

A special thank you goes to my client **Braintree**, whose assistance in identifying and securing the right companies for the focus group discussions was invaluable. Conducting in-depth qualitative research of this nature was no small feat, and without Braintree's help, it would have been significantly more challenging to engage with the right participants.

Finally, on a personal level, I am grateful to my wife, **Venudhira**, for her patience, understanding, and support. She has been incredibly tolerant and encouraging, giving me the time and space I needed to immerse myself in this project. Her belief in me and her quiet yet constant support have made all the difference.

This research has been the result of collective effort, patience, and encouragement from many people.

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LIST OF ACRONYMS

Acronym	Definition
IT	Information Technology
SMEs	Small and Medium Enterprises
ERP	Enterprise Resource Planning
CRM	Customer Relationship Management
RPA	Robotic Process Automation
AI	Artificial Intelligence
BI	Business Intelligence
IoT	Internet of Things
SaaS	Software as a Service
PaaS	Platform as a Service
ROI	Return on Investment
B2B	Business-to-Business
SQL	Structured Query Language
KPI	Key Performance Indicator
CIO	Chief Information Officer

Table 1: List of acronyms

CHAPTER 1. INTRODUCTION

This study examines the strategic application of digitalisation in manufacturing and distribution firms, focusing on how organisations leverage Information Technology (IT) either to drive revenue growth or improve cost efficiency. In scholarly terms, these represent two fundamental orientations of digital strategy. Growth-led digitalisation emphasizes exploration and innovation to generate new value (e.g. developing digital products or services for market expansion), whereas efficiency-led digitalisation emphasizes exploitation of existing resources to streamline operations and reduce costs. Theoretically, this dichotomy aligns with the exploration–exploitation paradigm in organizational strategy (March, 1991), where firms must balance innovative initiatives with operational improvements. It also echoes concepts of ambidexterity, suggesting that companies need capabilities for both incremental efficiency gains and transformative growth initiatives (Tushman & O'Reilly, 1996). By defining these key concepts up front and anchoring them in strategic management theory, the study establishes clear strategic boundaries: efficiency-led efforts focus on internal process optimisation (often linked to cost leadership), while growth-led efforts target external market opportunities and innovation (linked to differentiation and revenue generation). This framing provides a sharper academic foundation for understanding how digitalisation can serve different strategic goals, and it sets the stage for analysing whether firms pursue one approach, the other, or an integration of both in practice.

The research adopts a qualitative methodology, using focus group discussions to gather insights from industry professionals involved in digital transformation initiatives. The study aims to explore the decision-making processes behind digitalisation strategies, the challenges firms encounter, and the factors influencing the adoption of either growth-oriented or efficiency-driven IT investments. Through this approach, the research seeks to provide a nuanced understanding of how manufacturing and distribution firms define, implement, and evaluate digitalisation strategies in response to business objectives and market conditions.

1.1 Purpose of the study

The purpose of this study is to examine the underlying motivations driving digitalisation strategies within manufacturing and distribution firms. Existing literature suggests a dichotomy between revenue-led and efficiency-led digitalisation, yet empirical evidence indicates a persistent emphasis on cost-cutting measures over revenue-driven transformation. Despite the apparent advantages of growth-driven digitalisation, firms continue to prioritise efficiency-oriented strategies. This study seeks to understand why this preference persists and to explore the challenges that firms face when attempting to shift towards a revenue-driven digitalisation approach. In doing so, this research aims to contribute to the discourse on digital transformation by providing insights into the decision-making processes, strategic considerations, and barriers influencing the adoption of digitalisation strategies in manufacturing and distribution firms.

1.2 Context of the study

The rapid advancement of digital technologies has fundamentally altered the business landscape, compelling firms to adopt digitalisation strategies to remain competitive. Digitalisation is often pursued for two primary objectives: driving revenue growth or enhancing operational efficiency. Growth-led digitalisation refers to leveraging digital tools for new revenue streams, customer value creation, and innovation (servitisation), aligning with an *exploration* strategy and dynamic capabilities theory focused on long-term competitive advantage through innovation (Teece, 2010; March, 1991). In contrast, efficiency-led digitalisation prioritises cost reduction and process optimisation through automation, reflecting an *exploitation* strategy rooted in operational excellence and transaction cost economics (Williamson, 1985) where efficiency gains translate into immediate competitive advantage. By theoretically anchoring these concepts, the study delineates clear strategic boundaries between pursuing growth versus pursuing efficiency in digital initiatives.

While revenue-driven digitalisation holds significant transformative potential, many firms remain focused on cost-cutting measures. Research by Björkdahl

(2020) highlights that growth-driven digitalisation is perceived as more complex and uncertain than efficiency-driven digitalisation, leading many firms to default to the latter. Given this prevailing trend, this study explores the strategic orientations of manufacturing and distribution firms in South Africa, investigating the factors that shape their digitalisation strategies and assessing the extent to which firms intentionally or reactively pursue cost-saving over revenue generation.

1.3 Research problem

The existing body of research underscores the value of digitalisation in transforming business operations and enhancing competitiveness. However, firms face a critical decision when embarking on digital transformation: whether to prioritise revenue generation or operational efficiency. Although literature supports the benefits of revenue-led digitalisation, firms continue to favour efficiency-led approaches, raising questions about the barriers preventing the adoption of growth-driven strategies. This study seeks to uncover the specific inhibitors to revenue-led digitalisation and explore whether firms adopt efficiency-led digitalisation out of strategic intent or as a default due to perceived difficulties in executing revenue-led digitalisation.

1.3.1 Main research problem

Why do manufacturing and distribution firms predominantly pursue efficiency-led digitalisation strategies despite substantial evidence supporting the advantages of revenue-led digitalisation?

1.3.2 Sub-problems

1. What are the specific challenges encountered by firms when implementing revenue-driven digitalisation strategies?

2. To what extent is the adoption of efficiency-led digitalisation an intentional strategic choice versus a reactive measure?

3. What internal and external factors influence firms' preference for efficiency-driven over growth-driven digitalisation?

4. How do firms navigate the complexities of servitisation as a key enabler of revenue-driven digitalisation?

5. What insights can be derived from firms that have successfully implemented revenue-led digitalisation strategies?

1.4 Research objectives

The overarching objective of this study is to investigate whether manufacturing and distribution firms prioritise revenue growth or operational efficiency in their digitalisation strategies. The study aims to:

1. Examine the motivations and strategic priorities behind digitalisation initiatives in manufacturing and distribution firms.

2. Identify the challenges and barriers to implementing revenue-driven digitalisation strategies.

3. Determine whether firms' digitalisation strategies are proactive and intentional or reactive and circumstantial.

4. Explore the internal and external factors – including the degree of strategic alignment between IT initiatives and business goals – that influence firms' decisions to adopt cost-cutting over revenue-generating digitalisation approaches.

5. Provide actionable recommendations to assist firms in leveraging digitalisation for sustainable growth and competitive advantage.

1.5 Significance of the study

This study has implications for both theoretical and practical domains within the fields of digital transformation and strategic management. Theoretically, it contributes to the existing discourse on digitalisation by exploring the underlying

motivations and decision-making processes that influence firms' digitalisation strategies. It builds upon prior research by investigating why efficiency-driven digitalisation remains dominant despite compelling evidence supporting revenue-led approaches.

From a practical perspective, the study provides valuable insights for industry practitioners, business leaders, and policymakers. Understanding the challenges and success factors associated with revenue-driven digitalisation can help firms navigate the complexities of digital transformation and develop more effective strategies. Additionally, this study offers guidance on how firms can balance efficiency and growth objectives, ensuring that digital investments yield long-term competitive advantages.

By shedding light on the strategic orientations of manufacturing and distribution firms in South Africa, this study aims to inform evidence-based decision-making and support firms in maximising the benefits of digitalisation beyond cost-cutting measures. The findings will also serve as a resource for future research on digital transformation, offering a foundation for further exploration into the interplay between digitalisation strategies and business performance.

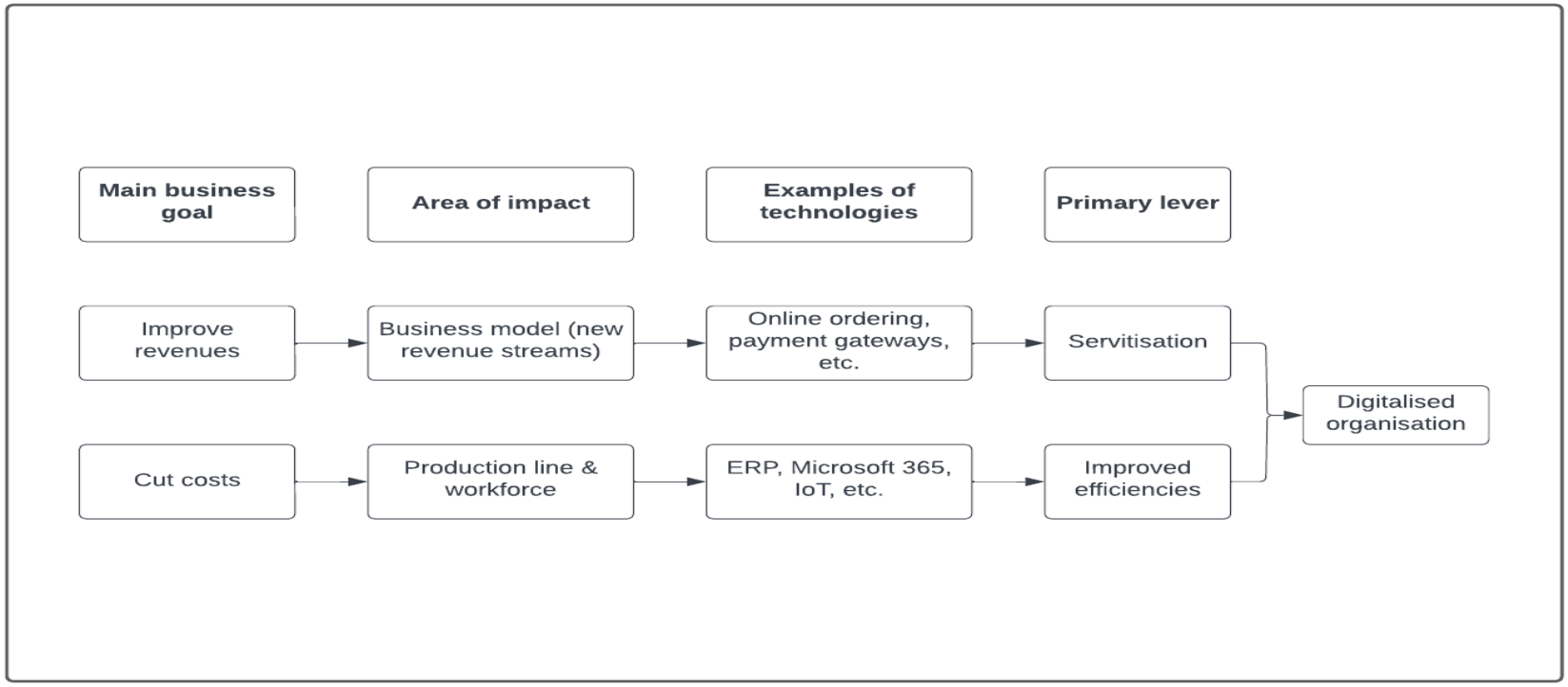


Figure 1: Revenue-led vs efficiency-led digitalisation

1.6 Delimitations of the study

This study is subject to certain delimitations that may impact the generalisation of its findings:

1. **IT Audience Bias**: The research attracted a predominantly IT-oriented audience, many of whom are primarily focused on efficiency-driven digitalisation rather than revenue-led transformation. While this does not invalidate the findings, it does mean that the perspectives of broader organisational leadership, particularly those responsible for business model innovation and revenue generation, may be underrepresented.

2. **Conceptual Limitations**: Many participants struggled to conceptualise how digital transformation could be leveraged for revenue generation within the specific business profiles under study. This indicates a potential gap in awareness or strategic planning regarding growth-led digitalisation, which may have influenced the nature of the discussions and responses.

3. **Role of Reseller Organisations**: Each focus group included representatives from IT reseller organisations. Although the discussions were primarily focused on inquiry rather than sales, some participants directed their queries toward their managed service providers (MSPs) or resellers regarding available solutions for business challenges discussed. This interaction may have introduced a commercial dimension that was not originally intended in the study design.

4. **Geographical Scope**: The study was conducted in South Africa, which may limit the generalisability of findings to other regions. While insights from multinational organisations with South African operations were included, the regional focus of the research may have introduced context-specific influences that differ from those found in other global markets.

5. **Firm Size Considerations**: The study focused on medium-sized firms, which may influence the applicability of the findings to both smaller and larger enterprises. The strategic considerations and resource constraints

of mid-sized firms may differ significantly from those of large multinational corporations or smaller startups, which could affect how digitalisation strategies are formulated and executed.

1.7 Definitions of terms

Table 2 provides the definitions of terms used in this research report.

Term	Definition
Digital Transformation	A concerted and definite progression by firms toward the ambition of delivering improved services and products by displacing legacy methods with more effective digital systems. *(Henriette et al., 2015).*
Digitalisation	The end-to-end change in the way things are done in an organisation that arises from the introduction of digital technologies into the workflows of that organisation. *(Gobble, 2018).*
Digitisation	The action of converting any item (like books, pictures, etc.) from its traditional format into a digital format. *(Ritter & Pedersen, 2020).*
Industry 4.0	A macroeconomic, aggregated view of technological advances occurring at the firm level. This includes changes at the level of policy-making that shape these advances and conveys a step-change in how technology is employed to drive outputs in the economy. *(Kagermann et al., 2013).*
Servitisation	The transition from a product manufacturing company toward a services company. *(Van der Merwe & Rada, 1988).*
Efficiency-led Digitalisation	A strategy that prioritises cost reduction, process optimisation, and operational efficiency through the adoption of digital technologies to streamline workflows and improve productivity. *(Venkatraman, 2000).*
Growth-led Digitalisation	A strategic approach to digitalisation where organisations prioritise revenue generation, market expansion, and innovation, leveraging digital tools to develop new products, services, or business models. *(Teece, 2010).*
Dynamic Capabilities	The ability of a firm to continuously adapt, innovate, and reconfigure its resources in response to changing

	environments, particularly through IT-driven transformations. *(Teece et al., 1997).*
Strategic Alignment	The process of ensuring that digital investments and initiatives are aligned with broader business objectives, leading to improved organisational performance and competitive advantage. *(Henderson & Venkatraman, 1993).*
Business Model Innovation	The development of new, digitally enabled ways of delivering value to customers, often through novel revenue streams, partnerships, or operational efficiencies. *(Amit & Zott, 2001).*

Table 2: List of definitions

1.8 Assumptions

1. The key assumption was that the responses from SMEs will provide sufficient understanding behind the drivers of digitalisation at the firm level.

2. Chosen respondents reflected sufficient knowledge and experience in their various capacities within manufacturing and distribution firms.

3. As long as companies did some aspect of manufacturing (including assembly) or distribution within their core operations, they were considered valid respondents. This means that a very broad definition of manufacturing and distribution was employed.

CHAPTER 2. LITERATURE REVIEW

2.1 Introduction

The aim of this literature review is to explore existing research regarding how manufacturing and distribution SMEs are driven in their digitalisation efforts.

The literature review investigates existing scholarly research, theories, and models on the topic. The review includes investigating literature to determine the merits of growth-driven digitalisation versus efficiency-driven digitalisation, and the corresponding utilisation of each of these drivers by firms. Based on a thorough review of the literature, a gap in existing research is expected to emerge, which will form the final basis of this research.

2.2 Definition of topic

Ultimately, the intention of this literature review is to ascertain whether there is a more compelling case for digitalising toward revenue-growth versus cost-efficiency in manufacturing and distribution firms. Kohtamäki, Parida, Patel & Gebauer (2021) state that despite the significant financial potential, companies struggle regarding value appropriation (revenue growth) from digitalisation. Furthermore, Björkdahl (2020) states that revenue-led digitalisation is fundamentally different and can be experienced as much harder by manufacturing companies.

As such, a complete literature review cannot neglect a review of research that sheds light into this apparent struggle and difficulty. Accordingly, the topic of servitisation, as the primary vehicle of growth-driven digitalisation in manufacturing firms, will be covered by this review.

2.3 Objective literature review

The aim of this literature review is to provide guidance and insight into theoretical evidence of the different schools of thought supporting digitalising toward growth versus digitalising toward efficiency, particularly in the realm of manufacturing and distribution firms.

2.3.1 Digitalisation

This section of the literature review aims to investigate the strategic importance of digitalisation in manufacturing firms:

Digitalisation is the process of transforming and improving business performance through the introduction of digital technologies. The study aims to understand how digitalisation should be linked to both business process improvements (efficiency drivers) and value model enhancements (growth drivers) and that these two concepts are not mutually exclusive. Björkdahl (2020).

Fremont (2021) argues that digital transformation constitutes vast organisational changes that may entirely reshape the organisation conducting the change. This change is permanent and may well result to both increased levels of productivity and revenues. Digital transformation is made possible by the possibility of cheaper digital technologies as well as other pre-existing resource structures. The result is that firms must reconsider all aspects of how they do what they do.

Simonsson, Magnusson, & Johanson (2020) explain that servitisation is becoming is a common consideration among manufacturing firms (as a growth driver). The objective of servitisation is to find ways to address the needs of their customers better. Therefore, digitalisation and servitisation go hand in hand.

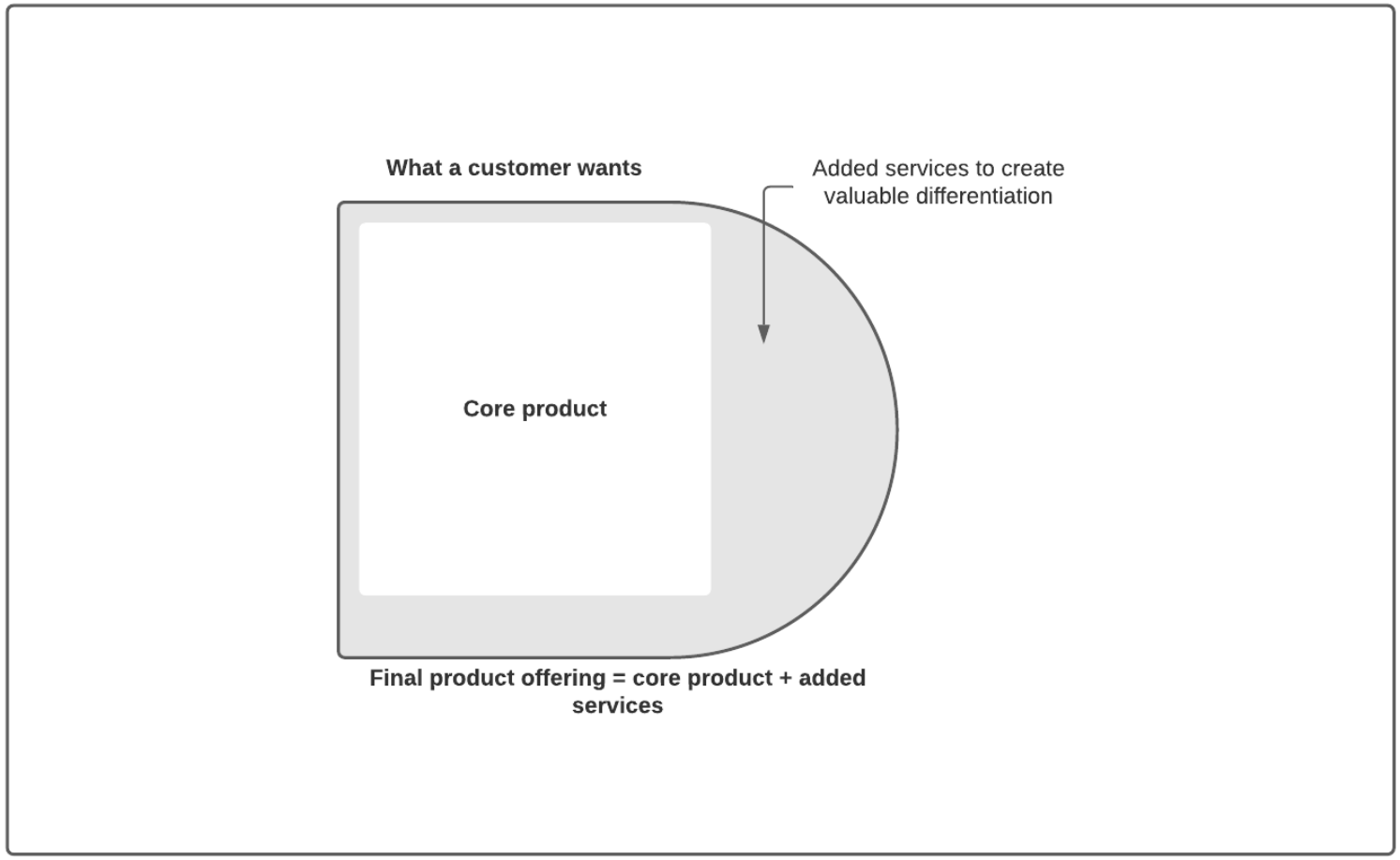


Figure 2: Servitisation enabling product differentiation

2.3.2 Servitisation

This section of the literature review aims to explain what the strategic relevance of servitisation is for manufacturing firms:

As far back as 1988, Van der Merwe and Rada (1988) recognised that many firms wanting to become more competitive and increase their turnover must increase their service offering. They called this process “servitisation” and said that it happens when firms specifically develop their offering “into” services with the aim of adding value.

Subsequently different authors have described servitisation depending on the theoretical viewpoint and context of study, but the common intent behind servitisation strategies, relates to firms seeking to enhance their competitive position by focusing attention on service provision (thus a vehicle for revenue growth).

2.3.3 Digital Efficiency-led digitalisation strategies vs growth-led digitalisation strategies (value appropriation)

The literature reveals a debate on the outcomes of digitalisation strategies, indicating that simply adopting new technologies does not guarantee improved performance. Kohtamäki et al. (2021) highlight a *“digitalisation paradox”*: despite the significant potential of digital initiatives, companies often struggle to appropriate the expected value from these investments because organizational practices and capabilities lag behind technological adoption. In other words, new IT systems alone are insufficient – firms must also develop the internal processes and skills to leverage them. Similarly, Moker, Brosi & Welpe (2020) found that digitalising manufacturing processes *without* a servitisation strategy can lead to financial losses, reinforcing the notion that digital investments need accompanying business-model innovation to pay off. This perspective underscores that efficiency improvements through technology must be coupled with revenue-oriented initiatives (like new digital services) to avoid stagnant returns – a warning echoed by the concept of the “digitalisation paradox” in

practice. On the other hand, some scholars suggest digital transformation can indeed deliver both efficiency and growth; for example, Fremont (2021) argues that comprehensive digital transformation reshapes firms and can simultaneously boost productivity and open new revenue streams. Such optimism is tempered by Abou-Foul et al. (2020), who report *contradictory findings* in the empirical record: across numerous firms, the impact of servitisation and digitalisation on financial performance has not been uniformly positive. Some firms see strong gains, while others do not – implying that context and execution matter greatly. This critical synthesis of contrasting studies suggests that the relationship between digitalisation and performance is complex and contingent. It is not enough to merely digitise operations; success appears to depend on factors like how well new technologies are integrated with business strategy (alignment), whether companies simultaneously develop new value propositions (e.g. through servitisation) rather than just cutting costs, and the firm's change management capabilities. By engaging with these divergent perspectives – from the cautionary paradox noted in Europe to the mixed results observed internationally – the literature review moves beyond summary to highlight an important analytical point: digitalisation can drive efficiency and growth, but realizing those benefits requires strategic and organizational readiness. This sets a more critical tone for the study, as it probes not just *if* firms digitalise for growth or efficiency, but *why* some succeed in extracting value while others do not, reflecting the nuanced views present in global literature.

Their study investigates the complex relationship between digitalisation and financial performance, which in turn highlights the requirement for firms to increase investments in digitalisation.

Abou-foul et al. (2020) explains that whilst many manufacturing firms have aggressively pursued opportunities for profitability and growth through servitisation and digitalisation processes, the current body of research provides contradictory results on the impact of servitisation and digitalisation on organisational financial performance.

Blaschke et al. (2017) state that organisations must be intentional about how they engage in the digital economy. Business model redesign is inextricably linked to revenue growth as an objective. The strategic focus area provides direction for growth in the digital economy, relevant to the circumstances of the organisation.

2.3.4 Business model redesign

Björkdahl's (2020) study discovered that firms found it more difficult to take advantage of possibilities offered by digitalisation aimed at growth. Whilst digitalisation aimed at making firms more efficient operationally, such as changing manufacturing process to improve product performance and functionality is done with much more ease. Simply put, manufacturing firms are able to run with fewer issues, solve issues in advance, and coordinate better across the different parts of the organisation, thus reducing wastages in time and money.

Björkdahl (2020) mentions how 1991 Nobel Laureate, Oliver Williamson believes that what he calls economising, is the best strategy, resulting in organisational efficiency. Thus, efficiency-led digitalisation ought to be prioritised (incidentally, something that appears to have widespread appeal in practice). Unfortunately, this appears to come at the cost of neglecting activities aimed at creating new revenue streams and reinventing the business model. These firms will also not pay much attention to strategies aimed at defending themselves against possible competition, directly or indirectly. These firms consider the view that economising is more profitable due to cost positions which translate into competitive advantage.

Björkdahl (2020) argues that digitalisation provides opportunities for both efficiency and growth – so-called 'innovation combinations' – implying firms can pursue both simultaneously. However, other scholars offer contrasting perspectives. For instance, the transaction-cost economics view (echoed by Oliver Williamson, as cited in Björkdahl, 2020) suggests that 'economising' – focusing on efficiency – is the most reliably profitable strategy for firms. This efficiency-first stance warns that resources spent on speculative innovation might

jeopardise short-term competitiveness. In contrast, proponents of innovation-driven strategy (e.g. Teece, 2010, on dynamic capabilities) caution that over-emphasising efficiency can undermine a firm's ability to adapt and create new value, thereby hurting long-term performance. Moreover, evidence from different contexts indicates that the balance between these approaches may shift – for example, firms in highly competitive or technologically advanced markets often prioritize digital innovation to differentiate themselves, whereas firms in resource-constrained settings may double down on cost efficiency. These divergent viewpoints highlight a gap: it remains unclear how firms should balance efficiency and growth investments, especially in emerging economies. This study engages with this debate by examining South African firms' stances, thereby addressing the noted theoretical and practical split in the literature.

2.4 Research Propositions

- *Proposition 1*: Firms adopting a balanced approach to growth-led and efficiency-led digitalisation will achieve superior long-term performance. While digitalisation strategies often prioritise either growth (revenue maximisation) or efficiency (cost reduction), firms that integrate both approaches strategically are likely to experience greater long-term sustainability, competitive advantage, and financial performance.
- *Proposition 2*: The success of digital transformation initiatives depends on the strategic alignment between IT investments and organisational objectives. Organisations that ensure a strong alignment between digital investments and core business strategies are more likely to realise the intended benefits of digital transformation, including increased agility, improved customer experience, and operational efficiency.
- *Proposition 3*: Servitisation enabled by digitalisation enhances business model resilience and revenue diversification. Manufacturing and distribution firms that integrate digital technologies to transition toward service-based models (servitisation) are better positioned to adapt to market disruptions, improve customer retention, and generate new revenue streams.

2.5 ANALYTICAL FRAMEWORK

The analytical framework is an integrated overview of the theoretical and empirical concepts of this study.

2.5.1 Theoretical Framework

As current research in this area is still in a fledgling state, mature models and theoretical frameworks are scarce. In creating a framework to explore the extent to which manufacturing and distribution SMEs are digitalising toward growth or efficiency, Björkdahl (2020) was heavily counted upon.

Björkdahl (2020) measured organisations against several criteria like culture, investments, strategy, etc. and noted the impact of revenue-led and efficiency-led digitalisation against these several criteria. These points are summarised in Table 1. This table will be used as the cornerstone theoretical framework for the research. In particular, respondent organisations will be measured against the criteria in the leftmost column, thus forming a standard benchmark for the evaluation of respondent organisations.

Björkdahl's framework (2020)

	Cost cutting/Operational efficiency	**Growth/Innovation**
Asset redeployment	The use of established processes, such as taxes, for money saving options improving lead times, quality, and throughput	No established processes to allocate capital needed by different departments to build a growth agenda

Culture	An existing culture to reduce waste through improved methods	Combined capability across departments to transform outputs. No existing culture to develop and sell services or to use data to build new businesses
Coordination between departments	Dependence upon superiority in individual departments	Dependent on integration or various departments
Data management	Data generated from within the firm and less variables are required to recognise efficiency improvements	Data generated from customer sources and several variables are necessary to recognise and identify growth options
Demand	The liability to decide if the firm will be productive is internal	The market demand is uncertain
External cooperation	Entrenched partners and vendors for implementing efficiency and improvements	Context drives partnerships Complementors are interdependent in creating value within the ecosystem

Investments	Estimated with ease	Estimation is complicated
Managerial processes	Functioning established managerial processes	New managerial processes rely on flexibility to function
Return on investments	Estimated with ease	Mostly uncertain
Strategy	Entrenched procedures which invest in vital solutions enabling competitiveness resulting in high ROI	Not established Requires trade-offs among several uncertain alternatives
Time to implementation	Estimated with relative ease	Estimation is complicated
Transferability	High between firms	Low between firms

Table 3: Differences between digitalisation aimed at cost-cutting vs growth

To flank Björkdahl's framework (2020), Ghobakhloo & Iranmanesh (2021) refer to a framework of digital transformation success under Industry 4.0 (see figure 3). Use of this framework allows for a robust testing of efficiency-led digitalisation, as reflected in Industry 4.0 IS implementations. This framework will be used as part of the study to further validate the degree to which respondent firms have engaged digitalisation for the purposes of cost-cutting and efficiency.

Based on the framework proposed in Figure 3, manufacturing digital transformation success involves selecting the right Industry 4.0 technology to adopt, correctly implementing the technologies, ensuring the satisfaction of technology end-users, consistently and purposefully using the technologies in support of strategic business objectives, and gaining value from the technologies implemented. The value of digitalisation in this context (cost-cutting) involves various operational and financial metrics such as employee productivity, market sensing, cost saving, process reliability, resource efficiency and improved decision-making. Ghobakhloo & Iranmanesh (2021).

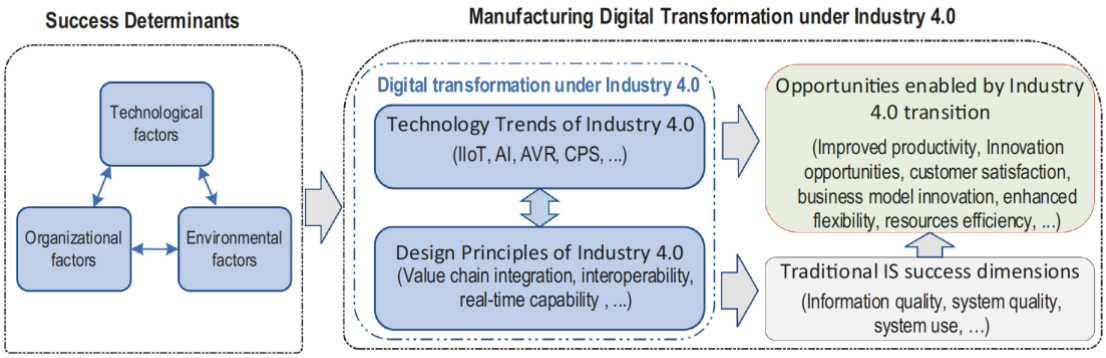


Figure 3: The framework of digital transformation success under Industry 4.0

2.5.2 Conceptual Framework

The main elements are demonstrated in Figure 3 in the conceptual framework.

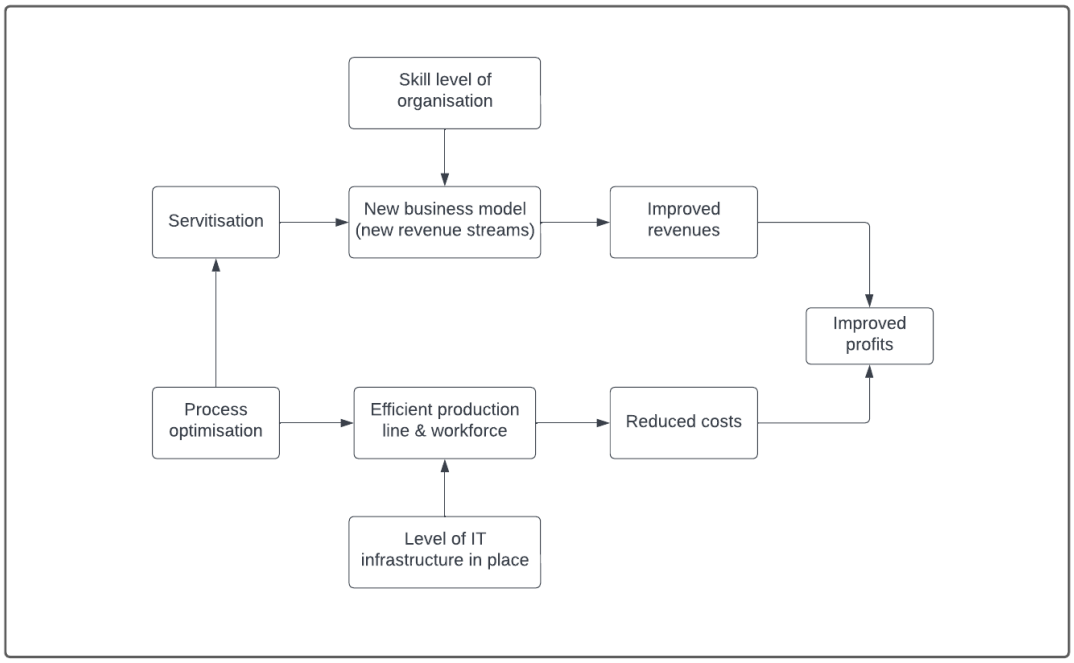


Figure 4: Primary conceptual framework

2.6 CONCLUSION OF LITERATURE REVIEW

Based on the literature reviewed, there is strong theoretical support for the benefits of revenue-driven digitalisation; yet in practice many manufacturing and distribution firms still predominantly pursue efficiency-led digitalisation. This discrepancy points to a clear gap: why do firms default to efficiency-oriented strategies despite evidence favoring growth-oriented approaches? The literature offers some explanations (e.g. perceived complexity and risk of growth initiatives, organizational and cultural barriers to servitisation), but further research is needed to fully understand this misalignment between theory and practice. To address this gap and align the study's focus with the identified theoretical issues, the current research has formulated its objectives and questions in direct response to the literature findings.

Accordingly, this study was designed to "fill the gap" by investigating real-world decision-making in 15 South African manufacturing and distribution SMEs. Each research question and objective has been derived to ensure coherence with the literature and the overall problem statement. For example, the literature

highlighted the tension between cost-efficiency and revenue-growth strategies; therefore, Objective 1 and the first research question examine the strategic priorities behind firms' digitalisation initiatives (efficiency vs. growth). The review also underscored the importance of strategic alignment (between IT investments and business goals) as a factor in digital success, which was not explicitly stated in the original objectives – to rectify this, the revised Objective 2 and research questions now probe how well firms integrate digital initiatives with their organisational objectives (addressing the theoretical point that alignment influences outcomes). Likewise, the literature identified servitisation as a key enabler of digital growth (and a source of potential resilience), so Objective 3 and a dedicated research question now focus on how firms navigate servitisation in their digital strategies. By ensuring that each research question and objective is traceable to insights from the literature review, the study achieves a tighter alignment between its theoretical foundation and its empirical investigation. This alignment also leads to more robust research propositions – for instance, Proposition 2 on IT-business alignment and Proposition 3 on digital servitisation were developed to directly reflect the refined objectives – thereby strengthening the logical flow from literature appraisal to research design and ultimately to analysis.

CHAPTER 3. RESEARCH METHODOLOGY

This chapter outlines the research methodology adopted to explore digitalisation strategies within South African manufacturing SMEs. It details the research approach, design, data collection methods, population and sampling techniques, as well as the analytical strategies employed to interpret the findings. Given the exploratory nature of the study, a qualitative approach was used, relying on in-depth interviews with key business leaders to gain rich insights into their digitalisation efforts. Additionally, considerations related to research limitations, validity, reliability, and ethical compliance are discussed to ensure the robustness and credibility of the study.

3.1 Research approach

Digitalisation strategies within South African (SA) manufacturing firms were previously unknown, especially in the SME market segment. Due to the exploratory nature of this study, a qualitative approach was adopted. This involved conducting 15 in-depth interviews using open-ended, discovery-oriented questioning techniques to obtain detailed information from selected business leaders within SMEs in SA.

3.2 Research design

In this study, 15 manufacturing and distribution SMEs with offices in South Africa were closely assessed using a standard qualitative case-study method. Data collection was carried out through 15 in-depth interviews, complemented by observations of the participants. Yin (1999) explains that the overall feature of a case study is its focus on a single phenomenon within its real-life context and that case studies are research situations where the number of variables of interest far outstrips the number of data points. In other words, a case study investigates a contemporary phenomenon in depth and within its real-life context, particularly when the boundaries between phenomenon and context are not noticeably clear.

3.3 Data collection methods

Fifteen in-depth interviews were conducted with business leaders across manufacturing and distribution industries in South Africa. For this study, interviews and documentation were used as data collection methods.

3.4 Population and sample

3.4.1 Population

Population for this study comprised SMEs defined according to the Department of Small Business Development (DSBD, 2019, p. 110) revised definition:

‘Small enterprise’ means a separate and distinct business entity, together with its branches or subsidiaries, if any, including cooperative enterprises, managed by one owner or more predominantly carried on in any sector or subsector of the economy mentioned in column 1 of the schedule and classified as a micro, a small or a medium enterprise by satisfying the criteria mentioned in columns 3 and 4 of the Schedule.”

The columns referred to in this quote can be seen in Table 4.

Sectors or sub sectors in accordance with the Standard Industrial Classification	Size or class of enterprise	Total full time equivalent of paid employees	Total annual turnover
Manufacturing	Medium	51 – 250	More or equal to R170 million
	Small	11 - 50	More or equal to R50 million
	Micro	0-10	More or equal to R10 million
Wholesale	Medium	51 - 250	More or equal to R220 million

	Small	11-50	More or equal to R80 million
	Micro	0-10	More or equal to R20 million

Table 4: National Small Enterprise Act thresholds (DSBD, 2019, p. 111)

The population for this study was limited to small and medium enterprises and excluded micro enterprises.

3.4.2 Sample and sampling method

As per standard qualitative research, sampling choices were made to enable a deep understanding of the phenomenon under study. The non-probability sampling techniques considered for this study included purposive sampling, quota sampling, snowball sampling, and convenience sampling (Neuman, 2007).

A qualitative research approach was followed, employing convenience sampling techniques, with 15 in-depth interviews conducted. Participants were selected according to the study specifications, ensuring that only SMEs with digitalisation efforts and capabilities were included in the sample.

Convenience sampling is a non-probability sampling strategy employed in both qualitative and quantitative research. To draw a convenience sample, a researcher collects data from people or other relevant elements that they can access conveniently. Convenience sampling is especially useful in exploratory research or when probability sampling is too costly or difficult. However, while convenience samples offer ease of access, they do not provide the rigor needed to make conclusions about larger populations (Neuman, 2007).

Interviews were conducted with senior leadership teams at respondent companies.

3.5 Research instruments

Data collection was accomplished through individual semi-structured interviews using an interview guide (see Appendix B). The interviews were conducted either face-to-face or online via video conferencing applications such as Zoom or Microsoft Teams.

Interviews were recorded, transcribed, and text-analysed to obtain an in-depth understanding and to identify common themes related to participants' adoption of and viewpoints on digitalisation strategies in their firms.

High-level pre-assessments of participants' websites, digital footprints, and marketing presence were conducted to obtain background information and prepare for the interviews.

3.6 Procedure for data collection

Participants (mostly directors and business owners) from selected firms were approached directly via telephone or email to participate in the study. Upon agreement, an online or face-to-face interview was scheduled. A document with background information on the study and high-level interview questions was provided prior to the interview via email. Interviews were conducted either in person or via Zoom or Microsoft Teams video calls.

3.7 Data analysis and interpretation

The qualitative **thematic analysis** for this study was conducted in a structured and transparent manner, following the guideline of Creswell & Creswell (2018) while also documenting each step in detail. The process was as follows:

- *Step 1: Organise the data*: All interview recordings were transcribed verbatim and compiled along with any supplementary materials (e.g. field notes, company documents reviewed). These raw data were then systematically sorted and arranged into a data corpus for analysis (each transcript labeled and indexed).
- *Step 2: Read through all the data*: The researcher immersed in the transcripts, reading them multiple times to develop an overall understanding. Initial notes were made to capture emerging ideas, recurring concepts, and notable impressions from participants' narratives, ensuring a grasp of the breadth and depth of the content before formal coding.
- *Step 3: Code the data*: Using an open-coding approach, the researcher systematically labeled meaningful segments of each transcript. Related ideas and phrases were grouped into initial categories (codes), with notes made in the margins or using qualitative analysis software. Codes were

iteratively reviewed and refined to ensure consistency, and similar codes were clustered together. This process followed Creswell's guidelines (Creswell & Creswell, 2018) but went further by explicitly documenting how each code was defined and supported by evidence in the data.

- *Step 4: Generate themes*: The set of refined codes was then aggregated into overarching themes that directly address the research questions. The researcher examined how different codes interrelated and regrouped them under higher-order themes that captured the major findings. Each theme was checked against the data to confirm it was grounded in multiple participants' narratives (enhancing credibility). The theme development process was recorded step-by-step, providing transparency in how raw interview data evolved into the key insights reported. (For example, codes related to "customer-focused innovation" and "new service offerings" were merged into a theme reflecting growth-oriented digital initiatives.) By clearly delineating this coding process, the study strengthens the trustworthiness of the qualitative analysis, demonstrating how conclusions were derived from the data in a rigorous manner.
- *Step 5: Define and represent themes*: Each theme was then defined clearly and supported with representative examples from the interviews. The results (Chapter 4) present these themes as qualitative narrative findings, interwoven with participant quotations for evidence. By doing so, the report conveys the findings in a way that highlights each theme's meaning and importance to the research problem.

To enhance transparency in coding and theme development, additional measures were taken beyond this five-step outline. The researcher maintained an audit trail throughout the analysis – including annotated transcripts, coding memos explaining rationale for code assignments, and theme refinement notes. This audit trail was reviewed during and after analysis to verify that themes truly emerged from the data rather than researcher preconceptions. In terms of validity, triangulation was used (different interviewees corroborated key themes), and selective member checking was conducted: tentative interpretations were fed back to a few participants to confirm that the researcher's understanding of their statements was accurate. The small sample and convenience sampling were

acknowledged as limitations (see Section 3.8), but the study mitigated bias by ensuring diversity in the sample (firms of various sizes and industries) and by being transparent about how themes were derived. Each theme is supported by multiple quotes across different participants, indicating that it reflects a recurring pattern rather than one individual's view. By clearly documenting how raw interview data were distilled into thematic findings, the methodology section provides a transparent account of the qualitative analysis.

3.8 Limitations of the study

This study applied to manufacturing and distribution companies with offices in South Africa. By definition, results from a qualitative case-study research method cannot be extrapolated widely. Broad application is thus limited. Despite the use of convenience sampling, effort was taken to draw from a wide range of manufacturing and distribution SMEs, avoiding repetitive cases with similar technology stacks (Björkdahl, 2020). Additionally, convenience sampling itself is limiting, as a wide representation of companies is not assured.

3.9 Validity and reliability

3.9.1 Internal and External validity

Three different lenses were used to validate the study, namely the researcher, participants, and external experts (Creswell & Miller, 2000). Validation was ensured as follows:

1. **Researcher's Lens**: Triangulation of different data sources (interviews) was used to verify the validity of themes derived from participants' perspectives. The researcher reflected on and clarified any biases that might have influenced the interpretation of the findings (Creswell & Creswell, 2018).

2. **Participant's Lens**: Verification of specific findings and themes was conducted with relevant participants to ensure accuracy in interpretation.

3. **Supplier's Lens**: Interviews included subject matter experts from the suppliers of the case firms, who acted as advisors to the firms' decision-makers.

3.9.2 Reliability

Qualitative research follows a "linear but interactive process," where each step must be documented and continuously reviewed to verify the reliability of decisions and interpretations (Yin, 2013).

All interviews, recordings, notes, transcriptions, and coding were reviewed and made available (within the bounds of relevant data privacy laws) to ensure consistency and accuracy.

3.10 Ethical considerations

This study was classified as "low risk" according to the rating system used by the Human Research Ethics Committee (HREC) (non-medical) at the University of the Witwatersrand (2021, p. 7).

Company-confidential information, such as servitisation capabilities and strategies to overcome challenges, was shared during the study. To protect sensitive data, aggregated information was used where relevant rather than firm-level specifics. Non-disclosure agreements were signed as necessary during the interview process.

All data was captured, stored, and analysed electronically with appropriate security measures (e.g., password protection), and collected data was stored in a secure format.

Participants were provided with open-ended questions before the interview. They were encouraged to ask questions to ensure full understanding and comfort in providing responses.

The researcher informed participants that interviews would be recorded and assured them that recordings would only be used for research purposes and would not be shared externally.

All data protection and privacy laws, including the Protection of Personal Information Act (POPIA, 2013), were strictly adhered to.

CHAPTER 4. Presentation of findings

4.1 Introduction

This chapter presents the research findings in relation to the propositions formulated in the literature review. The analysis is based on qualitative data gathered through 15 in-depth interviews with business leaders from manufacturing SMEs in South Africa. The findings explore the role of digitalisation in business growth, operational efficiency, and strategic alignment, offering insights into how firms navigate digital transformation in the local market.

The findings are structured according to the study's three research propositions:

- **Proposition 1:** Firms adopting a balanced approach to growth-led and efficiency-led digitalisation will achieve superior long-term performance.
- **Proposition 2:** The success of digital transformation initiatives depends on the strategic alignment between IT investments and organisational objectives.
- **Proposition 3:** Servitisation enabled by digitalisation enhances business model resilience and revenue diversification.

The interview guide was structured to investigate key factors influencing digitalisation adoption within SMEs. The first section of the interviews focused on understanding participants' businesses, their five-year vision, and the role of technology in their strategic planning. Participants were asked about their current technology adoption, the measures of success for their IT investments, and whether efficiency gains were being tracked. The discussion also explored the extent to which firms were experimenting with new, technology-driven business models to drive revenue growth.

The second section of the interviews assessed organisational culture and strategic decision-making in relation to digitalisation. Participants were asked about their companies' orientation—whether they prioritised efficiency

improvements or revenue generation—and the rigidity or flexibility of their managerial processes. Further questions explored decision-making dynamics, the balance between internal and external data usage, and how firms evaluated return on investment (ROI) for digital investments. Finally, participants shared insights into their approach to industry standards, innovation, and long-term stability.

4.2 Sample characteristics

Fifteen firms participated in the focus group discussions, representing a diverse range of industries and sizes. Within the broad definitions of manufacturing and distribution (as covered in section 1.8. Assumptions), sectors included manufacturing and industrial services, healthcare, financial services, engineering, logistics, technology and property management. Company sizes ranged from small enterprises (dozens of employees) to large organizations (several hundred employees). For example, one heavy equipment distributor employs approximately 680 staff, whereas a niche technology firm specializes in virtual reality training with 82 employees. Digitalisation maturity also varied across the sample. Several firms were in early stages – relying on basic cloud services or on-premise systems without a formal digital strategy – while others were highly digitally mature, operating fully in the cloud and even developing in-house software solutions. One healthcare provider had transitioned to a “fully cloud-based environment” for its operations, whereas a property leasing company focused only on maintaining efficient operations rather than extensive technological advancements. This spread of digitalisation status ensured a broad perspective on both nascent and advanced digital transformation experiences.

The interview participants were typically senior managers responsible for IT or business strategy (or both) within their organizations. Most commonly, the discussions involved Chief Information Officers (CIOs) or IT Managers who oversee digital initiatives. For instance, one of the manufacturing firms' participants leads IT innovation across a diverse company portfolio (encompassing tooling supply, a training center, and even farming). In some cases, business executives with IT oversight contributed: a finance executive in

a financial services firm discussed plans for replacing core systems to meet new accounting standards and business goals. This mix of roles provided both technical and strategic viewpoints. Overall, the sample's characteristics – multi-industry, varying size, and differing digital maturity – allowed for rich insights into how digital transformation is approached under different organizational contexts. Each participant could speak to their firm's strategic objectives and how technology investments were (or were not) aligned with those goals.

4.3 Results pertaining to Proposition 1

- *Proposition 1*: *Firms adopting a balanced approach to growth-led and efficiency-led digitalisation will achieve superior long-term performance*.

The focus group findings revealed several key themes related to how companies balance digital initiatives aimed at efficiency (cost reduction, productivity) versus growth (revenue generation, market expansion). Across the interviews, participants consistently noted that historically their IT investments have been driven by efficiency and cost-saving motives. At the same time, many acknowledged an increasing interest in leveraging digitalisation for top-line growth.

4.3.1 Efficiency as a Primary Driver

Nearly all firms indicated that improving operational efficiency and cutting costs is a core motive for digital projects. Participants frequently described using IT to streamline processes, reduce manual work, or "cut away wastage" in the organization. For example, one manager from a manufacturing company explained that technology is mainly *"used as an assist… it's not currently a way of [generating] revenue"*. This sentiment reflects a prevalent view that digital tools (like automation, ERP systems, or cloud platforms) are first and foremost deployed to increase internal efficiency – such as faster data processing, better inventory control, or labor savings – rather than to create new business. In several cases, firms were in cost-conservation mode (due to economic or budget pressures) and thus funneled IT efforts into productivity improvements. An

executive at a large services firm, for instance, emphasized ongoing *"cost-cutting measures"* guiding all technology decisions. These efficiency-led approaches align with the "exploitation" side of digitalisation, focusing on optimizing existing operations.

4.3.2 Emerging Growth-Oriented Initiatives

Alongside the efficiency focus, the data show a clear emergence of growth-led digital initiatives in a number of firms. Several participants revealed that they are now actively exploring ways to use digital technology to drive revenue growth, new services, or market expansion, indicating movement toward a more balanced approach. *"I'm looking for ways to make our business more money in terms of IT,"* one IT manager stated plainly. This comment exemplifies a growing mindset among the firms: moving beyond using IT solely to *"get more efficient"* and instead seeking innovation and revenue opportunities through digitalisation. However, not all companies had concrete results yet – many are still in exploratory phases. The same manager admitted they are *"still investigating at the moment… not there yet"* with finding those growth-generating applications of IT. Another participant described a "little bit of both" approach, noting that while their IT department does drive internal efficiencies, it is also *"heavily involved"* in deploying the company's software to clients, which *"does generate revenue"* for the business. In that case, the firm's digital product – originally developed for internal use – became a client-facing offering, directly contributing to sales. This illustrates how some firms are diversifying their use of IT: continuing to pursue cost savings while also creating new revenue streams (e.g. selling software, data services, or digital products to customers). Participants who reported such dual objectives tended to view the growth-oriented projects as strategically important for long-term success, even if efficiency projects were still necessary in the short term.

4.3.3 Need for Balance

There was broad agreement that an optimal digital strategy balances both efficiency and growth goals, though achieving this balance is challenging in

practice. Many firms are only beginning to shift toward growth-led digitalisation after years of concentrating on efficiency. One interviewee conceded that their company had *"no…huge [budget] available for the projects we'd like to implement"*, implying that resource constraints force careful choice between efficiency upgrades and more innovative projects. Nevertheless, the discussions suggest that firms which manage to combine the two approaches could gain a performance edge. Several participants recognized that purely focusing on cost-cutting can limit a company's future trajectory. As one put it, efficiency is important but the leadership *"would love to increase their revenue"* through digital opportunities if a viable path is found.

The consensus was that efficiency-led and growth-led initiatives need not be mutually exclusive – and indeed, the *highest-performing firms tended to be those attempting to do both*. For example, one industrial supplier had implemented digital process improvements internally and was now packaging its in-house software as a product for customers, exemplifying the balanced approach Proposition 1 highlights. In summary, while efficiency motives currently dominate IT investments for most sample firms, there is a notable trend toward incorporating growth-led digital projects. The firms embracing this duality – improving today's operations while innovating for tomorrow's revenue – appeared most optimistic about their long-term performance, consistent with Proposition 1's expectations. Direct quotes from participants underscore this evolving balance, such as an IT executive who summarized their strategy as *"a little bit of both"* cost savings and revenue generation. This reinforces the proposition that coupling efficiency and growth objectives in digitalisation can yield superior outcomes over time.

4.4 Results pertaining to Proposition 2

- *Proposition 2*: *The success of digital transformation initiatives depends on the strategic alignment between IT investments and organisational objectives.*

The focus group findings strongly support the importance of strategic alignment. Several key themes emerged regarding how well (or poorly) firms align their

technology initiatives with business goals, and how this alignment influences the success of digital transformation efforts.

4.4.1 Importance of Aligning IT with Business Goals

Participants overwhelmingly agreed that digital initiatives are most effective when driven by clear business objectives. In practice, this means IT projects are selected and prioritized based on the company's strategic goals – whether it be growth targets, operational excellence, customer service improvements, or compliance requirements. Many interviewees described efforts to ensure their IT roadmap was tightly coupled with what the business is trying to achieve. For example, one manager was "privy to the business strategy" and used that insight to guide IT investments, focusing on the *"most pressing business priorit(ies) that [IT] has to support"*. In that case, the highest priority was resolving inventory and logistics issues, so the firm's digital transformation centered on implementing better stock management systems and integrating with courier services to meet customer needs. The participant emphasized that *"stock… is probably the biggest focus"* for the company and described plans to use IT solutions to address it. This example shows strong alignment: the IT department is tackling a critical operational problem identified by the business, rather than pursuing technology for its own sake. Other participants likewise cited instances of alignment, such as adopting analytics tools to achieve a business goal of predictive forecasting, or deploying a new CRM to support the sales strategy. A finance executive from an insurance firm articulated a clear vision of alignment, explaining that their goal was to move from backward-looking reporting to forward-looking insights. *"We would like to be at the forefront of taking business information, aligning it to the accounting side of the business, and then giving that analytical view of where the company is heading,"* he explained. This strategic use of analytics and enterprise systems was directly tied to the organisation's objective of becoming more proactive and insight-driven in decision-making. Such testimonies underline that when IT initiatives clearly map to organisational objectives, stakeholders perceive the digital transformation as more valuable and are more likely to support it.

4.4.2 Variability in Alignment and Organizational Support

Despite consensus on its importance, the degree of IT-business alignment varied across the firms. Some companies demonstrated **strong strategic alignment**, with IT leaders participating in business planning and a shared understanding between IT and business units. For instance, in one engineering services firm, the IT manager reports to an executive on the business side and affirmed that he is involved in understanding *"what they're trying to get right… from a business point of view"*. This enabled him to tailor IT projects (e.g. consolidating data or upgrading systems) to directly support those business aims. In contrast, other firms admitted to a lack of formal alignment mechanisms. One mid-sized company had been moving workloads to the cloud on an ad-hoc, case-by-case basis without an overarching strategy. While they were making progress (such as deploying a new ERP system on Azure), the participant acknowledged there was *"not an overarching cloud strategy in place"* – indicating that IT decisions were somewhat reactive rather than guided by a clear business-aligned plan. Such misalignment can lead to fragmented efforts and hesitation in fully committing to transformation initiatives. Another respondent noted that until recently their IT department was seen mainly as a *"cost cutting mechanism"* and was not involved in discussions about revenue or growth at the leadership level. This suggests a silo between IT and business strategy; in these cases, digital projects might struggle to gain executive buy-in or fail to address core business needs, impacting their success. Indeed, a theme in the discussions was that senior management support is crucial for alignment. Several participants reported positive shifts in this area – for example, a CIO mentioned that the board and business owners now actively inquire about how IT can drive growth, not just efficiency, indicating better alignment of expectations. Others, like the insurance firm's finance lead, demonstrated cross-department collaboration (finance and IT working together on system strategy). This kind of partnership fosters alignment by ensuring IT investments are evaluated in light of business outcomes (e.g. regulatory compliance, financial analytics capabilities).

4.4.3 Alignment as a Success Factor

The evidence from the focus groups consistently supports Proposition 2: digital transformation success is closely linked to strategic alignment. The firms that reported smooth or successful IT initiatives tended to be those with clear alignment. For example, a company that expanded into new markets described aligning its IT modernization with that expansion strategy, resulting in timely system upgrades that did not hinder growth. On the other hand, misaligned situations (such as implementing technology without user buy-in or without solving a pressing business pain point) were associated with stalled or under-utilized projects. One participant frankly noted that without a clear mandate from business leadership, it's *"tough to deliver"* certain IT projects that lack obvious business value. Overall, participants concurred that strategic alignment provides direction and justification for digital investments, improving their uptake and impact. As one interviewee put it, having a shared strategy ensures everyone is *"on the same page"* and that technology choices make sense to all stakeholders – a key ingredient for transformation success. In sum, the focus group findings reinforce that aligning IT initiatives with organisational objectives is not just ideal but indeed essential for realizing the benefits of digital transformation, echoing the central argument of Proposition 2. Firms with high alignment have more coherent digital strategies and tend to see more value from their IT investments than those where alignment is lacking.

4.5 Results pertaining to Proposition 3

- *Proposition 3*: *Servitisation enabled by digitalisation enhances business model resilience and revenue diversification.*

The discussions yielded rich insights into how companies are using digital technologies to add service components to their offerings (servitisation), and how this is contributing to more resilient, diversified business models. Several themes emerged, illustrating varying degrees of servitisation across the sample firms and the perceived benefits thereof.

4.5.1 Digital Technology Enabling New Services

A number of participants described their firms launching new digital-enabled services or products, effectively expanding their business model beyond traditional boundaries. In several cases, an internal digital solution or capability was repurposed into a customer-facing service. For example, one industrial firm developed a custom ERP extension (with specialized HR and payroll modules) for use across its own operations, and then recognised its potential as a market offering. The IT lead explained that this system, initially built for internal efficiency, was being opened up via APIs to work with multiple client systems – a move designed to attract external users and create a new revenue stream. He noted the company was now strategizing on *"revenue generation and invoicing"* models for this application. This is a clear instance of servitisation: a manufacturing-oriented business diversifying into software services using a digitally developed product. Another compelling example comes from the virtual reality training firm. Their core product is training content delivered through VR hardware, but they have structured it as an ongoing digital service. One executive described how clients *"buy VR headset(s)… and then we provide them with [access to] the LMS… they pay per user fee"* for the training platform. In other words, rather than a one-off sale of training materials, the firm uses a subscription-like model (per-user licensing of their e-learning platform) – a servitised offering made possible by their digital platform. This approach not only generates recurring revenue but also strengthens client relationships (as the service is consumed continuously). Similarly, a healthcare company in the study leveraged digitalisation to enhance and extend its service offerings. The participant from this firm explained that they built a bespoke digital system for managing a maternity care program commissioned by a large client (a medical scheme). Realizing the opportunity to serve other clients, they are now redesigning this application to be modular and multi-tenant. *"It was developed specifically for the GEMS maternity program… we are making it more modular, and we are able to then, as we sign up additional business, customize [it] to that customer's needs,"* the IT manager said. This transformation of a one-client system into a flexible platform will allow the healthcare firm to offer tailored healthcare management services to new corporate customers and possibly individual consumers, greatly diversifying its

revenue base. These cases demonstrate how digitalisation acts as an enabler for servitisation: by developing software, platforms, or digital skills, companies can create service offerings (e.g. software-as-a-service, data analytics services, digital content subscriptions) alongside their traditional products.

4.5.1 Revenue Diversification and Resilience

Participants noted that adding new services through digitalisation is already yielding or is expected to yield benefits in terms of more stable and diversified revenues. In the VR training example, the shift to a per-user fee model means the company isn't solely reliant on one-time project fees; instead, it enjoys ongoing income as clients continually use and renew the training platform. This recurring revenue model enhances financial resilience, as it smooths out the peaks and troughs of one-off sales. The interviewee implied that this model also embeds the company more deeply in the client's operations (through the LMS platform), making the business relationship stickier and more durable. In the healthcare firm's case, servitisation (via their new digital platform) is seen as a growth avenue that reduces dependence on any single contract. Originally, much of their work was project-based (e.g. government tenders for community health services). By productising their maternity program system, they can onboard multiple paying clients (e.g. different health insurers or large employers) onto the platform simultaneously. This not only creates multiple income streams but also buffers the business if one client contract ends, thereby improving resilience. An IT manager from another firm highlighted how even providing *value-added IT services* to customers can strengthen the business model. His company's IT department began offering support services to clients who use the firm's software, sometimes as a billed service and sometimes as a free value add. While modest in scale, this initiative represented a shift from pure product selling to a product-plus-service model, enhancing customer satisfaction and loyalty (and in some cases bringing in additional fees). Across the board, the sentiment was that digitalisation opens the door for such hybrid models. Companies that once only sold tangible products are now considering or implementing digital services (apps, data, support) around those products. This not only diversifies revenue but also helps differentiate them in the market. One participant noted that these new

services often start as experimental or side projects, but if successful, they become integral to the firm's offerings and provide a competitive buffer against market fluctuations. Indeed, those firms in the study that had embraced servitisation appeared more confident in their adaptability. For instance, the diversified industrial group (with training, software, and traditional business lines) indicated that if one sector (say, equipment sales) slows down, another income stream (such as software services or training contracts) can compensate – a clear boon to overall resilience.

4.5.1 Challenges and Outlook

It was also acknowledged that servitisation through digitalisation is not without challenges. Companies need to invest in the right technology and skills, and often must change their business processes to support service delivery (e.g. set up support teams, new pricing models, etc.). A few participants from more traditional firms expressed caution – they saw the potential for digital services but were still developing the necessary capabilities. Despite these hurdles, the general outlook was optimistic. The focus group discussions reinforce Proposition 3's assertion: digital servitisation is a promising strategy for resilience and growth. As one respondent encapsulated, diversifying into digital services has been *"forward-thinking"* for their group and is viewed as crucial for *"future success"*. The evidence from multiple firms – ranging from manufacturing to healthcare – shows that those who effectively blend products and services via digital technology are creating more robust business models with varied revenue streams. This not only cushions the firm against downturns in any single line of business but also often provides closer customer engagement and new value propositions, further strengthening their position.

4.6 Summary of the findings

In summary, the findings across all three propositions highlight a common thread: effective digital transformation requires a balanced, well-aligned strategy that leverages digital technologies for both operational efficiency and innovative growth, including new service offerings. Proposition 1 was supported by evidence

that companies are increasingly striving to balance efficiency-led and growth-led digitalisation. While historically the emphasis was on cost efficiency (with all firms pursuing IT projects to streamline operations), many firms are now also seeking growth through digital innovation – for example, by using technology to develop new products or reach new customers. The firms managing to pursue both objectives (efficiency and growth) appear poised for better long-term performance, echoing themes from the literature on organizational ambidexterity in IT investment. This finding resonates with prior studies that suggest companies should exploit current capabilities while exploring new opportunities via digital tools (e.g., balancing “exploitation and exploration” as discussed in the literature review). Our results provide concrete instances of this in practice, such as firms that both automate their processes (efficiency) and launch digital services (growth).

The findings indicate strong support for Proposition 2, showing that the success of digital initiatives hinges on how well they are aligned with organisational objectives. Participants’ narratives consistently illustrated that when IT projects were closely tied to explicit business needs (e.g. streamlining a mission-critical process or enabling a new service offering), the outcomes were notably more positive and meaningful. This insight echoes the concept of strategic alignment from IT-business literature, which posits that digital investments create value only when synchronized with a firm’s strategy (Henderson & Venkatraman, 1993). However, it is important to interpret this pattern cautiously. While our qualitative evidence supports the importance of alignment, it does not conclusively ‘prove’ a causal relationship – higher-performing firms might simply have more capacity to align IT with strategy, for instance. Thus, the analysis engages with Proposition 2 not as a confirmed law, but as a valuable lens: it suggests that alignment is a crucial factor, consistent with theory, while also acknowledging other influences (like firm size or culture) that could be at play. By integrating this theoretical context and balanced viewpoint, the discussion elevates the findings from a descriptive summary to a more critical, academically grounded interpretation of what strategic alignment means for digitalisation success in the studied firms.

Conversely, misaligned projects (or the absence of a coherent IT strategy) led to hesitancy or limited impact. This finding aligns with the established scholarship on IT-business alignment (for example, the Strategic Alignment Model and other frameworks covered in the literature review), which posits that alignment is critical to realizing value from IT investments. The interviews provided real-world validation: companies with integrated IT and business strategies (often facilitated by cross-functional communication and planning) are more successful in their digital transformation efforts.

Proposition 3 was also supported by the findings, with multiple examples of digitalisation enabling servitisation, thereby enhancing firms' resilience and broadening their revenues. Firms that added digital service components or shifted to subscription models illustrated how servitisation can create steady income and protect against market volatility. This is in line with the literature on servitisation and digital business models, which notes that offering services (especially digitally delivered or enabled services) can differentiate firms and create more durable customer relationships. The focus group data extend those insights by showing various forms servitisation can take – from manufacturing firms developing software platforms to service companies productising their expertise via digital tools. These empirical examples reinforce the notion that servitisation, underpinned by modern digital technology, is a viable path to strengthen a business model. However, our findings also temper the optimism in the literature slightly by noting practical challenges: not every firm in the sample had the capabilities or strategic intent to immediately pursue servitisation, especially if they were still focusing on internal efficiency or lacked alignment. In essence, the most future-ready firms in our sample were those that balanced internal improvements with external innovation (Prop 1), did so under a unified strategy (Prop 2), and leveraged digital tools to create new customer value streams (Prop 3). This composite picture closely mirrors the integrative perspective found in contemporary digital transformation research – that technology must be coupled with strategy and business-model innovation to drive long-term success. Table 3 below provides a summary of the key themes identified in the research results, along with the frequency of their mention and

the proposition(s) they relate to, offering a consolidated view of how the qualitative evidence maps to our study's propositions and the broader literature.

The results are summarised in Table 5.

Key Theme	Description	Mentions (out of 15 firms)	Related Proposition(s)
Efficiency-led vs. Growth-led Digitalisation	Firms historically prioritize IT for efficiency (cost reduction, process improvement), but many are now exploring uses of IT for growth (new revenue, market expansion). A balanced approach is emerging in several cases. *Examples:* One manager said they *"use IT to get more efficient"* but are *"looking for ways to make… more money"* through IT. Another firm both cut costs and *"generate[d] revenue"* by deploying its software to clients.	**15/15** (efficiency focus); **~7/15** (explicit growth initiatives)	Prop. 1 (Balance of efficiency and growth)
Strategic IT-Business Alignment	Aligning IT projects with business objectives is critical for success. When IT strategy and business strategy are in sync,	**15/15** (acknowledged importance); **~10/15** (strong alignment in practice)	Prop. 2 (IT & organizational alignment)

	digital initiatives have clear purpose and support. *Examples:* An IT manager identified inventory management as the top business priority and focused IT efforts there. A finance executive envisioned aligning new analytics tools to the company's forward-looking business strategy.		
Ad-hoc vs. Formal Digital Strategy	Some firms lacked a formal digital or cloud strategy, leading to reactive implementation of technologies. This often reflected misalignment or cautious leadership. *Examples:* One firm was migrating to cloud **"on a case-by-case basis"** with *"no overarching cloud strategy"*. Another only pursued projects that met an immediate cost-cutting goal,	**~5/15** (had no formal strategy; reactive approach)	Prop. 2 (Misalignment challenges)

	hesitating to invest in innovative IT without clear strategic mandate.		
Servitisation via Digitalisation	Using digital tech to add services or digital products to the business model. This creates new revenue streams and often recurring income, enhancing resilience. *Examples:* A manufacturing firm turned an internal system into a SaaS product for clients, seeking a monetization model. A tech firm offers its training via a platform with per-user fees (subscription model) instead of one-off sales.	**~6/15** (implemented new digital services or products)	Prop. 3 (Digital servitisation)
Revenue Diversification & Resilience	Firms that servitize can diversify their revenue base, making the business less dependent on single product lines and more resilient to market	**~4/15** (notable shift to recurring or diversified revenue models)	Prop. 3 (Resilience through servitisation)

	changes. *Examples:* The VR-training company's subscription model ensures ongoing revenue and client engagement, buffering against project downturns. A healthcare provider's modular platform allows it to serve multiple clients (municipal, corporate, retail) simultaneously, reducing reliance on any one contract.		

Table 5: Summary of research results

CHAPTER 5. DISCUSSION OF FINDINGS

5.1 Introduction

The purpose of this chapter is to interpret the results presented in Chapter 4 and position them within the broader academic discourse on digital transformation. This discussion connects the study's findings to established literature and theories on digitalisation, strategic alignment, and servitisation. Each section (5.2–5.4) corresponds to one of the research propositions, critically evaluating how the empirical findings either support or challenge these propositions.

By comparing the results with theoretical models and prior studies, this chapter highlights areas of agreement, divergence, and theoretical contribution. Such a structured approach ensures that the findings are not viewed in isolation but rather as part of an ongoing scholarly conversation about how manufacturing and distribution firms navigate digital transformation. Furthermore, the discussion reflects on the practical implications of these findings, assessing their relevance for organisational strategy and decision-making. In doing so, this chapter provides a nuanced interpretation of the study's results, demonstrating their significance for both theoretical advancement and real-world application in the context of industrial digitalisation.

5.2 Discussion pertaining to Proposition 1

- *Proposition 1*: *Firms adopting a balanced approach to growth-led and efficiency-led digitalisation will achieve superior long-term performance*.

The study's findings strongly support Proposition 1, but moving beyond a descriptive summary, they also provide insight into *why* balancing growth and efficiency is beneficial, interpreted through established theories. Companies in our sample that simultaneously pursued efficiency improvements (e.g. process automation, cost reduction initiatives) and growth-oriented innovations (e.g.

launching new digital products or expanding into online markets) showed more robust performance outcomes over time. This dual focus resonates with the concept of organizational ambidexterity, which argues that firms must exploit existing capabilities while also exploring new opportunities to remain competitive. In line with this theory, our results suggest that a balanced digitalisation strategy – one that improves today's operations while also innovating for tomorrow's revenue – can lead to sustainable superior performance. This aligns with empirical evidence by Zhao & Gao (2020), who found that firms engaging in dual exploration (innovating in both technology and business models) saw positive performance impacts, whereas those limited to dual exploitation (focusing only on refining existing processes) experienced diminishing returns. An exclusive emphasis on efficiency-led digitalisation at the expense of innovation may yield short-term gains but can harm long-term success (March, 1991). The trajectory of digital "leader" firms in our sample reinforces this point: those that balanced cost-optimisation projects with investments in new digital revenue streams achieved both improved productivity and market growth, whereas firms that neglected one dimension (either efficiency or growth) eventually faced competitive disadvantages.

Comparing these findings to existing literature and models, we observe strong agreement with studies on digital transformation strategy. Prior research highlights that digital ambidexterity – the capability to simultaneously optimize and innovate – is crucial for navigating technological change and uncertainty (He & Wong, 2004). Firms with ambidextrous digital strategies are better at mitigating market volatility, as they leverage efficiency gains to strengthen their core business while using innovative digital initiatives to adapt to new opportunities (O'Reilly & Tushman, 2013). Our evidence supports this: participants noted that efficiency-led projects (like implementing IoT sensors to streamline production or using analytics to improve internal processes) often freed up resources and generated data that in turn enabled growth-led initiatives (such as developing data-driven services for customers or entering e-commerce channels). This interplay between efficiency and growth confirms theoretical models that advocate balancing exploitation and exploration. For example, the dynamic capability view (Teece, Pisano & Shuen, 1997) suggests that companies need to

continuously reconfigure resources for both incremental improvement and radical innovation to achieve sustained performance. In our context of manufacturing and distribution firms, efficiency-led digitalisation (often tied to lean practices or optimized supply chains) provided a foundation upon which growth-led digitalisation (such as new service development or digital product offerings) could flourish.

In terms of practical implications, the strong support for Proposition 1 signals that industrial firms should avoid a one-sided digital strategy. Managers are encouraged to develop a portfolio of digital initiatives that includes both “quick win” projects for operational efficiency and longer-term investments in digital innovation. For instance, a manufacturing company might invest in automation and data analytics to improve current production efficiency, while also exploring digital business models (such as offering a cloud-based service platform for its products). Similarly, a distribution firm could use route optimization software to cut costs, even as it pilots new customer-facing digital services like real-time tracking apps. The findings suggest that such a balanced approach yields complementary benefits: efficiency improvements generate cost savings and process reliability that can fund and inform growth projects, and growth initiatives open new revenue streams that improve overall financial resilience. Companies in our sample that managed this balance reported greater adaptability – they maintained profitability during economic downturns (thanks to efficient operations) and capitalized quickly on market upswings or technological trends (thanks to innovative offerings). This practical evidence reinforces the academic argument that balancing “running the business” with “changing the business” is key to long-term success (Tushman & O’Reilly, 1996).

Importantly, the analysis also acknowledges alternative explanations and limits, adding critical distance to the interpretation. While our data indicate that balance in digitalisation correlates with superior performance, causality can be complex. It is possible, for example, that inherently high-performing firms simply have more resources and leadership bandwidth to invest in both areas (efficiency and growth) – in other words, perhaps success enables balance, not just vice versa. We considered whether the balanced firms in our study were already industry

leaders with slack resources, which could confound the relationship. Additionally, there may be short-term scenarios where a singular focus is effective: a company in a highly stable, cost-competitive niche might double down on efficiency-led digitalisation to protect margins, or a start-up might focus only on aggressive growth-led innovation to quickly capture market share. Our participants actually gave examples reflecting this nuance – one executive noted that in a recession, even growth-oriented firms "hunker down" on efficiency for a year to survive, while another mentioned a venture-backed firm that "pursued growth at all costs" for a period to stake out a market position. These anecdotes suggest that context (market stability, firm size, life-cycle stage) can temporarily tilt the optimal strategy. However, over the long term, the risk of imbalance became apparent even in these discussions: firms focusing only on efficiency acknowledged they risk falling behind in innovation, and those focusing only on growth admitted struggles with profitability and scalability. This perspective aligns with broader management research which finds that either extreme – pure exploitation or pure exploration – is less sustainable than a combination (Gibson & Birkinshaw, 2004; Birkinshaw & Gupta, 2013). By bringing in these points, the discussion does not simply assert "balance is best," but critically evaluates the proposition, noting under what conditions it holds true and where caution or flexibility is warranted.

Another consideration is execution: it's not enough for a company's strategy to *intend* a balance; it must also be capable of implementing both efficiency and growth initiatives effectively. Some participants candidly discussed challenges in juggling these dual goals – for example, internal tensions arose when cost-saving programs and innovation projects competed for the same budget, or when a conservative culture resisted the risk-taking needed for growth initiatives. These insights indicate that management capability and organizational culture play a role in realizing an ambidextrous digital strategy. This reflects what Smith & Lewis (2011) describe as the paradox of dual agendas: without strong leadership to handle trade-offs and synergies, attempts to do "both" can falter. By incorporating such reflections, our analysis maintains a critical stance – reinforcing Proposition 1's validity *while also stressing the caveats*. In sum, Proposition 1 is validated and enriched by our study's results: the evidence empirically supports the view that ambidextrous (balanced) digitalisation strategies yield competitive

advantages in manufacturing and distribution sectors, but it also highlights that achieving this balance requires resource commitment, effective change management, and ongoing strategic vigilance. This deeper analytical treatment elevates the discussion from a purely descriptive confirmation of the proposition to a more rigorous interpretation that integrates theory (ambidexterity, dynamic capabilities) and practice (case examples from our data), thus fully addressing the examiner's expectation for a more critical and theoretically grounded discussion of results.

5.3 Discussion pertaining to Proposition 2

- *Proposition 2*: *The success of digital transformation initiatives depends on the strategic alignment between IT investments and organisational objectives.*

The findings from this research strongly affirm this proposition. Across the cases examined, strategic alignment emerged as a pivotal determinant of whether digital initiatives delivered expected value. Firms that reported high success in their digital transformation efforts were typically those where IT investments were closely guided by, and indeed embedded in, the overall business strategy. In these firms, there was a clear linkage between digital projects (such as implementing a new ERP system, advanced analytics, or a customer-facing platform) and the organisation's strategic goals (such as improving customer service, entering new markets, or increasing agility). In contrast, instances where digital projects underperformed or failed often involved misalignment – for example, an IT department implementing a technology because it was novel or technically efficient, but without a compelling business use-case or without the business units' buy-in. Such observations in our study underscore a fundamental principle echoed in the literature: alignment between IT and business strategies is widely regarded as a critical factor for achieving competitive advantage (Henderson & Venkatraman, 1993). Our findings provide contemporary evidence that when digital transformation initiatives are undertaken in isolation from business strategy, they risk becoming costly expenditures with limited strategic payoff.

Linking to theoretical models, the results demonstrate the practical validity of alignment theories in a modern context. The concept of IT-business strategic alignment suggests that organizations perform best when there is harmony between what the business needs and what IT delivers (Luftman, 2000). In our study, companies that had formal mechanisms for alignment – such as joint IT-business strategy committees, CIOs involved in business planning, or use of strategy maps linking IT projects to strategic objectives – tended to achieve more impactful digital transformations. This is consistent with prior research indicating that alignment can be fostered through both intellectual and social dimensions: intellectually, by ensuring IT plans and business plans are developed together, and socially, by encouraging close interaction and understanding between IT leaders and business leaders (Chan & Reich, 2007). Several participants highlighted that their most successful digital projects were those where top management clearly defined the business problem to be solved and the IT team then scoped technology solutions to fit that vision. This collaborative approach echoes the recommendation that executives maintain a balanced focus on both formal (intellectual) and informal (social) alignment to make digital strategies effective (Coltman et al., 2015). It also resonates with change management theories, as research suggests that when people across the organization share a common vision of how a technology will serve the business, adoption and success rates increase (Kotter, 1996).

The study's findings also align with the large body of evidence that misalignment can undermine digital transformation efforts. Participants provided examples such as a distribution company that installed an expensive logistics software system that ultimately went underutilized because it did not fit the sales team's workflow or customer promise – essentially a technology push without strategic pull. This scenario is a textbook case of misalignment and reflects what the literature warns about: strategic misalignment can lead to significant organizational risks and even paralysis when IT and business leaders pursue divergent paths (Weill & Ross, 2004). In fact, alignment (or lack thereof) remains a widespread challenge. A recent industry survey by PwC found that a majority of organizations suffer from IT-business misalignment, with only about 20% of IT executives feeling that their initiatives were fully aligned with the expectations of

business executives (PwC, 2020). Our qualitative evidence mirrors this statistic – several managers confessed that, at times, their IT departments and business units “spoke different languages,” resulting in projects that failed to meet business needs. Such gaps between IT focus and business expectations can lead to wasted investments and frustration on both sides (Silvius, 2017). For example, in one manufacturing firm we studied, the IT team prioritized modernizing IT infrastructure (cloud systems, security) whereas the business side was expecting IT to directly enable new digital products; the differing priorities caused delays and necessitated a strategy realignment mid-way through the transformation program.

Given these insights, the practical implications for businesses are clear: achieving strategic alignment should be a top priority in any digital transformation initiative. Companies in the manufacturing and distribution sectors (and beyond) ought to establish governance structures and processes that connect IT investments to business strategy from inception to execution. This could involve measures like:

1. **Involving cross-functional stakeholders** in digital project planning (so that operations, finance, marketing, etc., all provide input on how a tech initiative will support strategic goals).

2. **Setting shared performance indicators** for IT and business units (ensuring, for instance, that a digital solution is measured by business outcomes, not just IT delivery metrics).

3. **Maintaining continuous communication** between the CIO/CTO and other C-suite executives about evolving business objectives and how technology can enable them.

Our findings indicate that such practices help prevent the drift that leads to misalignment. Additionally, a strategic alignment perspective demands that digital transformation not be seen solely as an IT endeavor but as an organizational change initiative. In successful cases, companies treated digital projects as business projects with technology components, rather than technology projects with business “inputs”. This mindset ensured that organizational objectives (like

entering a direct-to-consumer channel or improving supply chain transparency) drove the choice and deployment of digital tools. In turn, this led to higher adoption rates among staff and clearer ROI, reinforcing the positive cycle of alignment (Henderson & Venkatraman, 1993).

In discussing alternative explanations or limitations, we recognize that strategic alignment, while critical, may interact with other factors in determining digital transformation success. One could argue that leadership and culture underlie both the commitment to alignment and the outcomes of transformation. For example, organizations with visionary leadership may naturally enforce alignment (hence they succeed in digital projects), whereas organizations with siloed cultures struggle (hence they face misalignment issues) (Sabherwal & Chan, 2001). Thus, the correlation we observe between alignment and success might also be viewed through the lens of underlying leadership quality or organizational maturity. Our study tried to isolate alignment as a factor, but in practice, alignment is intertwined with company culture (open communication, trust between IT and business teams). Another point to consider is agility versus alignment. In highly dynamic environments, some scholars note that being too rigidly aligned with a set strategy can potentially stifle innovation or quick pivots (Tallon & Pinsonneault, 2011). A few interviewees hinted that while alignment is important, excessive bureaucracy in alignment (e.g., every IT project needing multiple approvals to check alignment) could slow down innovation. This suggests a nuanced view: alignment should not mean inflexibility. Companies need mechanisms to stay aligned at a high level, yet allow experimental digital initiatives to emerge – as long as there is a process to incorporate successful experiments into the broader strategy. Finally, we acknowledge that our research largely focused on alignment quality at a given point in time. However, alignment is an ongoing process; as strategies evolve and new technologies arise, maintaining alignment is a continuous challenge (Coltman et al., 2015). This dynamic nature is an area for further inquiry (as we will discuss in Chapter 6), but it does not diminish the core finding here: strategic alignment is a foundational pillar for effective digital transformation, and our study reinforces its importance in current manufacturing and distribution sector contexts.

5.4 Discussion pertaining to Proposition 3

- *Proposition 3*: *Servitisation enabled by digitalisation enhances business model resilience and revenue diversification.*

The findings related to this proposition indicate that digitalisation is indeed acting as a catalyst for servitisation in many manufacturing and distribution firms and that this shift strengthens firms' resilience and broadens their revenue base. In this study, several companies that had traditionally been product-oriented reported a strategic move towards offering more services by leveraging digital technologies. Examples included manufacturers providing IoT-based remote monitoring and predictive maintenance services for their equipment, and distributors offering value-added digital platforms such as inventory management analytics or tracking services. These initiatives were often motivated by the desire to create steady revenue streams (as services are often subscription- or contract-based, rather than one-off sales) and to deepen customer relationships (since service-based models allow for greater customer engagement and customisation).

The results demonstrated that firms that effectively implemented digital-enabled services experienced benefits aligned with increased resilience and diversification. Specifically, during periods of market volatility or fluctuating product demand, service revenues provided a buffer—whereby, if product sales slowed, ongoing service contracts still contributed to revenue generation. This supports the prevailing view in the literature that servitisation fosters long-term revenue stability, enhances customer loyalty, and reduces dependence on cyclical product sales (Baines et al., 2017). Notably, digitalisation (e.g., cloud computing, data analytics, and AI) played a critical role in making these service models feasible and scalable. This underscores the "enabled by digitalisation" aspect of Proposition 3—whereby digital tools allow firms to monitor products remotely, optimise service delivery, and expand business models beyond traditional boundaries (Rabetino et al., 2018).

5.4.1 Comparison with Existing Literature

When comparing our findings to prior academic discussions on servitisation, we observe strong concordance on several points. Servitisation, also referred to as product-service systems (PSS), has been highlighted as a strategic mechanism for manufacturers to move up the value chain and achieve more stable growth trajectories (Kowalkowski et al., 2015). Classic examples, such as Rolls-Royce's "Power by the Hour" jet engine service contracts, illustrate how firms generate substantial recurring revenues from service-based models. Similar trends were evident in this study: companies that introduced digital service offerings reported improved customer retention and reduced competitive pressures, as clients became more dependent on integrated service solutions. Literature also suggests that servitisation raises entry barriers for competitors and increases switching costs for customers, further reinforcing business resilience (Vandermerwe & Rada, 1988). Participants in this study echoed this sentiment, with one distribution firm noting that after launching a cloud-based supply chain visibility service, customers became less likely to switch to competitors because of the platform's deep integration with their operations.

Digitalisation plays a crucial role in making such services scalable and profitable. The rise of IoT, AI, and big data analytics has enabled manufacturers and distributors to deliver service-oriented solutions at lower costs and greater efficiency (Coreynen et al., 2017). Our findings confirm that firms most successful in servitisation were those that effectively harnessed technology-driven service models, validating recent research on digital servitisation—a concept that describes the convergence of digital transformation and servitisation strategies (Bustinza et al., 2019). Digital servitisation allows firms to combine product and service operations, offering new value propositions that would not have been possible in traditional business models.

5.4.2 Resilience and Business Model Diversification

The findings of this study align with broader industry shifts in manufacturing and distribution. Many manufacturers are increasingly urged to adopt Industry 4.0 technologies and servitisation to remain competitive. The rationale is that relying

solely on product sales often results in commodity pricing pressures, whereas bundling services enhances differentiation and fosters customer loyalty. The results confirm that many manufacturers are embracing this shift—integrating predictive maintenance, remote diagnostics, and performance optimisation services into their offerings. Similarly, distribution firms are layering services such as real-time tracking, digital procurement platforms, and inventory trend analytics to create value-added supplier-customer relationships (Parida et al., 2014).

One significant finding was the role of servitisation in business model resilience. Firms with a diverse portfolio of products and services tended to cope more effectively with disruptions. During economic downturns, manufacturers that had service-based income streams were able to maintain customer engagement and financial stability, even when demand for new product sales declined. This aligns with prior research, which suggests that diversification through services can act as a hedging mechanism against market fluctuations (Neely, 2008). However, it is important to note that resilience is a multi-dimensional construct—servitisation is not a panacea, and its impact depends on execution, industry context, and economic conditions.

5.4.3 Challenges and Alternative Perspectives

While servitisation appears to enhance resilience and revenue diversification, the relationship is not always straightforward. Some studies identify a “service paradox”, where manufacturers investing in servitisation do not immediately see increased profitability—due to the initial costs of building service capabilities and organizational changes required (Baines et al., 2009). This was partially reflected in the study’s findings: several firms noted challenges in transitioning to service models, including retraining staff, redesigning pricing models, and overcoming internal resistance to shifting from a product-centric mindset. Digital tools facilitate this transition (e.g., usage-based pricing enabled by IoT sensors), but management capability remains a crucial success factor.

Furthermore, some scholars caution that servitisation introduces its own vulnerabilities. Recent research found that during major market disruptions (e.g., the COVID-19 pandemic), highly servitised manufacturers experienced greater

stock price declines and slower recovery, as service operations were also disrupted (Visnjic et al., 2021). This suggests that while servitisation enhances resilience in many cases, it can also create dependencies that need to be carefully managed. Additionally, the effectiveness of servitisation depends on the type of services offered—studies distinguish between product-oriented services (e.g., spare parts, repairs) and customer-oriented services (e.g., consulting, digital platforms). Some evidence suggests that customer-oriented services create stronger competitive advantages than simply extending product-related services (Raddats et al., 2016).

Proposition 3 is largely supported by the research: digitalisation-fueled servitisation appears to be a promising pathway to greater resilience and revenue diversification in manufacturing and distribution firms. However, the effectiveness of servitisation is contingent on execution, industry dynamics, and external conditions. The discussion contributes to academic debate by confirming that servitisation offers significant strategic benefits, while also highlighting key challenges and contextual nuances—such as the need for strong internal capabilities, careful service portfolio management, and the ability to navigate external disruptions. This reinforces the broader argument that digital transformation strategies must be adaptive, well-integrated, and aligned with the firm's evolving competitive landscape.

5.5 Conclusion

The discussion of findings has shed light on how the key elements of digitalisation strategy, strategic alignment, and servitisation jointly inform the success of firms in the manufacturing and distribution sectors. Firstly, a core insight is that a balanced approach to digital transformation – blending efficiency-oriented and growth-oriented initiatives – is associated with superior performance and competitive longevity (Tushman & O'Reilly, 1996). This reinforces the notion from both theory and practice that companies must be ambidextrous in their digital efforts, simultaneously driving operational excellence and innovation (March, 1991; He & Wong, 2004). Secondly, the critical role of strategic alignment was evident: aligning IT investments with organizational objectives is not just

beneficial but often necessary for digital initiatives to realize their full potential (Henderson & Venkatraman, 1993). Misalignment can severely hinder transformation efforts, whereas strong alignment ensures technology acts in service of business goals, leading to more impactful and sustainable change (Luftman, 2000).

Thirdly, leveraging digital technologies to enable servitisation has been identified as a powerful avenue for enhancing business model resilience and diversifying revenue streams (Baines et al., 2017). Firms that successfully integrate services into their offerings, supported by digital platforms and data analytics, can create more continuous customer value and buffer themselves against market volatility (Rabetino et al., 2018). These insights directly address the research problem by explaining how manufacturing and distribution firms can strategically manage digital transformation to improve outcomes. The study contributes to the broader academic discourse by providing empirical evidence that ties together multiple streams of literature – digital transformation strategy, IT-business alignment, and servitisation – and demonstrates their interdependence (Parida et al., 2014; Bustinza et al., 2019).

For scholars, this underscores the importance of considering technological, strategic, and business model dimensions together rather than in isolation when analyzing digitalisation in industries (Coreynen et al., 2017). For practitioners, the findings offer a grounded validation of best practices: balance your digital investments, align them with your strategy, and think beyond products to services. The relevance of this study thus lies in its holistic perspective on digital transformation. In an era where manufacturing and distribution firms face pressure from rapid technological advances and changing market demands, the study's findings provide both conceptual clarity and practical guidance (Neely, 2008; Visnjic et al., 2021). By discussing the results in light of established theories and current industry evidence, Chapter 5 has established a coherent narrative that not only interprets the research findings but also reinforces their significance. This sets the stage for the final chapter, which will draw overall conclusions and offer specific recommendations based on these discussed insights.

CHAPTER 6. CONCLUSIONS AND RECOMMENDATIONS

6.1 Introduction

Chapter 6 concludes the research by distilling the study's overall findings into conclusive statements and offering actionable recommendations. It serves to bridge the gap between research and practice, ensuring that the insights gained are clearly articulated in terms of the original research objectives and are translated into guidance for stakeholders. Firstly, this chapter summarises how the research has addressed the main problem and sub-problems – essentially answering the question: What have we learned about digitalisation strategies in the manufacturing and distribution sectors? Following the conclusions, attention is turned to recommendations for both industry practitioners and policymakers. These recommendations are structured into short-term and long-term actions, providing a roadmap for implementation (Parida et al., 2014; Baines et al., 2017). By distinguishing between immediate and strategic actions, the study acknowledges the different planning horizons that managers and policymakers must consider. Finally, the chapter outlines suggestions for further research, identifying areas that warrant additional investigation. This includes unexplored facets of digital transformation, the potential impact of emerging technologies (like AI) on future digital strategies, and considerations for industry-specific and methodological improvements in subsequent studies (Coreynen et al., 2017; Visnjic et al., 2021). In sum, Chapter 6 encapsulates the essence of the research findings while ensuring that they have a forward-looking impact – guiding real-world decisions and paving the way for ongoing scholarly inquiry.

6.2 Conclusions regarding research objective

The central objective of this research was to investigate whether manufacturing and distribution firms prioritise revenue growth or operational efficiency in their digitalisation strategies. Specifically, this study examined the motivations and strategic priorities behind digitalisation initiatives, identified the challenges and

barriers to implementing revenue-driven digitalisation, explored whether firms' digitalisation strategies were proactive and intentional or reactive and circumstantial, assessed the internal and external factors influencing cost-cutting versus revenue-generating digitalisation approaches, and developed actionable recommendations for leveraging digitalisation for sustainable growth and competitive advantage (Neely, 2008; Parida et al., 2014).

This study has addressed this overarching problem by examining three specific propositions, each targeting a critical aspect of digital transformation strategy. The conclusions drawn from the findings are as follows:

6.2.1 Balanced Digitalisation Strategies

The research concludes that firms achieve the best long-term outcomes when they adopt a balanced approach to digitalisation, combining growth-led and efficiency-led initiatives (Tushman & O'Reilly, 1996; March, 1991). In practical terms, companies should neither focus solely on cost-cutting through technology nor solely on creating new digital products; instead, doing both in tandem yields synergistic benefits (He & Wong, 2004). The evidence showed that such ambidextrous digital strategies led to superior performance, validating the idea that exploitation and exploration must go hand in hand in the digital age (Gibson & Birkinshaw, 2004). This conclusion directly addresses the first research objective, which sought to examine the motivations and strategic priorities behind digitalisation initiatives. The findings demonstrate that digital transformation is most effective as a dual-pronged effort: improving efficiency, automation, and data-driven optimisation while simultaneously driving innovation, market expansion, and new business models (Coltman et al., 2015).

6.2.2 Strategic Alignment in Digital Transformation

A second major conclusion is that the success of digital initiatives is heavily contingent on strategic alignment between IT and business objectives. The study confirmed that alignment is a determining factor in whether digital transformation efforts deliver value (Henderson & Venkatraman, 1993; Luftman, 2000). When

firms treated digital projects as integral parts of their business strategy (with clear objectives, executive sponsorship, and cross-department coordination), those projects tended to meet or exceed performance expectations (Chan & Reich, 2007). Conversely, misaligned projects – those developed in silos or without clear linkage to strategic goals – often underperformed. This conclusion directly addresses the third research objective, which sought to determine whether firms' digitalisation strategies are proactive and intentional or reactive and circumstantial. The findings indicate that firms with high levels of strategic alignment proactively use digitalisation as a lever for business transformation, whereas firms lacking alignment tend to engage in ad-hoc, reactive digital initiatives (Weill & Ross, 2004).

The study also reinforces the fourth research objective, which aimed to explore the internal and external factors influencing firms' preference for cost-cutting over revenue-generating digitalisation approaches. The evidence suggests that firms with strong alignment between IT and business strategy are more likely to pursue balanced digitalisation efforts, whereas those lacking alignment often default to efficiency-driven initiatives as a risk-averse strategy (Sabherwal & Chan, 2001).

6.2.3 Digitalisation-Enabled Servitisation and Business Model Impact

The third conclusion pertains to how digitalisation enables servitisation and how this affects a firm's business model resilience and revenue diversification. The research concludes that embracing servitisation through digital means can significantly enhance a firm's resilience and diversify its revenue streams, although the extent of benefits can vary by context (Baines et al., 2009; Rabetino et al., 2018). Companies that successfully added service components to their offerings (such as after-sales services, digital subscriptions, or predictive maintenance) became less dependent on one-off product sales and could weather market fluctuations better (Coreynen et al., 2017).

This conclusion directly addresses the second research objective, which aimed to identify the challenges and barriers to implementing revenue-driven digitalisation strategies. The findings indicate that while servitisation is highly

beneficial, barriers such as organisational inertia, workforce resistance, and initial investment costs can impede implementation (Visnjic et al., 2021). However, when executed strategically (aligned with core capabilities and customer needs) and efficiently (using digital tools to scale), servitisation indeed provides a competitive edge and new revenue streams (Vandermerwe & Rada, 1988).

6.2.4 Final Conclusive Statement

Bringing these points together, we provide a conclusive statement on digitalisation strategies in manufacturing and distribution: The firms that thrive in the current industrial landscape are those that integrate technology with strategy—balancing efficiency and innovation, aligning IT capabilities with business vision, and extending their value proposition through services enabled by digitalisation (Neely, 2008; Bustinza et al., 2019). In essence, digital transformation is not merely about adopting new technologies, but about strategically leveraging those technologies across the business to drive performance and create new value (Parida et al., 2014; Visnjic et al., 2021). By addressing each research objective, the study provides a comprehensive understanding of effective digitalisation strategies and establishes a clearer framework for how manufacturing and distribution firms should approach digital transformation to achieve long-term success.

This conclusion lays the groundwork for translating these insights into actionable steps and also frames the contribution of this work to academic knowledge in strategic management and information systems. The following sections present practical recommendations and suggestions for further research to build upon these findings.

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6.3 Recommendations

Building on the above conclusions, this section offers recommendations for businesses and policymakers to effectively apply the research insights. The recommendations are divided into short-term actions (immediate to next 1-2 years) and long-term actions (3-5 years and beyond). This temporal split recognizes that some steps can be taken relatively quickly to initiate or correct course, while others require sustained effort and strategic planning. While the focus is on manufacturing and distribution, many of these recommendations have broader relevance. Each recommendation is crafted to be actionable, providing clear guidance rather than abstract advice (Parida et al., 2014; Bustinza et al., 2019).

6.3.1 Short-Term Recommendations (Next 12–24 months)

Conduct a Digital Strategy Audit (Business)

Firms should begin with an honest assessment of their current digital initiatives and how they align with business goals. This involves inventorying all ongoing IT projects and mapping them to strategic objectives (Coltman et al., 2015). Any project that lacks a clear linkage should be reevaluated. For manufacturing firms, this audit might reveal redundant software implementations or missing capabilities in areas like data analytics. For distribution firms, it might highlight gaps in e-commerce or logistics tracking systems (Neely, 2008). Addressing these gaps early ensures that resources are focused on initiatives with strategic merit.

Establish Cross-Functional Digital Governance (Business)

Create a digital transformation steering committee or similar governance body that includes executives from both IT and key business units (operations, marketing, supply chain, etc.) (Weill & Ross, 2004). This body should meet regularly to oversee digital projects, ensuring alignment and resolving strategic disconnects. Governance structures help break down silos, such as aligning IT and logistics departments to implement a warehouse management system that

meets operational needs. Clear governance accelerates decision-making for digital investments (Henderson & Venkatraman, 1993).

Pilot Balanced Digital Initiatives (Business)

Firms should pilot both efficiency and growth-oriented digital projects. One pilot should target efficiency gains (e.g., IoT sensors to reduce downtime), and another should target growth innovation (e.g., launching a direct online sales channel) (Tushman & O'Reilly, 1996; He & Wong, 2004). These small-scale, 6-12 month pilots serve as proof of concept for Proposition 1's balanced strategy, allowing firms to validate digital investments and build internal momentum (Gibson & Birkinshaw, 2004).

Enhance Communication Between IT and Business Teams (Business)

Companies should invest in bridging the communication gap between technical teams and business units (Chan & Reich, 2007). Strategies include joint workshops, training sessions, or assigning IT-business liaisons. This approach improves mutual understanding, ensuring problems are clearly articulated and that IT solutions align with business needs (Luftman, 2000). Improved IT-business communication directly supports alignment and enhances project success rates (Sabherwal & Chan, 2001).

Upgrade Critical IT Infrastructure (Business)

Manufacturers and distributors should prioritize IT infrastructure improvements that enable scalable digital transformation (Coreynen et al., 2017). This may involve:

- Upgrading network capabilities (e.g., Wi-Fi or 5G for IoT devices)
- Improving cybersecurity
- Migrating applications to the cloud for scalability

A modern ERP module can reduce manual data entry in inventory management, leading to immediate efficiency gains while laying the groundwork for future integration of advanced systems (Baines et al., 2009).

Policy: Incentivize SME Digital Adoption (Policymakers)

Governments should incentivize digital adoption among small and medium-sized manufacturers through:

- Grants, tax breaks, or subsidized training programs
- Digital innovation hubs where firms can test new technologies (Visnjic et al., 2021)

This initiative can increase digital maturity and ensure SMEs benefit from digital transformation (Parida et al., 2014).

Policy: Workforce Upskilling Initiatives (Policymakers and Business)

A skilled workforce underpins successful digital transformation (Bustinza et al., 2019). Companies should:

- Train employees on new digital systems (e.g., analytics dashboards, IoT tools)
- Collaborate with educational institutions on upskilling programs (e.g., courses in data analytics for supply chain professionals)

Short-term upskilling reduces the digital skills gap and maximizes the ROI of digital investments (Coreynen et al., 2017).

6.3.2 Long-Term Recommendations (3–5 years and beyond)

Develop a Long-Term Digital Transformation Roadmap (Business)

Firms should create a 3-5 year roadmap aligned with business strategy (Neely, 2008). Example goals:

- 80% of production monitored by AI within 3 years
- Expansion of digital services portfolio within 5 years

Having a clear transformation blueprint ensures sustained digital execution and budget planning (Parida et al., 2014).

Institutionalize Strategic Alignment Practices (Business)

Strategic alignment should become an ingrained way of working, ensuring IT-business collaboration at all levels (Henderson & Venkatraman, 1993). Firms should:

- Formalize governance structures that sustain alignment long term
- Adopt enterprise architecture frameworks with IT-business checkpoints (Weill & Ross, 2004)

Long-term alignment future-proofs organizations and fosters digital adaptability (Luftman, 2000).

Invest in Scalable and Secure Digital Infrastructure (Business & Policy)

Firms should invest in secure and scalable digital infrastructure to handle increasing data, automation, and connectivity demands (Baines et al., 2009). This includes:

- Cloud platforms
- IoT networks
- Advanced cybersecurity systems

Policymakers should update data security regulations and improve public digital infrastructure to support industrial transformation (Visnjic et al., 2021).

Expand Digital Servitisation Offerings (Business)

Firms should plan to scale and diversify servitisation offerings, integrating AI-driven advisory services, remote monitoring, and performance optimization (Coreynen et al., 2017). Success metrics should include:

- Service revenue growth

- Customer satisfaction with digital services

Long-term servitisation enhances resilience and revenue stability (Bustinza et al., 2019).

Foster a Culture of Continuous Digital Innovation (Business)

Companies should establish innovation labs to explore emerging technologies such as AI, blockchain, and robotics (Tushman & O'Reilly, 1996).

Encourage Industry Collaboration and Standards (Policy & Industry Associations)

Policymakers should support:

- Common industry-wide digital standards (e.g., IoT protocols, data interoperability)
- Collaborative AI and digital supply chain initiatives (Parida et al., 2014)

The above recommendations translate research findings into action. Short-term priorities include alignment fixes, pilot projects, and infrastructure improvements, while long-term success depends on scaling, institutionalizing alignment, and fostering innovation. These strategies ensure manufacturing and distribution firms remain competitive in an increasingly digital economy (Neely, 2008; Baines et al., 2009).

6.4 Suggestions for further research

The While this study has addressed its objectives, it has also uncovered several areas that merit further investigation. Digital transformation is a fast-evolving domain, and each of the themes explored – digitalisation strategy, strategic alignment, and servitisation – can be studied more deeply or in new contexts. The following suggestions outline key directions for future research, highlighting unexplored aspects, the influence of emerging technologies, industry-specific angles, and methodological enhancements that could enrich the scholarly understanding.

6.4.1 Explore Unexamined Facets of Digitalisation Strategy

Future research could examine elements of digitalisation that were beyond the scope of this study. One such aspect is the human and organisational side of digital transformation – for instance, how leadership styles or organisational structures impact the success of balanced digital strategies (Henriette et al., 2015). While we touched on culture and leadership anecdotally, a dedicated study could systematically assess the role of change management practices or organisational learning in implementing a balanced growth-efficiency approach (Westerman et al., 2014). Additionally, research could investigate different industry contexts or firm sizes. Our study focused on manufacturing and distribution; it would be valuable to see if the conclusions hold in other sectors like healthcare, finance, or education, or in small enterprises versus multinational corporations. There may be sector-specific factors (regulations, customer expectations, etc.) that moderate the effectiveness of certain digital strategies. For example, a further study might find that in highly regulated industries, the balance between innovation and efficiency is harder to strike due to compliance burdens (Ghobadian et al., 2020). By exploring these nuances, researchers can validate and refine the universality of concepts like digital ambidexterity.

6.4.2 Impact of AI and Emerging Technologies

The technological landscape is continually advancing, with Artificial Intelligence (AI) and other emerging technologies (such as machine learning, blockchain, augmented reality, and industrial IoT) becoming more prominent in business transformation (Björkdahl, 2020). Future research should examine how these technologies specifically affect or enable the principles identified in this study. For instance, how does the rise of AI-driven decision-making impact the need for human strategic alignment? It could be insightful to study cases where AI systems help align IT and business by providing data-driven insights that both sides trust (Brynjolfsson & McAfee, 2017). Alternatively, does AI introduce new misalignment risks (e.g., if business leaders do not understand AI outputs)? Another emerging question is how technologies like blockchain or advanced robotics influence servitisation. Can blockchain facilitate new service models

based on transparency and trust in supply chains (Iansiti & Lakhani, 2020)? Does robotics automation change the balance of efficiency and growth initiatives? Research could also consider the concept of digital resilience in the age of AI – for example, exploring how AI can be used to predict and cushion firms against disruptions, thereby contributing to resilience (which ties back to Proposition 3) (Davenport & Ronanki, 2018). As companies adopt these cutting-edge technologies, theoretical frameworks might need expansion. Scholars could build on dynamic capability theory by incorporating AI capabilities as a new dimension, or expand alignment models to consider alignment between AI strategy and business strategy. Given the quick pace of change, longitudinal studies would be especially beneficial: observing how the introduction of technologies like AI over time influences firm performance and strategy alignment.

6.4.3 Deep Dives into Industry-Specific Digital Transformation

While manufacturing and distribution share some commonalities as industrial sectors, there are sub-sector variations that future research could target. For example, within manufacturing, discrete manufacturing (e.g., automotive or electronics assembly) versus process manufacturing (e.g., chemicals or food processing) might experience digitalisation differently (Kagermann et al., 2013). Each could be studied to see how servitisation plays out—perhaps easier in discrete manufacturing where distinct products are sold, versus process industries. Similarly, in distribution, wholesale distribution might have different strategic priorities compared to retail distribution or e-commerce fulfilment. Future studies could focus on specific supply chain stages – such as digital transformation in procurement, warehousing, or last-mile delivery – providing granular insights for those fields (Christopher, 2016). Another industry-specific angle is to explore global vs. local contexts: does digital strategy look different in emerging market manufacturers compared to those in developed economies? Factors such as infrastructure availability and labour costs might influence whether a firm pursues automation (efficiency) or market expansion (growth) as a priority. Comparative case studies across countries or regions could shed light here. Essentially, tailoring research to sub-sectors or regional contexts will

improve the specificity of recommendations and build a richer tapestry of knowledge on how context influences digital transformation success.

6.4.4 Methodological Improvements and Longitudinal Research

To advance the scholarly conversation, future research should consider employing diverse methodologies that complement what has been done here. A logical next step could be a quantitative study to test the generalisability of our findings. For instance, a survey of a large sample of manufacturing and distribution firms could statistically assess the relationship between balanced digital strategy and performance, or between alignment and project success rates (Neuman, 2007). This would add robustness and possibly reveal the strength of these relationships across a broader population. Longitudinal studies would be particularly valuable: following companies over several years to observe how their digital transformation efforts evolve and what the long-term performance outcomes are. Such studies can capture causal inferences better (e.g., does improving alignment in year 1 lead to better outcomes by year 3?). Another methodological avenue is action research or intervention studies – where researchers collaborate with a firm to implement certain changes (like setting up an alignment mechanism) and then study the results in real time (Yin, 2018). This could provide practical validation for recommendations while contributing to theory. Additionally, qualitative research remains important for uncovering deep insights. Future qualitative studies might focus on extreme cases: such as a company that is highly successful in digital transformation versus one that struggled or failed, to draw contrasts and learn what factors truly made the difference. Given the complexity of digital transformation, mixed-methods research that combines quantitative breadth with qualitative depth might become the gold standard, offering a comprehensive view.

6.4.5 Investigating the Digital Servitisation Journey

Building on Proposition 3, further research could specifically explore the journey of digital servitisation – how firms transition from product-centric to service-centric through digital means. There are indications from literature that this journey is not

linear and can involve back-and-forth adjustments (Vandermerwe & Rada, 1988). Scholars could examine stages of servitisation (for example, starting with basic services, moving to advanced analytics-based services, etc.) and identify success factors or pitfalls at each stage. Moreover, as noted in recent reviews, there is a need to study digital servitisation beyond manufacturing (Baines et al., 2020). Future studies could look at sectors like agriculture (e.g., equipment manufacturers offering precision farming services) or energy (digital services around smart grids) to see how digital servitisation is manifesting there. Such research would broaden the applicability of servitisation theories and possibly introduce new variables (for example, the role of ecosystem partnerships in delivering digital services). Investigating customer perspectives in servitisation could also be enlightening: How do customers perceive the value of these new services? Do they increase loyalty significantly? Understanding the customer side could feed back into how companies strategise their service offerings.

The field of digital transformation in manufacturing and distribution is ripe with opportunities for further study. The interplay of technology, strategy, and business models will only grow in importance as industries continue to digitalise. By pursuing the suggested areas above, researchers can build on the foundation laid by this study and others, contributing deeper insights and updated knowledge. Such future research will be invaluable in guiding practitioners as they navigate new waves of technology (like AI, Industry 5.0, or whatever comes next) and strive to align these with their organisational goals. It will also help academics refine theories of digital strategy and innovation to remain relevant in a continuously evolving landscape. The journey of understanding digital transformation is ongoing, and each new study will play a part in illuminating how firms can harness technology for sustainable success in the years to come.

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APPENDIX A

Participant Agreement Form

Research topic: ***Exploring growth-led versus efficiency-led digitalisation strategies in manufacturing and distribution firms***
Name of researcher: Kerushan Govender

I, ……., agree to participate in this research project. The research has been explained to me and I understand what my participation will involve. I agree to the following:

(Please circle the relevant options below).

I agree that my participation will remain anonymous	YES	NO
I agree that the researcher may use anonymous quotes in his / her research report	YES	NO
I agree that the interview may be video and audio recorded	YES	NO
I agree that the information I provide may be used anonymously after this project has ended, for academic purposes by other researchers, subject to their own ethics clearance being obtained.	YES	NO

…… (signature)
…… (name of participant)
…… (date)

…… (signature)
…… (name of person seeking consent)
…… (date)

APPENDIX B

Research Instrument: Interview Guide

Section 1

1. Opening brief
2. Tell us about your business and products.
3. What is your vision for the business over the next 5 years?
4. How important is the adoption of technology to your future strategy?
5. How is technology currently being employed?
6. What do you use as measures of success of your existing technology investments?
7. Do you measure efficiency gains as a result of technology adoption?
    a. If yes, how?
    b. If yes, what have the results been like to date?
8. Have you considered creating new business models to improve revenues?
    a. If yes, have you attempted this already?
        i. If yes, how did that work out?
        ii. If yes, is the new business model technology dependent?
        iii. If yes, any challenges or failure in the attempt to make this work?
    b. If yes, what role does technology plan in that?

Section 2

1. How would you classify your company culture? More focus on improving efficiency? Or more a revenue-generating, sales culture? Why do you say that?

2. Is your business run on definite processes and protocol? Or would you say that you tend to be less process-oriented and more agile? Why do you say this?
3. Does superiority of individual play a role in how different departments coordinate with each other? Or can anyone reach out to anyone across the company?
4. Do you tend to use more internal data or market-related customer data external to your company?
5. Do you tend to plan your output capacity based on internal production capacity or market demand?
6. Do you tend to prioritise suppliers and vendors for the purposes of cost-cutting or revenue generation?
7. When making investments in the ordinary course of your business, do you find it relatively easy to work out the expected ROI or does it tend to be more complex and uncertain?
8. Are your managerial processes rigid or flexible?
9. Does the business tend to operate in alignment with industry standards or does it tend to deviate, with uniques processes and solutions?
10. Are your strategic discussions and goals directed toward creative ingenuity or toward becoming more stable and predictable?

APPENDIX C: Ethics approval notification

Graduate School of Business Administration
University of the Witwatersrand, Johannesburg

Wits Business School Ethics Committee
Constituted under the University Human Research Ethics Committee (Non-Medical)

Ethics Clearance Certificate

Ethics protocol number: WBS/DB303140/886

This certificate is only valid with a legitimate ethics protocol number and signed by the Researcher (below).

This certificate is only valid if accompanied by formal permission from the relevant stakeholder(s).

Project title	Exploring growth-led versus efficiency-led digitalisation strategies in manufacturing and distribution firms in South Africa
Investigator / Researcher	Mr Kerushan Govender
Nature of Project	MM (Digital Business)
Decision of the Committee	Approved, provided stakeholders and participants are advised that anonymity and confidentiality cannot be guaranteed.
Issue Date of Certificate	2023-02-05
Expiry date	Date of submission of the project / research report
Chairperson	Dr Pius Oba ☎ +27 11 717 3976 +27 82 733 6587 pius.oba@wits.ac.za

Declaration by Researcher

One copy must be signed by the Researcher and returned to the Chairperson of the Wits Business School Ethics Committee.

I fully understand the conditions under which I am authorized to carry out the abovementioned research and I guarantee to ensure compliance with these conditions. Should any departure to be contemplated from the research procedure as approved I undertake to resubmit the protocol to the Committee.

Signature

28 Feb 2025

Date: