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# **Leveraging Artificial Intelligence as a Strategic Enabler in Industrial Multinational Corporations**

Action Research in MNC X

International Business, Department of Marketing and International Business

Master's thesis

Author:

Sonja Roiha

Supervisor:

Ph.D. Eriikka Paavilainen-Mäntymäki

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**I have not used any AI-based tools.**

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## **Master's thesis**

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**Author:** Sonja Roiha

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### **Abstract**

In this thesis, the strategic implications of artificial intelligence (AI) adoption in organizations are examined, with particular focus on long-term competitiveness, organizational capabilities, and change management. As investments in AI continue to increase, organizations face growing pressure to adopt AI-driven solutions not only to enhance operational efficiency, but also to remain competitive and attractive as employers and business partners. Despite this development, existing research on AI strategy remains relatively fragmented and often emphasizes short-term benefits rather than long-term organizational transformation. This study addresses that gap by conceptualizing AI as a comprehensive organizational change process rather than a purely technological or IT-driven initiative.

The main research question explores how artificial intelligence can be strategically integrated into an industrial multinational corporation (MNC) to sustain long-term competitive advantage. More specifically, the study examines which strategic risks and implementation challenges influence the realization of value from AI, what forms of competitive advantage AI can enable in the industrial context, and which organizational capabilities are required to operationalize an AI strategy. In addition, this thesis analyses how AI can be embedded into the business strategy of the case company, MNC X, to achieve sustainable competitive advantage.

This study adopts a qualitative action research approach, drawing both on academic literature and empirical data to analyse AI adoption from strategic and organizational perspective. The theoretical framework builds on research related to strategic change, dynamic capabilities, competitive advantage, and risk management. By combining theoretical insights with empirical observations, the study enables a critical examination of both conceptual foundations and practical implementation challenges. This approach facilitates the development of practically applicable knowledge while remaining grounded in existing academic discourse.

The findings indicate that AI adoption can significantly influence long-term competitiveness and should be treated as a strategic, organization-wide transformation rather than a separate efficiency initiative. Clear governance structures, strong top management commitment, cross-functional coordination, and continuous capability development emerge as central enablers of successful AI integration. The results further suggest that organizations failing to engage proactively with AI risk developing an outdated organizational image, potentially weakening brand perception, employer attractiveness, and strategic agility.

In response to these findings, the study develops structured managerial tools to support strategic AI integration, including an AI strategy framework, an AI operating model, and a phased implementation roadmap. These tools translate strategic objectives into concrete actions, clarify ownership and governance structures, and support capability development at strategic, structural, and individual levels. By operationalizing AI strategy through systematic frameworks and emphasizing human-machine complementarity aligned with Industry 5.0 principles, the study extends existing research from conceptual discussion toward practical execution.

Overall, this thesis contributes to the emerging field of long-term AI strategy by bridging strategic management theory and organizational practise. By developing structured frameworks and governance mechanisms, the study translates abstract strategic principles into actionable implementation tools. It thereby offers an organization-wide perspective on AI adoption and provides practical guidance for transforming AI from isolated experimentation into a source of sustained competitive advantage.

**Keywords:** Artificial intelligence (AI), AI Strategy, Organizational Change, Long-Term Competitiveness, AI Implementation

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### Tiivistelmä

Tässä tutkielmassa tarkastellaan tekoälyn (AI) käyttöönoton strategisia vaikutuksia organisaatioissa keskittyen erityisesti pitkän aikavälin kilpailukykyyn, organisaation kyvykkyyksiin ja muutosjohtamiseen. Tekoälyinvestointien kasvaessa organisaatioihin kohdistuu yhä suurempi paine hyödyntää tekoälyratkaisuja sekä prosessin tehokkuuden parantamiseksi että säilyttääkseen kilpailukykyä ja houkuttelevuutensa työnantajana ja liikekumppanina. Nykyinen tekoälystrategiaa koskeva tutkimus on kuitenkin hajanaista ja painottuu usein lyhyen aikavälin suorituskykyhyötyihin kestävän organisaatiomuutoksen sijaan. Tämä tutkimus vastaa tähän tutkimusaukkoon tarkastelemalla tekoälyä kokonaisvaltaisena, organisaation laajuisena strategisena kyvykkyytenä pelkän teknologisen tai IT-lähtöisen aloitteen sijaan.

Tutkielman päätutkimuskysymys keskittyy siihen, miten tekoäly voidaan integroida strategisesti teolliseen monikansalliseen yritykseen (MNC) pitkän aikavälin kilpailuedun turvaamiseksi. Erityisesti tutkimuksessa keskitytään siihen, millaiset strategiset riskit ja toteutushaasteet vaikuttavat tekoälyn tuottaman arvon realisoitumiseen, millaisia kilpailuetuja tekoäly voi mahdollistaa teollisella sektorilla sekä millaisia organisatorisia kyvykkyyksiä tekoälystrategian operatiivinen toimeenpano edellyttää. Lisäksi tarkastellaan, miten tekoäly voidaan liittää osaksi tapausyrityksen, MNC X:n, liiketoimintastrategiaa kestävän kilpailuedun saavuttamiseksi.

Tutkimus toteutetaan laadullisena toimintatutkimuksena, joka yhdistää akateemista kirjallisuutta sekä empiiristä aineistoa analysoidakseen MNC X:n tekoälyn käyttöönottoa strategisesta ja organisatorisesta näkökulmasta. Analyysi perustuu keskeisiin teorioihin sekä tutkimuslöydöksiin, jotka koskevat strategista muutosta, kyvykkyyksien kehittämistä ja riskejä. Lähestymistapa mahdollistaa sekä teoreettisten näkökulmien että käytännön haasteiden kriittisen tarkastelun, ja sen myötä uuden käytännöllisesti sovellettavissa olevien ehdotusten kehittämisen yhdessä olemassa olevan tutkimuksen kanssa.

Tutkimuksen keskeiset tulokset osoittavat, että tekoälyn käyttöönotto vaikuttaa organisaation pitkän aikavälin kilpailukykyyn ja siihen tulee suhtautua strategisena, koko organisaation kattavana muutosprosessina, ei erillisenä tehokkuushankkeena. Tulokset korostavat selkeiden hallintorakenteiden, johdon vahvan sitoutumisen ja jatkuvan kyvykkyyksien kehittämisen merkitystä strategiaa kehittäessä ja riskejä hallittaessa. Lisäksi löydökset viittaavat siihen, että organisaatiot, jotka eivät aktiivisesti sitoudu tai hyödynnä tekoälyä, saattavat vaarantaa maineensa vanhentuneina toimijoina, mikä voi heikentää brändiä sekä vetovoimaa sidosryhmien näkökulmasta. Kaiken kaikkiaan tämä tutkimus laajentaa rajoittunutta pitkän aikavälin tekoälystrategiaa käsittelevää tutkimusta tarjoamalla kokonaisvaltaisen organisaatiotason näkökulman tekoälyn käyttöönoton strategiaan vaikutuksiin.

Näiden havaintojen pohjalta tutkimuksessa kehitetään jäseneltyjä johtamisen työkaluja strategisen tekoälyintegraation tueksi, mukaan lukien tekoälystrategiakehys, tekoälyn toimintamalli sekä vaiheittainen käyttöönoton tiekartta. Nämä työkalut muuntavat strategiset tavoitteet konkreettisiksi toimenpiteiksi, selkeyttävät omistajuutta ja hallintorakenteita sekä tukevat kyvykkyyksien kehittämistä strategisella, rakenteellisella ja yksilötasolla. Operationalisoimalla tekoälystrategian systemaattisten viitekehysten avulla ja korostamalla Industry 5.0 periaatteiden mukaista ihmisten ja koneen välistä täydentävyyttä tutkimus vie keskustelua käsitteelliseltä tasolta kohti käytännön toteutusta. Kaiken kaikkiaan tämä tutkimus edistää pitkän aikavälin tekoälystrategiaa koskevaa tutkimuskeskustelua yhdistämällä strategisen johtamisen ja organisaatiokäytännöt.

**Avainsanat:** Tekoäly (AI), tekoälystrategia, organisaatiomuutos, pitkän aikavälin kilpailukyky, tekoälyn käyttöönotto

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## **LIST OF ABBREVIATIONS AND KEY TERMINOLOGY**

**Artificial Intelligence (AI)**

**Generative artificial intelligence (GAI)**

**Key Performance Indicator (KPI)**

**Multinational Corporation (MNC)**

**Resource -based View (RBV)**

**Return On Investment (ROI)**

**Sustainable Competitive Advantage (SCA)**

**The General Data Protection Regulation (GDPR)**

**Valuable, Rare, Inimitable, Organizationally Supported (VRIO)**

# 1 Introduction

## 1.1 Background

Artificial intelligence (AI) is currently creating significant disruption across the global economy (Strategic Direction 2024, 22). AI can be seen everywhere; it is implemented into operations in numerous organizations without paying attention to the company's size, location, or financial resources. Every company has their own way of implementing and testing AI to, for example, find solutions in streamlining tasks such as making meeting notes. Some industries are more ahead of others, but it can be said that AI is something that cannot be disregarded in the current or future business field. (The Strategy Institute 2025.) AI is disrupting all industries, even though the conversation is usually focused on larger companies such as Meta and Google (Silo AI 2024, 1). Bill Gates (2023) believes that AI will change the way of working and reorient entire industries around it. In future companies will distinguish themselves by the way they succeed at using AI.

During the past years artificial intelligence has evolved from an emerging technology to a necessity in business context and is expected to reshape industries and companies' business strategies rather soon (The Strategy Institute 2025). This change considers tasks beyond, for example automation, making AI the key driver of changing the way of competing in all industries globally (Dzreke 2025, 1). AI is not only a technology but a tool that can improve innovation processes and decision-making. Companies that are utilizing AI and are advancing their efficiency are increasing their competitiveness compared to companies that are not implementing AI into their operations. (Kotola & Turunen 2024.)

The commitment to implement AI is strong in the Nordic countries. It is common to find companies currently evaluating the opportunity to or investing in AI. This trend is strongly seen as well in the manufacturing sector, with numerous companies having ambitious plans to for example change revenue structures to accommodate AI platforms. (Eklöf 2024.)

The term and concept of AI is relatively vague as there is no widely accepted definition yet. Currently numerous technologies fall under the term AI. As different technologies are adopted more widely, they adopt a more specific name such as natural language processing or machine learning. When investing in AI companies can choose to develop AI themselves or adopt off-the-shelf AI solutions. Currently, generative AI and large language models are the most widely used of many available AI technologies. (Silo AI 2024, 18–19.)

Artificial Intelligence is transforming organizational operations in various sectors with ability to automate and enhance processes (Al-kfairy 2025, 4). AI can be defined as a machine performing cognitive functions that have been previously only associated with human minds. AI can generate new content, make prediction, and simulate human interactions although humans and AI differ in their way of processing data and developing expertise. AI can process much larger quantities of data at a faster rate and higher accuracy streamlining operations while increasing efficiency, while humans process data in a way that can lead to potential errors and biases. On the other hand, humans can perform better in scarce or complex situations because of their versatility. (Krakowski et al. 2023, 1428; Al-kfairy 2025, 4.) Bill Gates (2023) has a differing view and refers to artificial intelligence as a model created to solve specific issues or provide help in specific tasks as clicking, reading, writing prompts, and summarizing for example latest emails or the agenda of future meetings. AI can perform tasks that include visual perception, decision-making and speech recognition. Overall, as AI is advancing it will provide even more opportunities for performance optimization while companies are increasingly investing in AI to keep up with the competition. (The Strategy Institute 2025.)

Industry 4.0 is a synonym for smart manufacturing meaning the digital transformation, which is currently realised in manufacturing by real-time decision making, flexibility, and agility leading to enhanced productivity as well as improved products and distribution. Integration of cloud computing, machine learning and AI to companies' operations have led to increased automation, self-optimization, and predictive maintenance. (IBM 2021.) It has not been long since Industry 4.0's emergence, but the transformation to Industry 5.0 has already begun. Industry 4.0's goal is to reduce human workforce for optimization of resources. On the other hand, the goal of Industry 5.0 is for humans work alongside with advanced technology as AI. This shift is aiming to create more sustainable, personalized, and resilient production environments that are aligning with societal goals extending beyond manufacturing to encompass all aspects of business strategies. In practice this means better human-machine collaboration, fostering an environment where technology is not only a tool used for efficiency but a collaborator for innovation. The aim is to enhance adaptability to unique challenges while encouraging innovation and ensuring that technological advancements create societal benefits. (Tu 2024; Rashid et al. 2024.)

AI is evolving at an outstanding pace and has generated significant global enthusiasm. While the technology offers substantial benefits, it can also pose considerable risks if organizations overestimate their capabilities. This enthusiasm may drive companies to adopt AI solutions before their digital maturity and internal capabilities are sufficient to support effective implementation. In some cases,

the global excitement around AI can create a sense of urgency or even panic, as organizations fear falling behind competitors in the adoption of these technologies. (Silo AI 2024, 1.)

AI has started to penetrate business operations, but the understanding of how AI can be used to create unique value is still limited. It has been highlighted that implementing AI may present considerable strategic obstacles. (Kemp 2024, 618.) Innovative technologies as AI continually bring struggles and growing pains as companies must adjust their processes for successful adoption and learn from the new use cases. Some of the most significant challenges of AI implementation are related to company culture, process management, and leadership commitment. Complex challenges might arise as well from technological, operational, and ethical domains. (Al-kfairy 2025, 6; Silo AI 2024, 7.) Unclear business strategy and business processes as well as unclear responsibilities are critical issues to consider when implementing AI. Likewise, issues as lack of talent have priorly stopped individual projects from scaling and lack of shared data practices hindered implementation. (Silo AI 2024, 7.) Overall, using AI to lower costs and produce desired results might not be as simple and rapid as it has been considered priorly (Kemp 2024, 618).

In volatile, uncertain, and complex market environments competitive advantage is crucial, but is becoming constantly harder to achieve (Dzreke 2025, 2). Gould, M. (2021) defines sustainable competitive advantage (SCA) as a company's ability to maintain a long-term advantage over its competitors by, for example, implementing hard-to-imitate strategies. SCA has become central in strategic management, because of the importance of sustained success in competitive markets. SCA usually originates from a company's core competencies, which are distinctive capabilities that set it apart from others. SCA differs from competitive advantage, which is a short-term strategy that can enable a company to outperform its competitors in a particular segment. Competitive advantage is defined by momentary edge, flexibility, and market positioning. SCA on the other hand is defined by durability rooted in unique resources or capabilities and market resilience. (Sinha 2023.)

As AI is advancing, it has simultaneously transformed the way of work while shifting the sources of competitive advantage. AI is replacing human's traditional cognitive capabilities with machines computational ones while simultaneously enabling complementation between humans and machines. Traditional skills are losing their value as a source of competitive advantage as they can be imitated by machines, but the human ability to utilize AI effectively creates new persistent sources of advantage. Sustainable advantage is not created by purely human or machine capabilities, but rather by what humans do with these machine capabilities. (Krakowski et al. 2023, 1426–1427, 1446.)

In the era of AI, taking up and utilizing innovative technology does not require demanding education, data analyst skills or expertise in machine learning. Nowadays, it is possible for almost anyone to utilize AI in different settings regards to the task or company size. (Savolainen et al. 2024, 44–45.) Regards this, companies struggle gaining competitive advantage from AI. The issue lies in AI projects and initiatives being largely decentralized and lacking no shared practices for managing data. As well, most companies lack Key Performance Indicators (KPI's) to follow up on the success of AI implementation and the Return on Investment (ROI). (Silo AI 2024, 1.)

To summarize, AI opens many doors for different sectors and companies to innovate with without larger technical expertise. AI innovations happening in companies manifest themselves as increased competitive advantage and for the customer as added value. The variety of different AI technologies is changing the way businesses are operating while challenging their competitors to conform. (Savolainen et al. 2024, 44–45.) AI has gone from a minor part of technological infrastructure to a major strategic asset, meaning companies must reconsider their strategy frameworks to accommodate this change (Dzreke 2025, 2). Organizations starting points to AI vary greatly leading to every AI integration journey, method, and use case being non-identical. There is no single way to utilize AI, every path to pursuing sustainable competitive advantage is different. (Ruotsi et al. 2024.) Currently, AI capabilities are considered central, and companies invest in their development (Silo AI 2024, 2). Nevertheless, it is noteworthy that even AI can improve products and processes, the firm-level benefits of AI as competitive advantage or improved market performance, are more difficult to achieve (Kemp 2024, 619). Arguably, AI is more valuable than merely a tool to make processes run more smoothly, AI will be a key strategic asset leading to outcomes never seen priorly in business environments (Dzreke 2025, 2).

## 1.2 Research Objectives and Questions

The aim of this thesis is to examine how artificial intelligence can be systematically integrated into strategy and organizational capabilities in a way that enables value creation and sustainable competitive advantage in industrial MNC's. This thesis is conducted for a Nordic industrial multinational corporation called MNC X. **The main research question is how artificial intelligence can be strategically integrated into industrial MNC's to sustain long-term competitive advantage.** To answer the main research question, the following sub question will be addressed:

- What strategic risks and implementation challenges influence the realization of value from artificial intelligence?

- What forms of competitive advantage can artificial intelligence enable in the industrial sector?
- Which organizational capabilities are required to operationalize an artificial intelligence strategy effectively?
- How artificial intelligence should be integrated into the business strategy of MNC X to enable sustainable competitive advantage?

Long-term strategy and value generation are among the most critical considerations in AI implementation. While the rapid development of AI has transformed business environments and operational practices, most existing research continues to focus primarily on efficiency gains rather than on long-term strategic advantages. Organizations adopting AI often concentrate on short-term investments without establishing a comprehensive strategy that outlines the purpose of AI adoption, desired outcomes, or the motivation behind the implementation. For successful integration and employee engagement, a carefully planned AI strategy is essential. Notably, there is a research gap regarding how AI transforms technological capabilities into sustainable competitive advantage (Dzreke 2025, 1, 3), which this thesis aims to address.

Current research largely emphasizes either technical implementation challenges or descriptive benefits yet lacks a robust theoretical framework explaining how AI generates resources that enable companies to achieve sustainable competitive advantage in dynamic markets (Dzreke 2025, 2). In the industrial sector, AI adoption is behind more agile, data-rich sectors with flexible technological infrastructures. Large industrial companies often face additional challenges due to conservative operational practices and less flexible organizational structures, unlike startups that can integrate AI more broadly from establishment. There is no universally applicable roadmap for AI implementation, emphasizing the importance for each company to define clear strategic motivations and a vision for AI adoption.

AI integration typically begins with a small-scale experimentation, allowing organizations to identify effective practices before scaling adoption across additional functions. The process of AI adoption is inherently iterative, requiring patience, persistence, and a willingness to learn from trial and error. For industrial companies beginning their AI journey, this thesis provides guidelines for strategic AI implementation, outlining the managerial requirements and frameworks to develop a sustainable and effective AI strategy.

### 1.3 Scope and Structure Overview

To address the research question and objective of this study, the thesis is organized in a way that combines theoretical discussion with empirical analysis of the case organization. Chapter 2 introduces the broader AI landscape by examining key opportunities, risks and relevant regulatory frameworks associated with AI adoption. The chapter also discusses AI-related challenges identified in prior literature and explores risk mitigation strategies that organizations can apply. Chapter 3 connects AI to the concept of sustainable competitive advantage by examining the foundations of competitive advantage, strategic implementation, and the role of internal and external capabilities, as well as strategic orientation.

Chapter 4 analyses the AI maturity of MNC X through a current-state assessment based on the AI baseline survey. It is positioned before the methodology chapter because its purpose is not to present the primary empirical research design, but to establish contextual background and analytical grounding for the strategy development discussed later in Chapter 6. This is followed by Chapter 5, which outlines the research methodology.

Chapter 6 introduces the AI strategy guidelines proposed for MNC X, including AI strategy framework, AI vision, AI operating model, and roadmap. Chapter 7 broadens the discussion to more generally applicable considerations related to AI development and implementation. Finally, Chapter 8 presents the conclusions and managerial recommendations derived from the findings of the study.

The insights provided should be regarded as a guide and source of motivation for AI adoption, rather than prescriptive instructions, as each organization's context differs. AI implementation is an iterative journey that involves continuous learning and adaptation. The primary focus is on the industrial sector, specifically office workers, rather than factory operations or machinery.

This study does not address technical or software investment decisions and treats AI as a technological phenomenon within strategic and organizational contexts. Given the rapid pace of technological advancement, AI models and tools are continually evolving. However, the strategic considerations for achieving sustainable competitive advantage outlined in this thesis remain relevant over long-term, despite ongoing technological developments.

## 2 AI Opportunities, Risks, and Regulatory Frameworks

### 2.1 AI Opportunities and Benefits

AI bears disruptive potential across all industries in various forms including Generative AI (GAI) and Agentic AI. AI is no longer an emerging innovation but rather a strategic imperative that should be taken seriously. (Kumar et al. 2025.) AI can be a powerful tool for manufacturing companies to achieve increased profitability, enhanced efficiency and provide higher customer value (Eklöf 2024). AI has recently changed the work approach of many industrial experts as it provides prompt forward-thinking solutions to challenging issues. AI can be used in manufacturing for example in process and asset optimization, simultaneously providing benefits in reduced downtime, improved product quality, and lower costs. (Rashid et al. 2024.)

AI offers numerous opportunities to streamline organizational operations while simultaneously increasing efficiency and innovation capacity. GAI is reshaping communication, marketing, and reporting practices across industries. Within the industrial sector, GAI can support and enhance content creation processes, for instance by automating the drafting of reports, a task that remains essential but is often manual and resource intensive. By integrating data from multiple sources and generating coherent outputs, GAI can reduce the time and effort required for routine reporting activities. Beyond operational efficiency, the automation of repetitive tasks enables professionals to devote greater attention to higher-order, value-adding activities such as strategic planning, problem-solving, and creative tasks. Additionally, GAI can serve as an assistive tool in creative processes, providing inspiration, suggestions, or initial drafts that augment human judgement and expertise. In this way, the adoption of GAI has the potential to enhance both productivity and the innovative capacity. (Al-kfairy 2025, 4–5.)

In manufacturing contexts, AI can be applied to processes such as design optimization and function approximation, thereby enhancing operational effectiveness and precision (Rashid et al. 2024). GAI, for instance, can analyse consumer preferences at regional levels or evaluate performance metrics for specific product lines, providing detailed, actionable recommendations. Such capabilities enable organizations to undertake highly targeted strategic actions and support data-driven decision-making, ultimately improving responsiveness, customization, and the alignment of operational activities with broader business objectives. (Al-kfairy 2025, 6.)

GAI is increasingly being used as an assisting tool in drafting business strategy and management for its ability to synthesize vast amounts of data while delivering strategic insights and recommendations.

The utility in strategic decision-making is in AI's capacity to uncover insights and patterns that are not apparent. As AI systems can analyse large and complex datasets, for example market trends and consumer behaviour, they can be used to help informed decision-making. AI can predict, for example, future buying trends and allow companies to adjust their strategies proactively. (Al-kfairy 2025, 5–6.)

Furthermore, AI is increasingly enhancing strategy development by both augmenting and automating the collection and analysis of strategic inputs. By processing complex datasets, AI can generate insights that support decision-making, reduce cognitive biases, and improve forecasting accuracy. For example, AI can assist in estimating potential market sizes, evaluating the expected value of strategic initiatives, and anticipating competitor actions. (D'Amico et al. 2025.)

In conclusion, AI provides comprehensive, timely, and highly accurate insights that can surpass human cognitive limitations. These capabilities enable management to respond rapidly to evolving market conditions and adjust strategies in near real-time, thereby enhancing decision-making agility and sustaining competitive advantage in dynamic environments. (Al-kfairy 2025, 6.) Nevertheless, despite these potential benefits, organizations must carefully consider the risks and challenges associated with AI implementation before committing to investments, ensuring that adoption aligns with strategic objectives and organizational readiness.

## **2.2 AI Risks and Challenges**

### **2.2.1 AI Risks**

AI presents numerous risks with increasing prevalence as it continues to develop and is being implemented more into organizational processes. AI is bringing up new legal, social, and philosophical questions requiring answers complex to obtain. The impact of AI on society, the environment, as well as business industries is still not fully known. Most common of the risks attached to AI are job displacement, malicious use, inequality, bias, surveillance, and lack of control as well as accountability. (Rashid et al. 2024.)

The aspect of privacy is creating struggles as it introduced a new layer of complexity. Companies need to protect their own confidential information from being leaked while simultaneously making sure that AI does not access sensitive customer data or is not used in unauthorized way. To uphold privacy standards, different AI considerations must be carefully balanced to protect sensitive information. (Eklöf 2024.) As AI systems require large volumes of data for training and continuous improvement, organizations may need to process personal, financial, or commercially sensitive

information. Unauthorized access to or theft of such training data can pose significant security and privacy risks. Compromised data may be exploited in various ways, including the manipulation or hacking of autonomous systems. (Rashid et al. 2024.)

Another challenge rises from AI's myopic nature. AI systems lack a comprehensive understanding of an organization's broader strategic objectives. Consequently, the value generated by AI depends not only on its effectiveness in performing specific tasks but also on how well it aligns with the organization's overall strategy. Therefore, organizational mechanisms for example strategic governance, reviewing AI outputs, and cross-functional collaboration, which mitigate AI myopia are essential for building and sustaining competitive advantage. (Kemp 2024, 620.)

The World Economic Forum (2026, 60–62) has ranked the “adverse outcomes of AI technologies” as fifth in Global Risks Report 2026, having the largest rise in ranking over time. AI is amongst the most consequential long-term global risks. AI is a systemic force that is shaping economies, societies, and security. Risks can manifest rapidly due to market forces, slow development of governance frameworks, and geopolitical pressures. AI's impact on the labour market is causing strong concerns as it could lead to deepening societal polarization caused by rise in unemployment and employees struggling to adapt to new roles and tasks. Another risk is related to more tasks undertaken by AI, causing the human skills previously applied to begin atrophy. It is unknown what path this change will lead to, creativity, leisure or drift to purposelessness or apathy. The final risk mentioned concerns continuous increase of militaries reliance on AI systems. Simultaneously the potential for misuse or mistakes is rising, which places human lives straight at risk.

To combat these risks, The World Economic Forum (2026, 66) encourages companies to be proactive. It is important to plan, invest in skill development, and job transition planning as core elements in AI deployment. If the risk of negative effect of labour markets accelerates, each year inactive in adapting policies increases the adaption gap between technology and the workforce leading to raised costs of correction.

### 2.2.2 AI Challenges

As AI is a relatively recent phenomenon, many organizations are still unable to fully perceive the scope of its capabilities or anticipate the broader transformations it may bring to business environments and society. Current efforts often focus on short-term applications, while long-term preparation for gradual, structural changes tends to be overlooked. (Savolainen et al. 2024, 67–68.) Despite notable achievements in the adoption of AI within the Nordic manufacturing sector, many

companies continue to struggle with strategic alignment and execution, often due to the absence of unified AI roadmaps (Eklöf 2024). Transformative innovations require time to mature and reach their full potential, underscoring the need for sustained strategic planning and active commitment from management. By embedding AI within long-term organizational strategies enables to capture both immediate and sustained value creation. (Savolainen et al. 2024, 67–68.)

AI challenges can be divided into technological, data privacy, security, and ethical challenges. Technological challenges can rise from older technologies that cannot be integrated seamlessly with newer ones. Data privacy and security can cause issues relating to managing sensitive data or transparency in AI decisions. Ethical challenges associated with AI primarily rise from bias and discrimination in automated decision-making and opacity of AI systems. When training data reflect existing biases, AI systems are likely to reproduce or even amplify these biases, resulting in unfair outcomes. In addition, the lack of transparency in many AI models makes it difficult to understand the logic underlying their decisions, which limits accountability and complicates efforts to identify and correct issues. (Al-kfairy 2025, 7–9; Rashid et al. 2024.) Some of the most considerable challenges in scaling AI in the context of Nordic countries specifically have been introduced in Figure 1.

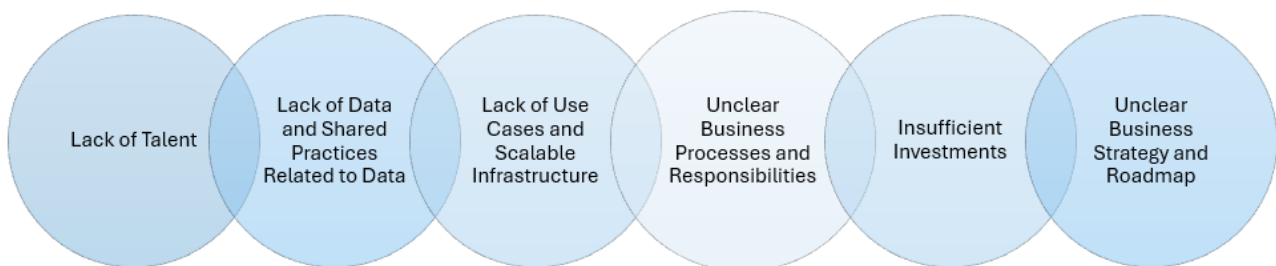


Figure 1 Considerable Challenges in Scaling AI in Nordics (Modified from Silo AI 2024, 11)

Large traditional companies, for example in manufacturing, face significant challenges during digital transformation. These challenges include the integration of older systems, which often require costly and time-consuming modernization efforts, as well as entrenched organizational cultures that resist agile experimentation and the adoption of innovative technologies. (Dzreke 2025, 6.) Common challenges lie in lack of resources whether in form of talent, time, or investment (Silo AI 2024, 52).

In a survey conducted 65% of manufacturing leaders recognized issues with data, including access, integration, format, privacy as well as governance, to be the barriers to AI implementation (Eklöf 2024). Skills gaps in workforce represent a significant challenge, as companies must invest in reskilling programs to equip employees with the competencies for AI adoption. For established

organizations, achieving a competitive advantage from AI often necessitates more fundamental changes to core business processes. Sustaining AI-driven advantage is therefore a socio-technical challenge, requiring a combination of employee capabilities, organizational structures, and governance processes that are strategically aligned and flexible to adapt to evolving technological and market conditions. (Dzreke 2025, 6.)

The strategic challenge posed by AI stems from its generic nature. AI algorithms are not proprietary to a single organization meaning multiple companies can apply the same models and receive similar outputs. When companies input industry-specific information, AI applies the same logic to generate results, which can lead to common behavioural patterns across competitors. While AI can enhance efficiency in processes or product development, it simultaneously enables rival companies to achieve similar improvements. In this sense, AI resembles general human capital as it can be acquired and deployed by competitors, potentially allowing them to closely replicate the capabilities of the focal organization. (Kemp 2024, 619–620.)

AI systems require significantly more data than humans to achieve competence in each task. Due to the dynamic nature of external environments, AI may need extensive new experiences to update or override prior patterns learned from earlier data. Unlike humans, AI lacks natural mechanism for organizational unlearning such as forgetting or employee turnover. This limitation can be mitigated through retraining AI models with additional, relevant data. (Kemp 2024, 629.)

When organizations restrict or prohibit the use of AI without providing clear alternatives or guidance, they risk the emergence of so-called “shadow AI.” This phenomenon refers to situations in which employees independently adopt external AI tools without formal approval, governance structures, or adequate training. In the absence of organizational frameworks, employees may rely on publicly available AI platforms and unintentionally share confidential or sensitive company information. Consequently, shadow AI presents significant security, compliance, and data privacy risks, while simultaneously indicating unmet internal demand for structured and supported AI utilization. (Savolainen et al. 2024, 141.)

Rapid technological advancements have led to significant skill shortages within organizations. Companies often struggle to find employees with the necessary and up-to-date expertise, particularly those with more than two years of experience in AI. (Savolainen et al. 2024, 82.) Such shortages can hinder the effective adoption of AI and limit its potential benefits (Rashid et al. 2024). This issue should be carefully considered when planning resource allocation and financial investments.

## 2.3 AI Risk Mitigation Strategies

Understanding the challenges associated with AI integration is crucial, as this knowledge enables organizations to prepare more effectively for adoption. For example, if it can be anticipated that employees are resistant to new AI tools, companies should consider prioritizing investments in inclusive training programs and change management initiatives with clear aims. By aligning employee skills and attitudes with updated, technology-enhanced workflows, these efforts can facilitate a smoother transition. Consequently, investing in such initiatives is essential to reduce friction and promote acceptance of AI across the organization. (Al-kfairy 2025, 11–12.)

To mitigate the risks associated with AI, companies should invest in employee education and training to develop new skills, strengthen cybersecurity measures, and implement clear ethical guidelines. Responsible AI development also requires establishing regulatory frameworks and governance processes. Issues such as bias and inequality can be addressed by using diverse and representative datasets alongside well-defined ethical standards. Privacy risks from surveillance and monitoring can be mitigated through robust privacy regulations and oversight mechanisms, while accountability can be enhanced by maintaining transparent decision-making processes and human supervision. (Rashid et al. 2024.)

Figure 2 presents common AI challenges along with their potential solutions. These solutions are critical to consider and address to enable AI to reach its full potential and deliver on its anticipated benefits (Rashid et al. 2024). Most of these solutions require organizations to invest in developing the processes, strategies, and infrastructure necessary to effectively implement and manage AI.

Bias in AI Models	Lack of Transparency	Job Displacement	Ethical Concerns	Security Concerns	Data Privacy	Regulation and Control
<ul style="list-style-type: none"> <li>Improved data collection</li> </ul>	<ul style="list-style-type: none"> <li>Increased transparency and explainability</li> </ul>	<ul style="list-style-type: none"> <li>Investing in education and job training programs</li> </ul>	<ul style="list-style-type: none"> <li>Development of ethical frameworks and regulations</li> </ul>	<ul style="list-style-type: none"> <li>Develop and invest in more secure AI systems</li> </ul>	<ul style="list-style-type: none"> <li>Increased data privacy regulations</li> </ul>	<ul style="list-style-type: none"> <li>Develop stronger regulatory frameworks for AI</li> </ul>

Figure 2 Common AI Challenges and Their Solutions (Modified from Rashid et al. 2024)

AI experts have previously argued that the mere abundance of technological resources is unlikely to generate sustainable competitive advantage. Nevertheless, companies that fail to realize the benefits of machine substitution risk losing their competitive position and experiencing market decline. This underscores the growing importance of human-machine capabilities as a source of competitive advantage, where human skills complement machine capabilities, for example through creative ideation and judgement. AI functions as a general-purpose resource and enables substitution across

tasks and domains that were previously unrelated. Such substitution is possible because AI's capabilities are broadly applicable across a wide range of industries and use cases. (Krakowski et al. 2023, 1443–1444.)

Furthermore, when considering AI implementation from the perspective of Nordic MNCs, one of the most significant challenges is the lack of standardized procedures. Appointing a leader responsible for integrating AI into the company's overall strategy, alongside clearly defined business objectives and a shared understanding of AI's strategic role, can improve implementation outcomes. It is as well essential to develop standardized frameworks for evaluating the success and ROI of AI initiatives to enhance consistency and transparency across the organization. (Silo AI 2024, 12.)

Effectively managing the risks associated with AI is essential for organizations seeking to realize AI's full potential. Mitigation strategies should combine technical measures such as data protection with organizational practices, including employee training and change management. Ultimately, AI risk mitigation is an ongoing, adaptive process that integrates human judgement with technological capabilities, enabling organizations to safely utilize AI while enhancing operational resilience, trust, and long-term value creation.

## **2.4 AI Regulatory Framework**

Although AI can deliver significant benefits across various organizational functions, it also raises important ethical and legal concerns. The deployment of AI introduces risks related to information security, operations, and ethics, which organizations must address through systematic governance. AI systems are designed to collect and analyse data in large volumes, often including personal information, which can create substantial privacy risks. Consequently, companies operating in the EU or processing data of EU citizens must comply with regulations such as the General Data Protection Regulation (GDPR). (Wang 2024.)

The General Data Protection Regulation (GDPR) is the European Union's data protection and privacy framework and is widely regarded as one of the strictest data protection laws globally. It applies to organizations globally that collect, process, or target personal data of individuals located within the EU. Enforced since 2018, the regulation establishes substantial financial penalties for non-compliance. GDPR is grounded in seven core principles of data protection and accountability: "lawfulness, fairness and transparency; purpose limitation; data minimization; accuracy; storage limitation; integrity and confidentiality; and accountability." (Wolford 2025.)

AI is not explicitly mentioned in the GDPR, but it is still relevant and some even challenged by the new ways that AI has enabled to process personal data. GDPR can be as well interpreted and applied in a way that does substantially hinder application of AI, and so that it does not place EU companies at a disadvantage compared to other non-EU competitors. However, there are several AI-related issues that are not addressed in the GDPR, which can lead to uncertainties and costs while slowing the development of AI applications. (EPRS 2020, 3–4.)

The EU AI Act represents the first comprehensive legal framework governing the use of artificial intelligence. It addresses the risks associated with AI through a risk-based regulatory approach that imposes differentiated obligations on AI developers and deployers. The Act forms part of the European Union's broader policy agenda to promote the development and adoption of trustworthy AI. To support the implementation of the regulation, the AI Pact has been introduced as a voluntary initiative aimed at facilitating compliance and fostering stakeholder engagement. "Under the AI Act, AI systems are classified into four risk categories: unacceptable risk, high risk, limited risk, and minimal risk." (European Commission 2025.)

The EU AI Act prohibits AI systems that pose a clear threat to human safety, livelihoods, or fundamental rights. The regulation bans eight specific practices, including social scoring, harmful AI-based manipulation and deception, emotion recognition in workplaces and educational institutions, and biometric categorization aimed at inferring protected characteristics. AI systems classified as high risk are those that may significantly affect health, safety, or fundamental rights and are therefore subject to strict requirements before they can be placed on the market. High-risk use cases include AI systems functioning as safety components in critical infrastructure, AI-enabled safety components in regulated products, and AI tools used for worker management and monitoring. (European Commission 2025.)

The EU AI Act will have significant implications for MNCs, as its regulatory reach extends beyond the European Union to any organization developing or deploying AI systems within the EU. Companies that deploy AI systems developed by external vendors will be required to monitor these systems in accordance with the developers' instructions and applicable regulatory requirements. Additional obligations may apply when AI is used in high-impact sectors, such as finance or public services. These requirements underscore the urgency for organizations to act, particularly given that only a small proportion of firms have fully operationalized responsible AI practices, despite widespread support for government regulation. As an initial step, companies should establish AI governance structures and ethical principles, conduct AI risk assessments, systematically enable

responsible AI testing, implement continuous monitoring, and ensure regulatory compliance while also considering workforce impacts, sustainability, security, and privacy. (Accenture 2024.)

Another approach for organizations to manage information security, cybersecurity, and privacy is the adoption of the ISO 27001 standard, which is the most widely recognized framework for information security management systems (ISMS). ISO 27001 provides guidance on the establishment, implementation, maintenance, and continuous improvement of an ISMS. Compliance with the standard indicates that an organization has implemented systematic processes to identify and manage risks related to the security of data it owns or processes. Moreover, such a system aligns organizational practices with the principles and controls outlined in the standard. (ISO.org 2022.)

ISO 27001 is a voluntary standard designed to help organizations enhance their awareness of cybercrime and emerging security threats. The standard encourages a risk-based approach, enabling firms to proactively identify and address vulnerabilities related to data security. (ISO.org 2022.) When implementing AI into organizational operations, ISO 27001 can support the development of structured processes for managing and securing data and AI models, which is particularly valuable given that organizational value is often closely tied to information assets. Moreover, the standard provides a practical framework for supporting compliance with AI-related laws and regulations by facilitating the identification and management of AI-specific risks. In this respect, ISO 27001 aligns well with the emerging regulatory frameworks, such as the EU AI Act. (Barker 2025.)

The rapid adoption of artificial intelligence offers substantial opportunities for organizations to enhance efficiency, innovation, and decision-making. At the same time, AI introduces significant regulatory, ethical, and operational risks that demand structured and systematic governance. As mentioned priorly, effective AI regulation is not solely a legal requirement but a strategic necessity for organizations seeking to deploy AI responsibly and sustainably. For MNCs, particularly those operating across different jurisdictions, the implications of AI regulation are far-reaching. Establishing a clear AI governance structure, defining accountability, and conducting regular risk assessments are essential steps towards ensuring compliance and trust-worthy AI systems.

### 3 Artificial Intelligence and Sustainable Competitive Advantage

#### 3.1 Foundations of Competitive Advantage

When examining the competitive advantage generated by artificial intelligence, it is essential to consider the foundational theories of competitive advantage. Classical frameworks, including Porter's Generic Competitive Strategies (1985), the Resource-Based View (RBV) (Barney 1991), and Dynamic Capabilities Theory (Teece 2018), provide explanations for how firms achieve and sustain competitiveness and, in this thesis, will be analysed from an AI perspective. While these theories remain relevant, their traditional constructs may not fully capture the unique dynamics and strategic implications introduced by AI in contemporary business environments.

Porter's Generic Competitive Strategies (1985, 15) "offers a general framework for strategically considering the business activities involved and their relative cost and role in differentiation, foundation for strategic thinking across multiple businesses, and examining international strategy or competing across locations". Summarized by IFM (2020) the Generic Competitive Strategies "illustrate a company's relative position within its industry and whether its profitability is above or below the industry average." To achieve sustained above-average financial returns, a company must establish and maintain a sustainable competitive advantage, typically through one of three strategies: cost leadership, differentiation, or focus (IFM 2020). While Porter's strategies remain relevant for understanding sources of competitive advantage, their application differs in the context of AI. For example, cost leadership now extends beyond simple automation to include predictive optimization and data-driven efficiency. (Dzreke 2025, 4.)

In Porter's original framework, firms were advised to pursue a single strategy, as attempting multiple strategies could dilute their competitive position. In the digital era, however, technological advancements as AI have diversified the sources of competitive advantage, altering how cost and differentiation interact. AI enables companies to simultaneously reduce costs and enhance differentiation, making so-called hybrid strategies feasible and potentially more valuable than adherence to a single strategy. Such dual advantages were much harder to achieve in Porter's original context compared to the age of AI. (Savolainen et al. 2024, 148–149.)

The RBV provides the foundation for the VRIO framework, assessing whether resources are valuable, rare, inimitable, and supported by the organization. These work as the RBV's basis for sustaining competitive advantage. (Barney 1991, 112.) Traditionally, the RBV emphasizes human cognitive capabilities as a source of advantage, highlighting that such capabilities are limited in supply,

heterogeneously distributed, and difficult to imitate. However, the RBV's predictions regarding the impact of AI adoption on competitive advantage, particularly in decision-making, remain inconclusive. (Krakowski et al. 2023, 1426.)

While theoretically important, the RBV framework requires adaptation to account for AI's unique characteristics and capabilities. For instance, Tesla's closed-loop data ecosystem exemplifies a strategic asset that aligns with the VRIO criteria: it generates value through accelerated innovation, is rare due to the need for specialized talent and capital, is difficult to imitate because of Tesla's unique learning trajectory, and benefits from organizational support via governance structures that many other technologically advanced companies lack. Nevertheless, the rapid pace of AI-driven competition underscores the RBV's static limitations, highlighting the need for dynamic approaches to understanding AI-enabled competitive advantage. (Dzreke 2025, 5.)

Even when AI generates value within an organization, its outcomes may be already replicated by competitors, making the realization of sustained competitive advantage uncertain (Kemp 2024, 618). From the perspective of RBV, if AI primarily substitutes for human capabilities, the advantages previously derived from those capabilities might erode, as AI technology is relatively easy to imitate. On the contrary, when AI complements human capabilities, RBV predicts the potential for competitive advantage, as the integration of human skills with AI creates unique and inimitable combinations of resources that competitors cannot easily replicate. (Krakowski et al. 2023, 1426.)

Dynamic Capabilities Theory emphasizes that the design and operation of business models depend on a company's underlying capabilities. Dynamic capabilities are reflected in organizational routines and managerial skills that enable a company to adapt, reconfigure, and enhance its competencies over time. The strength of these capabilities is critical for sustaining long-term profitability. (Teece 2018, 40.) In the context of AI, such technology can itself be viewed as a dynamic capability, enabling companies to respond rapidly to changing conditions. For example, Walmart leverages AI to optimize inventory across its 10,000 stores, automatically reallocating goods when supply chain disruptions occur. (Dzreke 2025, 5.)

It can be argued that sustainable competitive advantage arises from the integration of VRIO-classified AI resources with dynamic capabilities, enabling continuous renewal and adaptation. This combination represents a new benchmark for organizational adaptability, resourcefulness, and resilience in dynamic markets. AI equips firms with capabilities such as large-scale personalization, the prediction of hidden customer needs, real-time decision-making, and the generation of innovative solutions. These advantages make it increasingly difficult for competitors to replicate the company's

value delivery systems, reinforcing the uniqueness and durability of AI-enabled competitive advantage. (Dzreke 2025, 2, 5.)

The development of AI demonstrates how competitive advantage can shift as human capabilities are increasingly substituted by machines. This phenomenon is well illustrated by experiments in chess, where AI systems began to outperform humans in domain-specific tasks, diminishing the value of traditional sources of advantage. However, when human and machine capabilities are combined, new and enduring forms of competitive advantage emerge. In this way, the performance of humans and machines operating independently is surpassed, creating a sustainable advantage that is difficult for competitors to replicate. (Krakowski et al. 2023, 1443–1444.)

Artificial intelligence is fundamentally reshaping the sources and dynamics of competitive advantage. Across the different theories mentioned, AI challenges traditional assumptions by both enabling the substitution and augmentation of human capabilities. While AI alone might be easily replicated, the combination of human expertise, organizational resources, and AI capabilities create unique and inimitable advantages difficult for competitors to copy. Overall, AI's strategic potential does not only lie in efficiency gains, but in its ability to enable continuous innovation, personalization, and decision-making improvements that transform a company's competitive position in dynamic markets.

## **3.2 Strategic Implementations**

### **3.2.1 AI Strategy Foundations**

In Nordic countries, a growing gap has emerged between early adopters of AI and those slower to implement the technology. Companies reporting the highest satisfaction with their AI initiatives share several common characteristics. These organizations have established clear frameworks for evaluating AI success, position AI as a central component of their overall strategy and focus on leveraging AI to enhance competitive advantage while creating new revenue streams. Additionally, they invest strategically in talent development, data quality, and regulatory compliance, ensuring that AI adoption is both effective and sustainable. (Asikainen 2025.)

Ruotsi et al. (2024) have defined four strategic approaches for companies adopting Generative AI: Evolution strategy, enhancement strategy, expansion strategy, and disruption strategy. The evolution strategy considers companies that have noticed only minor changes in their external business environment due to GAI. In enhancement strategy companies operate in stable environments, and AI offers limited but useful improvements. The operations usually involve physical products or processes that cannot be fully digitalized but can be improved with AI. In expansion strategy companies are

observing rapid changes in their environment as customers are demanding AI solutions or competitors are taking up AI. In disruption strategy companies are facing rapid and major changes in both external and internal capabilities, and AI can perform human tasks.

One of the primary obstacles to scaling AI adoption is the absence of a clear business strategy and a well-defined roadmap. Both elements are closely linked to management and leadership practices, and as with any long-term investment, organizational ambition is critical for achieving significant outcomes. (Silo AI 2024, 12.) Sustaining this ambition while maintaining focus on a common goal is essential for success. Moreover, thorough planning is necessary to ensure that budgets accurately reflect the costs of AI integration and that resources are aligned with organizational objectives. (Al-kfairy 2025, 10.) Developing a comprehensive AI strategy is key to defining how and why AI will be utilized, how it will be integrated into organizational processes, and which areas will be deliberately excluded from AI deployment (Savolainen et al. 2024, 162).

Implementing AI into organizational operations requires a robust understanding of both technological and strategic requirements. Companies must consider factors such as resource requirements, regulatory compliance, system compatibility, and operational challenges. (Al-kfairy 2025, 9–10.) Because organizational culture, including leadership styles and decision-making processes, is not changed overnight, companies need to commit to long-term approach. Additionally, as AI adaptation is an ongoing process, the strategic role of AI should be continuously reassessed, for instance by evaluating how data practices can be improved and how AI initiatives are performing against organizational objectives. (Silo AI 2024, 6.)

AI integration is a complex process that necessitates changes in organizational working habits. Successful adoption requires a close alignment between the algorithmic strategy, the company's architectural design, and human capital development. The goal of AI integration is to build hybrid expertise, where domain specialists and data scientists collaborate to address problems specific to their respective fields, combining technical capabilities with contextual knowledge to generate more effective outcomes. (Dzreke 2025, 6.)

IT infrastructure, technical skills, and personnel expertise form the critical backbone for developing AI capabilities within an organization. The foundation of a successful AI strategy lies in a strong AI infrastructure, effective data collection methods, and high-quality data. When these elements are well established in a data-driven organization, the company is positioned to pursue and realize AI-enabled advantages. (Silo AI 2024, 2; Al-kfairy 2025, 10.) Additionally, possessing sufficient internal capabilities such as knowledge of AI technologies and analytical expertise, enables organizations to

make informed AI investment decisions and maintain a competitive edge in dynamic markets (Silo AI 2024, 38).

Involving employees in the AI adoption process can enhance commitment, motivation, and engagement (Savolainen et al. 2024, 162–163). In many organizations, teams operate in silos, which complicates the development of a centralized vision for AI-enabled services or applications (Eklöf 2024). Encouraging open dialogue and diverse perspectives is essential for fostering competitive advantage, as collaborative discussions can reveal opportunities and challenges that might otherwise go unnoticed, while also helping to standardize terminology and understanding around AI initiatives (Savolainen et al. 2024, 162–163).

Most AI projects in Nordic companies are managed in a decentralized manner. While autonomy can foster innovation, the absence of shared practices particularly in areas such as data management can hinder the scaling of AI initiatives across the organization and limit their value-creation potential. (Silo AI 2024, 12.) It is therefore essential to find a harmonized way to align the company's processes, supporting innovation while implementing systematic management practices that maximize AI's overall contribution to organizational value.

If companies do not plan to integrate AI strategically across their value chains, their operations risk becoming less efficient and outdated strategically (Dzreke 2025, 2). Effective AI adoption extends beyond technology and requires positioning AI as central component of the company's competitive strategy. Developing a clear AI vision serves as a tool to communicate the organization's level of ambition in AI integration. This vision should be grounded in a deep understanding of how AI can transform the industry and generate tangible value across the company's operations. (Savolainen et al. 2024, 86.)

Investments in artificial intelligence must be made strategically and integrated into the company's overall development plan and budget. AI investments should be viewed as long-term contributions to the company's competitiveness and potential to create sustainable competitive advantage. However, AI is not a universal solution for all business challenges and may not always be the most cost-effective option. Maximum value is achieved when organizations carefully select business problems where AI can meaningfully contribute as a solution, aligning technological deployment with strategic priorities. (Savolainen et al. 2024, 84.)

The successful adoption of artificial intelligence requires more than implementing technology, it demands a holistic approach that integrates strategy, operations, infrastructure, and human resources.

As highlighted priorly, companies must establish a clear AI vision, align investments with strategic priorities, and build hybrid expertise. Open collaboration and centralized practices combined with strong IT infrastructure and strong internal capabilities are a backbone for AI deployment simultaneously ensuring that AI initiatives can scale effectively across the organization.

### 3.2.2 Internal Capabilities

There are numerous internal organizational capabilities that can either facilitate or hinder the successful integration of AI and the realization of sustainable competitive advantage. Figure 3 presents these enablers and inhibitors. The enablers, in particular, can be viewed as critical amplifiers that enhance basic knowledge, strengthen organizational readiness, and enable the effective integration of AI into both strategic and operational processes. (Dzreke 2025, 10.)

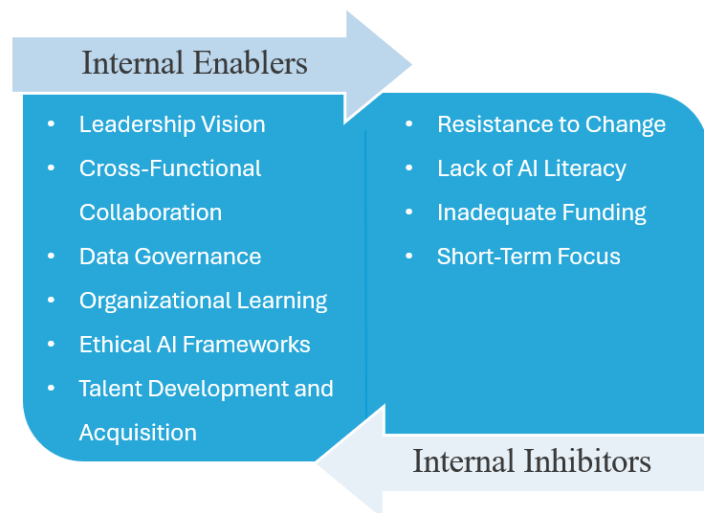


Figure 3 Internal Enablers and Inhibitors (Modified from Dzreke, S. 2025, 10)

Several managerial competencies are essential for the successful integration of AI into organizations. Leaders must understand the impact of AI solutions on the company and its environment, the role of data and training processes, and possess the ability to formulate strong business cases for AI projects. They should as well be able of asking critical questions regarding the possibilities and limitations of AI. (Wodecki 2018.)

Leadership vision is particularly important enabler, as it drives change and encourages cross-functional collaboration, helping to break down organizational silos. For instance, company-wide information and idea sharing can accelerate value creation. A strong foundation in data governance underpins all innovation and creativity, ensuring that initiatives are ethical, accountable, and compliant. Implementing an ethical AI framework can help to transform ideas into actionable projects, reduce bias, and build trust. Additionally, fostering an organizational culture that is centred

on learning such as creating documentation of lessons learned from failed experiments, supports continuous improvement. Finally, proactive talent development and acquisition strategies are crucial for addressing skill gaps and ensuring the organization possesses the capabilities needed to fully leverage AI. (Dzreke 2025, 10.)

AI competence and human-machine collaboration are key enablers of effective AI adoption as they are a part in ensuring that technological capabilities are translated into effective organizational outcomes. AI competence refers to an organization's ability to understand, apply, and critically evaluate AI tools, including the skills required to interpret outputs and recognize the limitations of algorithmic decision-making. AI competence can help to reduce risks related to bias, errors, and misuse. Human-machine collaboration emphasizes the complementary use of AI and human judgement further enhancing AI's value by combining efficiency, scalability, and analytical reasoning. This complementary interaction can increase the trust in AI systems while improving decision quality and support the integration of AI into organizational processes that can be complex or sensitive. These capabilities can ultimately strengthen the performance and value creation of a company. (Hina et al. 2025, 78–79.)

When considering internal inhibitors, possibly one of the major challenges for organizations, resistance to change, often stems from insufficient change management practices. A lack of AI literacy is as well common among employees not directly involved in technical roles, limiting the organization's overall readiness for AI adoption. Many companies invest in high-profile AI pilot projects but fail to commit to long-term initiatives, and insufficient resources can stall the development of new business models. A short-term focus is a recurring challenge, as companies often prioritize immediate cost-cutting applications over the long-term development of strategic capabilities necessary to fully leverage AI. (Dzreke 2025, 11.)

Considering organizational culture, several competencies are critical for successful AI integration. The culture should promote effective collaboration, openness to challenges, and receptiveness to innovative ideas. At the same time, organizations need strong analytical capabilities, long-term vision, and strategic planning to ensure that business strategy aligns with technological strategy. Organizational agility is also essential, enabling companies to adapt existing processes, services, and structures to fully leverage AI technologies. (Wodecki 2018.)

The integration of AI into organizations presents both internal enablers and inhibitors, but when approached strategically, it offers potential to create significant value. Successful adoption depends on combination of clear vision as well as a culture supporting collaboration, learning, and innovation.

While internal inhibitors as resistance to change can slow adoption, these challenges can be addressed through proactive planning, developing capabilities, and continuous improvement. Ultimately, if these internal capabilities can be utilized alongside with strategic AI deployment, it can enhance efficiency, foster innovation, and enable lasting competitiveness.

### 3.2.3 External Influences

When considering AI adoption, it is essential to examine the external environment, including both external enablers and inhibitors. Figure 4 presents these external factors. External enablers can accelerate AI implementation by reducing uncertainty and providing supportive conditions, although significant constraints may also exist. For instance, regulatory support can function as a key enabler. Singapore's Model AI Governance Framework provides clearly defined guidelines that reduce ambiguity and encourage responsible innovation, enabling companies to adopt AI with greater confidence. In addition, strategic collaboration such as partnerships with academic institutions can expand access to knowledge, foster innovation, and support the development of advanced capabilities. (Dzreke 2025, 10–11.)

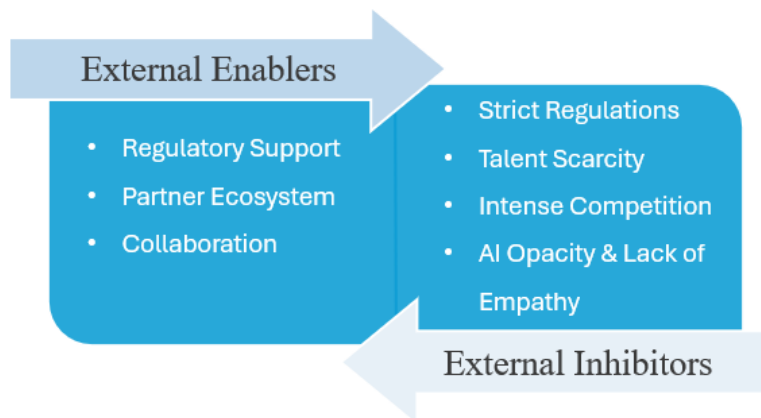


Figure 4 External Enablers and Inhibitors (Modified from Dzreke, S. 2025; Hina, M. et al. 2025)

External inhibitors can reduce organizational flexibility and intensify competition among companies. Strict regulation, such as those related to data privacy (GDPR), algorithmic bias and accountability (EU AI Act), can increase the complexity and cost of AI integration by limiting design options and imposing compliance requirements. Additionally, the limited availability of highly specialized AI expertise intensifies competition for talent. For many organizations, the high cost of acquiring and retaining this knowledge constrains their ability to scale AI initiatives and realize their full growth potential. (Dzreke 2025, 10–11.)

AI opacity and the lack of empathy represent significant external inhibitors to the effective adoption of AI, particularly in context requiring transparency, trust, and human judgement. AI opacity refers

to the limited interpretability of algorithmic decision-making processes, which constrain organizational ability to understand, justify, and validate AI-generated outcomes. This lack of transparency can reduce managerial confidence in AI systems, increase perceived operational and ethical risks, and hinder the integration of AI into critical organizational functions. The challenge of opacity is further amplified in regulated environments, where accountability and explainability are essential. (Hina et al. 2025, 78–79.)

In addition, AI systems' limited capacity for empathy restricts their applicability in domains involving emotional intelligence, interpersonal assessment, and contextual understanding. While AI excels in processing large amounts of data and identifying patterns, it remains insufficient in evaluating soft skills, cultural fit, and behavioural nuances that are central to human-centred decision-making. This shows the importance of continued human involvement and underscores the importance of human-machine collaboration rather than full automation. (Hina et al. 2025, 78–79.)

External factors play a critical role in shaping the pace and effectiveness of AI adoption. Key enablers, such as regulatory support and strategic collaborations, provide clarity while reducing uncertainty, and accelerating implementation. On the contrary, the inhibitors as regulatory complexity, AI opacity or limited talent availability can constrain organizational flexibility, increase costs while limit the applicability of AI in tasks demanding a more human-centred approach. Successful AI adoption requires both leveraging the enablers and supportive external conditions while mitigating constraints through internal capabilities, governance, and collaboration between humans and machines.

#### 3.2.4 Strategic Orientation

When initiating AI integration within organizational processes, a gradual, experimental approach can be highly effective. Small-scale pilots and gradual learning allow organizations to identify optimal applications of AI while minimizing risks and disruptions. Large-scale implementation is not necessary in the beginning, instead iterative experimentation enables companies to refine their strategies and adapt solutions to their specific operational context. Importantly, organizations must clearly define the strategic role of AI and designate responsible leadership to guide the adoption process. Adopting AI tools without an underlying strategy is unlikely to generate sustainable competitive advantage. Furthermore, collaborative learning is essential, as innovation in the AI era typically emerges through interaction and knowledge sharing rather than in isolated environments. (Kotola & Turunen 2024.)

Leadership plays a critical role in leveraging AI to strengthen the company's competitive position, as decisions regarding where and how AI is implemented directly influence potential returns on investment (Silo AI 2024, 1). Effective adoption also requires fostering opportunities for employees to share reflections and insight while creating a collaborative learning environment. Such knowledge-sharing platforms enable individuals to benefit from collective experience, accelerating organizational learning and ensuring that AI integration is both efficient and sustainable. (Kotola & Turunen 2024.)

Observations from technology-driven organizations indicate that AI can free up resources, allowing them to be redeployed at higher-value tasks, thereby significantly enhancing overall effectiveness and efficiency. However, the adoption of AI also poses challenges, particularly in industries where automation threatens existing workforces. For instance, in manufacturing and assembly lines there are raised concerns about workforce displacement and the need for reskilling initiatives. (Strategic Direction 2024, 22.)

Situating AI involves contextualizing its capabilities within an organization by integrating AI into experiential, relational, and strategic systems. According to Kemp (2024, 623–627), this process involves three key activities: grounding, bounding, and recasting. Grounding AI entails allocating strategic attention and organizational resources to provide AI with experiences that shape its understanding of tasks and problems, thereby enhancing the potential for competitive advantage and mitigating AI's inherently generic nature. Bounding AI involves defining the limits of AI's agency, including enforcing confidentiality, implementing cybersecurity measures, and controlling AI's operational scope. Recasting AI focuses on adapting internal technologies, processes, and routines to embed AI consistently across organizational systems, including activities such as customizing and standardizing AI applications to fit the company's specific context.

Organizational culture plays a pivotal role in successful integration of AI. Decision-making processes and leadership practices cannot be transformed overnight, requiring ongoing effort and adaptation. Leadership is particularly critical for leveraging AI as it guides strategic priorities, data-sharing practices, and the evaluation of AI project success. (Silo AI 2024, 6,10.) Larger, more established organizations often face greater challenges when implementing AI, as deeply rooted customs and traditional practices make the adaptation of processes more complex and time-consuming (Savolainen et al. 2024, 64). This highlights the role of leadership to guide AI adoption but as well fostering a culture of experimentation, collaboration, and learning. The issues of siloed departments, deeply

rooted processes, and risk avoiding mindset can limit flexibility which is needed to utilize AI to its full potential.

The placement and focus of AI investments significantly influence potential ROI. The most promising opportunities for generating substantial value currently lie in the integration of AI into core services, products, or business-critical processes. Organizational satisfaction with AI adoption is likely to increase over time when investments are carefully planned, particularly in AI infrastructure, which can reduce long-term costs at the project level. As organizations gain experience, their innovation capabilities are strengthened, enabling the identification of high-value, feasible AI use cases more efficiently and effectively. (Silo AI 2024, 9–10.)

When implementing AI into the core strategy, the fundamental question might not be what AI can do, but what the company is about. The relevance of AI must be addressed in relation to the company's core business logic, value creating operations, and sources of differentiation. Competitive advantage is unlikely to stem from access to technology alone as AI tools are increasingly omnipresent. Advantage may emerge from unique combination of AI and company-specific expertise, culture, and processes. Reflection should therefore centre on how human-machine combination can generate agility, adaptability, and insight in ways that competitors are not able to imitate easily. In this sense, AI becomes less of a technological investment rather than a question of what the company strives to be and how they advance their capabilities.

In summary, an organization's ability to envision a diverse and transformative future with AI is foundational to realizing its full potential. A lack of imagination often emerges as a primary barrier to effective AI utilization, limiting the organization's capacity to identify innovative applications and strategic opportunities. Similarly, insufficient ambition can hinder results, as meaningful AI integration requires clear expectations, strong motivation, and visionary leadership. (Savolainen et al. 2024, 84–85.)

While AI can enhance process efficiency and employee productivity in any organization, achieving advantage demands setting ambitious, strategic targets that leverage AI not just as a tool, but as a driver of innovation and long-term value creation (Savolainen et al. 2024, 84–85). AI presents a transformative opportunity for organizations that are willing to approach it with ambition, a clear vision, and purposeful planning. A proactive and strategically oriented approach to AI enables organizations to enhance efficiency and productivity but also unlock new sources of value, sustainable growth, and resilience in dynamic environments.

## **4 MNC X analysis and Current State Assessment**

In this thesis, data collection was conducted in two phases and includes both primary and secondary data. First, a survey was conducted in MNC X, using Microsoft Forms to collect secondary data and to establish an initial understanding of the current state of AI integration within the company. The structure and content of the survey are presented in Appendix 1, and responses were measured using Likert scale ranging from “strongly disagree” to “strongly agree.” Second, semi-structured interviews were employed as the primary data collection method. Following the analysis of the survey results, interview questions were developed based on the identified baseline of the company’s AI maturity and were further refined to align with the insights gained from the survey.

Artificial intelligence is currently subject to extensive public conversation, which may influence how employees perceive and relate to AI in their work. Like many previous technological applications or enterprise systems as robotics and automation, AI adoption is accompanied by broader societal debates concerning job displacement, ethics, and trust. Such public opinions may shape employees’ expectations, concerns, and attitudes even before concrete AI initiatives are introduced within the organization. In addition to assessing the current state of AI utilization, the objective was also to gain insight into employee’s attitudes and perceptions regarding the potential value of AI. In particular, the survey sought to explore whether AI is viewed as capable of enhancing efficiency, supporting decision-making, or generating tangible added value in daily tasks.

### **4.1 Current State Assessment Based on the AI Baseline Survey**

As a first step in AI adoption, conducting an AI baseline survey is essential. Such a survey enables the organization to assess where AI is currently being applied and to identify additional operations where AI could be leveraged more broadly. Furthermore, the survey provides valuable insights into the effectiveness of existing AI applications and their overall impact on organizational processes, informing strategic decisions for future AI integration. (Savolainen et al. 2024, 78.)

An AI baseline survey was conducted at MNC X to collect information from office workers regarding the current use of AI within the organization. The survey was distributed to approximately 500 office workers via email, with a link also made available on the company intranet. The primary purpose of the survey was to gather secondary data to establish a baseline understanding of AI integration prior to conducting more detailed interviews. The survey received responses from approximately 130 people across various departments, providing an initial overview of AI adoption and usage within the company.

The baseline survey was structured into seven Likert-scale questions, followed by three open-ended questions. The survey aimed to assess the current state of knowledge and attitudes toward AI, perceptions of its benefits and risks, its potential for generating competitive advantage, current usage, future needs, and overall impact within the organization. The open-ended questions focused specifically on MNC X, asking respondents to identify opportunities for leveraging AI to build sustainable competitive advantage, the tasks in which AI is currently most effective, and the greatest challenges associated with AI adoption. A detailed overview of the survey structure is provided in Appendix 1.

#### 4.1.1 Knowledge and Attitude

Majority of the personnel who responded to the survey demonstrated a general understanding of AI and its basic functions. Specifically, 42.7% of respondents indicated “strongly agree” and 42.7% indicated “somewhat agree” regarding their familiarity with AI, while the remaining responses ranged from neutral to somewhat disagree. These results suggest that while many possess foundational knowledge of AI, a degree of uncertainty and variation in understanding remains within the workforce.

Responses regarding practical applications of AI in the workplace showed considerable variation. 25.6% of respondents “strongly agreed” and 40.2% “somewhat agreed” that they could apply AI in their work, while 20.5% remained neutral and approximately 15% disagreed. These results indicate that some require clearer guidance and training on how to integrate AI into their daily tasks. Variations in responses may also reflect differences in job roles, as certain tasks are more amenable to AI applications than others. Similarly, when asked about personal experience with AI tools at work or free time, 40.2% of respondents “strongly agreed,” 23.9% “somewhat agreed,” 20.5% were neutral, and 15.4% disagreed, highlighting the disparities in exposure and familiarity with AI across the workforce.

When asked about their interest in learning more about using AI at work, approximately 65% of respondents “strongly agreed” and 26% “somewhat agreed”, indicating substantial motivation among personnel to develop their AI skills. This suggests that respondents are generally receptive to AI-driven changes and view them as opportunities rather than a threat. Figure 5 presents a summary of current AI use cases reported by personnel at MNC X, based on responses to the open-ended survey questions. Usage varies widely, as AI adoption is not yet systematically supervised, and differing levels of familiarity and proficiency was demonstrated. It should be noted that while the figure reflects self-reported applications, the actual usage of AI tools has not been independently verified.

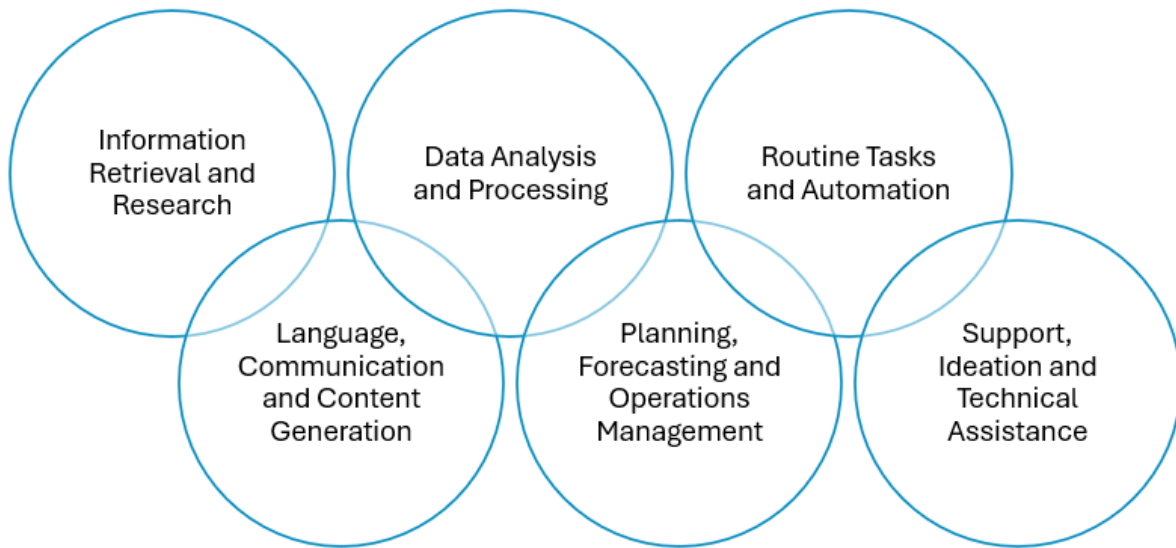


Figure 5 Current Use of AI in MNC X

Responses regarding the provision of AI tools and related training at MNC X revealed considerable variation and some dissatisfaction among personnel. When asked whether sufficient AI tools were provided, 14.5% “strongly disagreed,” 23.1% “somewhat disagreed,” 30.8% were neutral, and 30.1% “somewhat” or “strongly agreed.” These differences may reflect variations in work tasks, as some roles are more directly supported by AI than others. Regarding training on AI use and associated risks, 35% “strongly disagreed” and 35.9% “somewhat disagreed,” while 20.5% were neutral and 8.5% agreed. This finding is particularly important, as insufficient training can compromise the ability to use AI safely, potentially affecting data security and increasing the risk of information leaks or other operational vulnerabilities.

#### 4.1.2 Benefits and Risks

When personnel were asked about the usefulness of AI in their work, the responses were generally positive, indicating recognition of AI’s potential to enhance efficiency. Specifically, 37.6% of respondents “strongly agreed” and 38.5% “somewhat agreed” that AI can improve their work efficiency, while 14.5% were neutral and 9.4% disagreed. This suggests that there is a perceived room for improvement and AI is seen as a tool that could support greater effectiveness. Moreover, approximately 60% of respondents agreed that AI has the potential to improve the quality of their work, and 76.1% believed that AI can foster innovativeness and generate new ideas. These findings highlight strong employee motivation to utilize AI and suggest that, when effectively supported, AI

could enhance creativity and innovation, contributing to the company's sustainable competitive advantage.

When asked about the obstacles to using AI, 68.4% of respondents indicated that a lack of skills limited their ability to utilize AI tools. Interestingly, many of these same respondents reported understanding the general concept of AI and its basic functioning. This suggests that while conceptual knowledge is possessed, there may be lack confidence or practical guidance to apply AI effectively. The findings as well highlight the importance of clear instructions and structured support, as the absence of these can create barriers that prevent personnel from experimenting with AI and potentially generating innovations that contribute to sustainable competitive advantage. Regarding concerns about data security and reliability of AI tools, 59.8% of respondents identified uncertainty as an obstacle. This represents a major obstacle as uncertainty may inhibit experimentation and pilot initiatives. At the same time, it is positive that there is awareness regarding AI-related risks, suggesting a foundational understanding of the importance of responsible and mindful AI use.

Responses regarding awareness of company-authorized AI tools revealed substantial variation: 17.9% of respondents "strongly disagreed," 19.7% "somewhat disagreed," 17.1% were neutral, 30.8% "somewhat agreed," and 14.5% "strongly agreed." These results indicate a significant level of uncertainty and unawareness regarding the tools approved for organizational use, highlighting the need for clear guidance in a well communicated way to prevent potential risks, such as the unintentional exposure of sensitive company information through third-party AI applications. When asked about their knowledge of what types of information can be safely uploaded into AI systems, 12% "strongly disagreed", 23.9% "somewhat disagreed", 22.2% were neutral, 28.2% "somewhat agreed", and 13.7% "strongly agreed". Furthermore, 69.4% disagreed that the company had provided sufficient information on the safe use of AI. Together, these findings suggest a critical need for structured policies, training, and communication to ensure secure and effective AI utilization across the workforce.

#### 4.1.3 Competitive Advantage Perspective

When asked if AI could provide MNC X with a competitive advantage relative to industry competitors, 57.2% of respondents agreed. Regarding AI's potential to help MNC X deliver greater value to customers compared to competitors, 48.7% agreed, 41.9% were neutral, and the remaining disagreed. When considering the use of AI to enhance the company's decision-making and market responsiveness, 52.2% agreed, 32.5% were neutral, and the rest disagreed.

When asked whether the company's organizational culture and leadership supports the adoption of AI, 26.5% of respondents agreed, 38.5% were neutral, 26.5% "somewhat disagreed," and 8.5% "strongly disagreed." Regarding the clarity of MNC X's AI strategy, only 6% agreed, 26.5% were neutral, 39.3% "somewhat disagreed", and 28.2% "strongly disagreed". These results indicate that the company's AI-related guidelines and strategic direction are perceived as unclear or insufficiently communicated. While AI adoption may have begun, the lack of a clearly articulated strategy can create uncertainty among personnel, limiting their confidence and engagement in AI initiatives and potentially slowing the realization of AI-driven value.

#### 4.1.4 Future Needs and Possibilities for Implementation

When asked whether the personnel felt a need for basic training on utilizing AI in their work, 28.4% of respondents "strongly agreed," 37.1% "somewhat agreed," 20.7% were neutral, and 13.8% disagreed. When asked about the need for practical, hands-on workshops for using AI applications, 31.3% of respondents "strongly agreed," 39.1% "somewhat agreed," 20% were neutral, and 9.5% disagreed. These results indicate strong motivation to enhance their AI skills and develop their capabilities, reflecting a workforce that is ready to engage with AI tools and integrate them effectively into their daily work.

When personnel were asked whether they require guidance on the safe and ethical use of AI, 70.4% agreed, highlighting an important need for support in areas such as change management and responsible AI adoption. Similarly, when asked if they would benefit from examples of how other companies in the industry are leveraging AI, 86.1% agreed, indicating a desire to learn from external best practices and benchmark successful applications to improve their own AI utilization. These findings underscore the importance of providing structured guidance, training, and practical insights to support effective and responsible AI integration within the organization.

When asked about potential applications for AI, numerous suggestions were provided across various functions. Many noted that AI could streamline work processes, improve efficiency in resource utilization, and enhance overall productivity. It was highlighted that AI's potential to support innovation by broadening perspectives and diversifying thinking as well as serving as a tool for coaching. Other suggestions included using AI to accelerate responses to customer demands and reduce workload by automating routine tasks such as checking grammar, creating presentations, or drafting report outlines. Additionally, several respondents proposed AI applications in manufacturing processes. These suggestions have been collected and summarized in Figure 6, providing an overview of the areas where AI could add value across the organization.

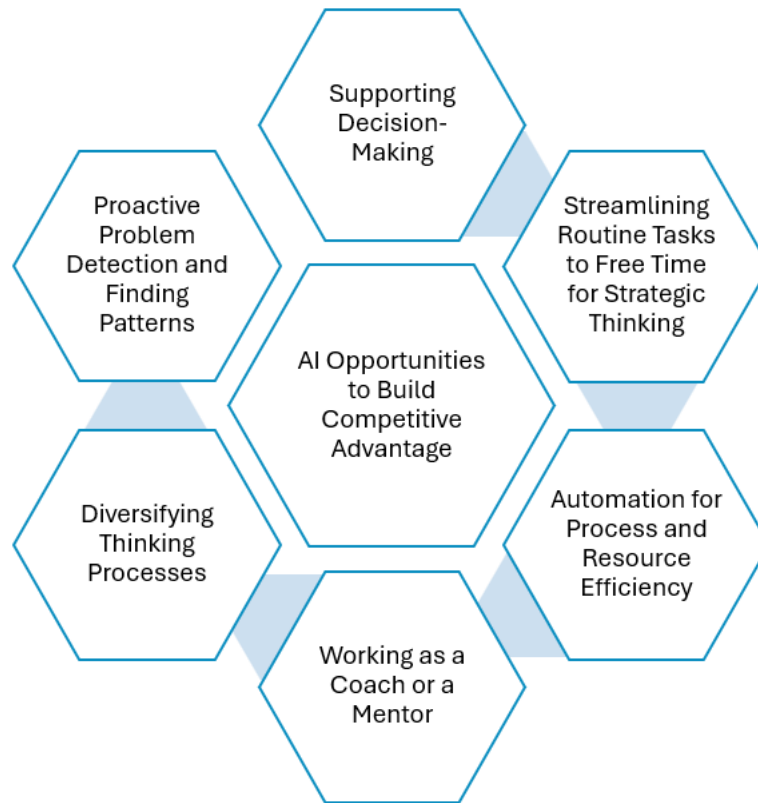


Figure 6 AI Opportunities to Build Competitive Advantage

Overall, personnel perceived AI as a tool for supporting functions that are time-consuming and mandatory. For instance, AI could be applied to processes and documentation to maintain consistency and accuracy. Adoption of AI was also seen as a way to reduce fixed costs, potentially enabling the company to offer more competitive pricing, by automating certain office worker tasks and freeing time to focus on more strategic activities. Importantly, personnel did not view AI as a replacement for workforce, but rather as a means to improve efficiency, provide task support, and reduce operational costs. It was emphasized that AI-generated outputs should always be reviewed and validated to ensure quality and reliability.

#### 4.1.5 Challenges in MNC X

When asked about the biggest challenges in leveraging AI to build sustainable competitive advantage, several key areas were identified, including strategy and guidelines, training and skills, security, tools, and resources, as well as practical implementation challenges. Many noted the absence of clearly defined AI roadmap and basic user instructions, leaving them uncertain about where and how AI could be effectively applied. Communication regarding available tools and their potential purposes was also perceived insufficient.

Regarding training and skills, it was reported that company-wide programs were often too generic or lacking task-specific details, highlighting a need for practical examples and case studies to better understand AI's value. Skill levels varied across people resources, and many felt unprepared to utilize AI effectively. Security concerns were also prominent, including data privacy when using cloud-based AI tools, fear of leaks or misuse of confidential information, and reduced trust due to potentially inaccurate or misleading AI outputs.

Access to tools and resources was another limiting factor, with respondents noting restrictions on licenses, such as Copilot, which limited broader adoption. Additional challenges included scepticism and fear of AI, perceptions of complexity or unreliability, and limited imagination or vision for creative AI use. Personnel also observed that AI's general-purpose nature sometimes made tasks more time-consuming than manual execution, and many struggled to independently identify suitable use cases for AI. This combination of strategic, technical, and cultural challenges underscores the need for structured guidance, targeted training, clear communication, and supportive resources to enable effective and confident AI adoption across the organization.

#### 4.1.6 AI Readiness

The Nordic countries provide an ideal environment for AI implementation due to their dynamic technological ecosystems, advanced research capabilities, and highly educated populations. Democratic values and a strong sense of social responsibility create a favourable foundation for the development of responsible AI. In 2024, Nordic prime ministers signed the declaration of Nordic digital resilience, emphasizing the region's capacity to address the challenges and leverage the opportunities presented by AI, a potential further strengthened through cross-border collaboration. (Nordic Co-operation 2024.)

According to the Oxford Insights (2024) Government AI Readiness Index, all Nordic countries expect Iceland rank among the top 15 globally, with Finland achieving the highest position at ninth place. Finland, Norway, and Sweden perform strong in areas such as AI vision, data representativeness, innovation capacity, governance, ethics, and data availability. However, challenges remain in terms of maturity and human capital, as well as legal and technical barriers that slow the effective sharing and application of data across Nordic countries (Nordic Co-operation 2024). Within the region, Denmark demonstrated the highest AI skill penetration, while Finland shows the lowest, underscoring variations in workforce readiness for AI adoption (Silo AI 2024, 58).

AI readiness can be assessed using the AI-Maturity Level Chart presented in Figure 7, which evaluates a company across dimensions such as strategy, AI literacy and organizational culture, data, technology, and governance. This framework provides a comprehensive perspective on the most critical factors influencing AI adoption and integration. Based on the survey and interview findings, MNC X would currently be positioned at level 2, indicating a developing AI-maturity level with room for further advancement.

AI-Maturity Level	1) Beginner	2) Developing	3) Organized	4) Optimized	5) Leader
Strategy	Direction is missing	Low ambition level	AI strategy defined	High ambition level	New operations
AI-literacy and organization culture	No expertise / stagnant	Limited competence / reactive	Broad competence / supportive	Development expertise / proactive	High-level competence / innovation-driven
Data	Occasional use	Unstructured use	Data strategy is defined	Leveraged effectively	Creating new value
Technology and governance	Shadow AI / new risks	AI technology experiments / AI policy	AI governance model	AI infrastructure / operating model	AI ecosystem

Figure 7 AI-Maturity Level Chart (Based on Savolainen et al. 2024, 204)

While personnel in MNC X demonstrate strong motivation to learn and engage with AI, gaps remain in practical skills, task-specific training, and confidence in using AI tools effectively. Internal enablers such as leadership vision, AI competence, data governance, and human-machine collaboration provide a foundation for improving readiness, but inhibitors including missing strategic direction, limited access to authorized tools, and inconsistent communication constraint the progress. Externally, the Nordic context offers a supportive ecosystem with strong vision for AI, innovation capacity, and cross-border collaboration, which can accelerate MNC X's maturity if leveraged strategically. Advancing to higher AI maturity level will require a clear AI roadmap, structured training programs, practical guidance on ethical and safe AI use, and the alignment of AI initiatives with the company's strategic objectives, enabling the organization to transform motivation into measurable competitive advantage.

## 5 Research Methodology

This chapter outlines the methodological approach adopted in this thesis. Section 5.1 introduces the action research approach guiding the study, while Section 5.2 describes the data collection process, and the methods applied for data analysis. The chapter concludes in Section 5.3 with an evaluation of the research, focusing on trustworthiness and ethical considerations.

### 5.1 Action Research Approach

This study is conducted using an action research approach. In action research, the researcher is actively involved in the context being examined and forms part of the research setting. The interaction between the researcher and the organization under study is continuous and iterative rather than strictly predefined, often extending over a longer period. Central to this approach is close collaboration between the researcher and the participants, characterized by active interaction and a shared commitment to common goals. Consequently, the researcher operates within the organizational community being studied, contributing to both the generation of knowledge and the development practice. (Eskola et al. 1998.)

During the research process, the researcher adopted an active role within the organization, simultaneously identifying the current state of AI utilization, conducting the study, and engaging in actions aimed at supporting the development of an AI implementation process that fosters sustainable competitive advantage. Action research was therefore a suitable methodological choice, as it enabled the integration of research and practical development activities. Within the organization, the shared objective was to explore how AI could be strategically embedded into the business processes to create long-term value.

Action research focuses on investigating practical questions and organizational issues arising from real business contexts. Research questions are derived from practice, and researchers collaborate closely with organizational members while working within companies to help address these issues and develop business practices. Rather than conducting research on people, action research is characterized as inquiry with people, emphasizing participation and co-creation of knowledge. (Eriksson & Kovalainen 2008, 164–165, 196.) Furthermore, action research can be viewed as a form of social innovation, as it seeks to develop new ways of thinking, acting, and organizing. Central to the approach are practices of mutual learning and a commitment to generating positive and sustainable change. (Bartels et al. 2025, 231.)

The action research process is inherently iterative, consisting of recurring cycles of planning, acting, observing, and reflecting. As a result, research plans often require corrective actions and additional measures based on insights gained during earlier phases of the process. (Eriksson & Kovalainen 2008, 199.) In this study, the orientation of the thesis evolved in response to the empirical findings. For instance, following the baseline survey, the identified level of AI integration prompted a shift in focus towards establishing a more robust and foundational base for sustainable AI integration within the organization.

Action research encompasses interactive research designs and methodological approaches that allow the use of multiple research methods. Researchers are often positioned as external change agents who introduce and facilitate organizational change while simultaneously encouraging reflection and systematically studying the process. Consequently, action research emphasizes joint reflection and collective learning. This approach requires a high level of involvement and a close relationship between the researcher and the research context. (Eriksson & Kovalainen 2008, 164–165, 196; Bartels et al. 2025, 231.) In this thesis, these characteristics were clearly present, as the research was conducted in close collaboration with the case company and reflective practices were embedded throughout the research process. The researcher's employment within the organization enabled continuous interaction and access to internal expertise, including collaboration with subject-matter experts in the design of the survey and in developing a deeper understanding of the company's operations.

## **5.2 Data Collection and Analysis**

Qualitative research may utilize both primary and secondary data sources. Primary data consists of information collected directly for the specific research purpose, whereas secondary data refers to data that has been collected by others but is subsequently analysed within the study. (Hirsjärvi et al. 2009, 181, 186.) Given that data was collected in two phases, the analysis was also conducted in two corresponding parts. First, the survey responses were analysed to establish a baseline understanding of AI integration within the company and to explore employee's motivations and attitudes towards AI. Numeric analysis was performed using Microsoft Forms, and selected results were visualized to facilitate interpretation and summarization. Subsequently, insights from the interviews were analysed to construct a more strategic and comprehensive understanding of the company's current situation, its aspirations regarding AI, and the potential pathways for implementation.

The interviews were conducted using a semi-structured format. In semi-structured interviews, the overarching themes are predetermined, but the specific questions and their order may vary, allowing

for flexibility in response and exploration (Hirsjärvi et al. 2009, 208; Galletta et al. 2013, 45). This approach accommodates a range of research objectives and enables the use of both open-ended and more theoretically oriented questions. To gain an in-depth understanding of the company's strategic goals and other relevant details, interviews were conducted with professionals at various organizational levels, ranging from vice presidents to specialists. Semi-structured interviews offer the advantage of adapting the conversation in real time, thereby bringing out insights and perspectives that might not emerge through more strict approaches. The interview questions, provided in Appendices 2 and 3, were designed to collect comprehensive information on the current state of AI integration, the company's motivations, and aspirations regarding AI, and to clarify associated capabilities, resources, and potential risks. In Table 1 the list of interviewees is presented.

Table 1 List of the Interviewees

Interviewee	Interview length	Date	Interview style and place
Interviewee 1	60 min	7.11.2025	Online via Teams
Interviewee 2	57 min	12.11.2025	Online via Teams
Interviewee 3	80 min	12.11.2025	Online via Teams
Interviewee 4	63 min	12.11.2025	Online via Teams
Interviewee 5	49 min	12.11.2025	Online via Teams
Interviewee 6	56 min	13.11.2025	Online via Teams
Interviewee 7	40 min	13.11.2025	Online via Teams
Interviewee 8	48 min	14.11.2025	Online via Teams
Interviewee 9	30 min	14.11.2025	Online via Teams
Interviewee 10	75 min	17.11.2025	Online via Teams
Interviewee 11	46 min	17.11.2025	Online via Teams
Interviewee 12	46 min	19.11.2025	Online via Teams
Interviewee 13	42 min	20.11.2025	Online via Teams
Interviewee 14	43 min	20.11.2025	Online via Teams

The interview participants were selected based on their roles and experience with AI. To ensure confidentiality and protect the identities of the participants, all interviewees were anonymized and are referred to exclusively through pseudonyms (Interviewee 1-14) throughout this study. The interview sample included individuals occupying a range of organizational roles, including, among other, senior project managers, senior managers, directors, project managers, vice presidents, quality

engineers, specialists, lead project engineers, project coordinators, and managers. The interviewees were either involved in the company's strategic decision-making or had practical experience using AI in their work, ensuring that their insights and experience could meaningfully contribute to the research. This diversity of positions enabled the study to capture perspectives across functional domains and levels of strategic and operational responsibility within MNC X. All interviews were conducted in Finnish via Microsoft Teams and were both recorded and transcribed to facilitate subsequent analysis.

Two distinct set of interview questions were developed to align with the positions and responsibilities of participants. The first set, designed to address strategic perspectives and targeted at leaders and experts in managerial roles, is provided in Appendix 2. The second set was adapted for other specialists, considering the diverse responsibilities of employees and emphasizing aspects of communication and operational practices. This set is presented in Appendix 3.

The data was analysed used thematic approach. This method involves identifying and highlighting themes within the data that provide insight into the research problem. By organizing the data around these themes, it becomes possible to compare the frequency and patterns of key topics across the dataset. Thematic analysis allows for the extraction of content-related issues, which can then be structured in a way that directly addresses the research question. This approach is particularly suitable for studies aimed at solving practical problems, as it enables the identification of multiple perspectives and potential solutions, thereby enhancing the practical relevance and applicability of the research findings. (Eskola et al. 1998.)

The interviews were analysed through a structured process. Remote interviews were first transcribed using AI and recorded to allow for thorough verification and ensure transcription accuracy. Following the principles of thematic analysis, the data from each interview was organized into recurring themes. Preliminary analysis was conducted concurrently with the interviews to allow for refinement of the interview questions as needed. After all interviews were completed, a cross-case analysis was performed to identify strong and recurring themes across participants. These themes were then synthesized to compare findings, and the results were interpreted in relation to the existing theoretical framework, supporting the development of conclusions and practical guidelines that address the research questions.

The themes identified in each phase of the research are summarized in Table 2. When compared to the existing literature, several similarities and differences emerged between the themes derived from

the baseline survey and the interviews. One theme that was consistent across all phases was the importance of having a clear AI strategy, a well-defined vision, and strong management commitment.

Table 2 Themes in Research Phases

Research phase	Themes found
Literature	<p><i>Productivity improvement</i> - &gt; Various AI opportunities to increase efficiency</p> <p><i>Adaptative implementation</i> -&gt; No one-fits-all implementation strategy</p> <p><i>AI implementation readiness</i> -&gt; Risks and challenges from data, security, and infrastructure</p> <p><i>Change management</i> - &gt; Crucial to mitigate friction and enhance acceptance</p> <p><i>Sustainable competitive advantage</i> -&gt; From unique capabilities provided by human-machine combination</p> <p><i>AI adoption barriers</i> -&gt; Largest obstacle in scaling AI is unclear business strategy and integration roadmap</p> <p><i>AI ownership &amp; strategy</i> - &gt; Adaptation requires a strategy and defined entity to lead the project</p> <p><i>AI strategic alignment</i> - &gt; Focus on long-term strategical investments than short-term piloting</p> <p><i>Management commitment</i> -&gt; High motivation and ambitious goals required from management to gain from AI opportunities</p>
AI Baseline Survey	<p><i>Organizational readiness</i> -&gt; Strong interest among employees towards AI and learning to utilize AI</p> <p><i>Work transformation</i> -&gt; AI seen as possibility to improve work quality</p> <p><i>AI adoption barriers</i> -&gt; Lack of skills, data security, and reliability inhibiting from utilizing AI</p> <p><i>Safe AI practices</i> -&gt; Clear instructions to AI utilization and safe use requested</p> <p><i>Sustainable competitive advantage</i></p> <p><i>AI strategy &amp; vision</i></p> <p><i>Transparent communication</i></p> <p><i>Productivity improvement</i></p>
Interviews	<p><i>AI adoption</i> -&gt; Starts by considering strategy as application scopes, capabilities, and intentions</p> <p><i>AI intent</i> -&gt; To strengthen operational resilience while increasing competitive advantage</p> <p><i>AI vision</i> -&gt; Defining role of AI in organization's strategy</p> <p><i>AI evolution</i> -&gt; It is unlikely for the organization to evolve without strategic direction guiding the change</p> <p><i>Role of AI</i> -&gt; AI will increase in daily use, but role of humans will remain crucial</p>

	<p><i>AI ownership</i> -&gt; Necessity to establish organization or a role to take ownership over AI implementation</p> <p><i>Structured implementation</i> -&gt; Deploying AI technologies by using Operating Model (Figure 10)</p> <p><i>Phased Implementation</i> -&gt; AI roadmap to transit from AI experimentation to scalable deployment</p> <p><i>Management commitment</i></p> <p><i>Adaptative implementation</i></p> <p><i>AI implementation readiness</i></p>
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Literature emphasized that human-machine collaboration can enhance sustainable competitive advantage, a finding that was strongly reflected in the interview data. Some differences were noted regarding the integration process: while in literature AI adoption process was described to begin with pilot applications, the interviews indicated that integration should begin with the establishment of a clear and well-defined strategic direction. Additionally, the scope of AI application discussed in the interviews is broader than what is typically highlighted in the literature, this can reflect the more comprehensive view of company's ambition for more extensive AI deployment.

### 5.3 Research Evaluation

#### 5.3.1 Trustworthiness

The trustworthiness of this research is evaluated using the framework proposed by Lincoln and Guba (1985, 290–330), which assesses empirical findings across four dimensions: credibility, transferability, dependability, and confirmability. *Credibility* concerns the researcher's knowledge of the subject and the sufficiency and quality of the collected data. *Transferability* emphasizes the richness and descriptiveness of the empirical data, allowing the findings to be meaningfully applied or compared to similar research contexts. This does not imply universal generalizability, but rather the ability to draw similar conclusions in comparable events. *Dependability* refers to the consistency between the data and the research finding, where detailed reporting enables peer review, auditing, and critical evaluation of the study's processes, reasoning, and decisions. Finally, *confirmability* ensures that the interpretation of the data remains objective and minimizes personal bias, reflecting the extent to which the findings are shaped by the participants and the research context rather than the researcher's subjective influence.

Regarding *credibility*, the researcher's active involvement within the organization enhanced internal knowledge and provided a deeper contextual understanding, which strengthened the study's credibility. The researcher also possessed prior knowledge of AI and its application within industrial

settings. While previous studies have explored AI, there is limited research on strategic, long-term implementation, which this study addresses.

Interview participants were selected based on their expertise and involvement in AI-related operations across different parts of the organization, ensuring that the insights collected were both relevant and informed. Participation was voluntary, with an interview consent form provided to all respondents, guaranteeing that all contributions were made willingly. Overall, the data collected was chosen to be directly applicable to the development of a theoretical framework and practical recommendations for the company.

The topic of strategic, long-term AI implementation is relatively recent, and as such, there is no fully established theoretical foundation, and the existing information remains fragmented. This can potentially reduce the credibility of the study and increase the risk of speculation or researcher bias. These challenges were mitigated through strong, transparent, and well-justified methodological approach, which enhances the defensibility of the findings. Additionally, reliability and validity were reinforced through clear sampling criteria, systematic data analysis, and careful alignment with both existing research and organizational context. Relevant literature was critically reviewed, research gaps were acknowledged, and the study's focus on an emerging topic was justified by its practical significance and MNC X's strategic need.

*Transferability* in this study has been addressed by presenting the findings in a manner that allows readers outside the specific case to relate them to their own organizational contexts. It is acknowledged, however, that AI implementation is highly context-dependent, with factors such as company size, resources, digital maturity, and strategic priorities significantly influencing outcomes. Consequently, the results cannot be directly generalized and should be adapted to each organization's specific environment. The anonymity of the company further limits the detailed description of its market position and setting, which may constrain transferability. Nevertheless, transferability has been enhanced by providing a clear overview of the organization's environment and AI baseline, as well as detailing the motivation and context of the study in Chapter 1. Broader patterns as concepts emerging from the findings have been highlighted and linked to existing literature, supporting their potential applicability in similar organizational contexts.

Regarding *dependability*, the research design was carefully planned and reported in alignment with the study's objectives. The research methodology, including the chosen approach, data collection methods, and data analysis procedures, was described in detail to ensure transparency and support the potential replicability of the study. Data triangulation was employed, using multiple data collection

methods and diverse sources, which enhances both the credibility and dependability of the findings. (Merriam et al. 2015, 221). Through data triangulation, the consistency of results across different sources was confirmed, increasing the stability and reliability of the findings. This approach also facilitated the identification of patterns and helped ensure that the conclusions were not dependent on a single individual's perspective or specific point in time.

*Confirmability* was ensured by integrating theoretical insights with the empirical data collected. Direct evidence from the organization, such as responses from the AI baseline survey, was used to demonstrate that the findings reflect the perspectives of the participants and the organizational context. The researcher's role and potential influence on the study were acknowledged to maintain transparency. Additionally, thematic analysis was employed, which enabled the identification and understanding of multiple perspectives on the phenomenon, further enhancing the confirmability of the results.

### 5.3.2 Ethics

The ethics of the researcher has a significant impact on the validity and reliability of the study. Ethical considerations are essential in ensuring that the research is conducted with integrity, allowing readers to trust the findings. It is the researcher's responsibility to uphold the highest ethical standards throughout the study. Key ethical aspects include protecting participants from harm, respecting their right to privacy, obtaining informed consent, and avoiding deception. In qualitative research, ethical dilemmas often arise during data collection and in the process of publishing the findings. (Merriam et al. 2015, 233–234.)

Scientific ethics concern the principles that define what constitutes rigorous and responsible research. A key norm is the adherence to recognized scientific methods and reasoning, ensuring the arguments and conclusions are logically and empirically grounded. Ethics as well encompass the selection of research topics, including considerations of what is studied and why it is deemed important. Furthermore, ethical reflection extends to the potential impact of research outcomes, particularly if the results could be used in ways that harm society. Among the most emphasized guidelines within research ethics are the principles of good scientific practise, which provides standards for integrity, transparency, and accountability in scholarly work. (Haaparanta et al. 2016.)

In selecting the research topic, it was recognized that AI implementation is a sensitive subject due to its implications for a company's competitiveness. To address this, the study was conducted with the company anonymized. While the ultimate use of the study cannot be predicted, it is unlikely to cause

harm or pose risks to any individuals. It is acknowledged that AI can, in certain contexts, be applied in ways that may negatively impact society or replace human labour. In this study, however, the human dimension was emphasized, focusing on how AI can enhance human capabilities rather than merely automate tasks. Ultimately, the purpose of the research is to generate knowledge that can assist companies in improving efficiency and creating sustainable value.

The company sponsored this research, but there was no interference in the design of the study, the data collection process, or the analysis of the findings. The results were analysed transparently and reported accurately, maintaining objectivity. Although the topic is sensitive due to its implications for the company's competitiveness, the study did not involve personal or private issues. Overall, no harm was anticipated as a result of the data collection or research activities.

### 5.3.3 Use of AI

As there is no widely accepted framework for analysing the use of AI in academic research, the researcher developed a dedicated framework to ensure transparency, ethical use, and clarity regarding the role of AI in this study. The proposed Use of AI framework addresses the following key aspects of AI involvement:

1. Purpose of using AI (ensures that use of AI is used as a support tool rather than replacing core work)
  - a. Why was AI used?
2. Scope and Boundaries of AI use (preventing misunderstandings about AI doing analytical or interpretive work that should be done by researcher)
  - a. What AI was used for?
  - b. What AI was not used for?
3. Tool specification (Tools used are specified so that the process is traceable)
  - a. Include tool name, model/version (if known), what they were used for
4. Ethical considerations (ensuring the responsible use of AI and compliance with research ethics guidelines)
  - a. Cover data privacy, avoidance of fabricated references, ethical boundaries of AI use, compliance with university/institutional AI policies
5. Quality assurance and validation (how reliability of AI-generated content was ensured)
  - a. Cover fact-checking AI outputs, manual verification of claims, ensure the final wording and interpretation is authored by the researcher, identify bias or hallucinations/inaccuracies

6. Reflexivity and Researcher Control (Demonstrate that AI did not guide academic decisions)
  - a. Reflect on how AI influenced the research process, the critical engagement with AI solutions, ensure that AI did not shape analysis or findings, and transparency of researcher's role in the interpretive steps
7. Limitations of AI use in the study
  - a. Risk of oversimplification or generality
  - b. Potential bias in generated content
  - c. Lack of domain-specific depth

In this thesis, AI was used to support the researcher's work by facilitating innovation, enabling ideation, and assisting with routine tasks that would otherwise occupy time better spent on higher-value activities. Specifically, AI contributed to the writing process by helping with structuring content, generating ideas, enhancing clarity, and summarizing or translating information. Importantly, AI was not employed to generate text independently, interpret data, or conduct analysis, rather it functioned as a tool to improve efficiency and the overall quality of the research output.

Regarding the scope and boundaries of AI use, AI was employed in this thesis solely in a supportive capacity, as previously described. Its involvement was limited to tasks that did not influence the research outcomes or conclusions. Examples of AI-supported tasks include:

1. Brainstorming potential sub-questions related to the thesis topic
2. Improve clarity or writing, rephrasing and translation
3. Structuring, organizing text, and summarization
4. Helping to formulate neutral and well-structured questions for survey and interview
5. Transcription of the interviews

To ensure good academic practices, AI was not used in any tasks related to the production, interpretation, or analysis of the data collected. It was not employed in generating findings, drawing conclusions, or constructing theoretical contributions and arguments. Furthermore, no confidential or sensitive data was uploaded to AI platforms, and AI was not used to write any sections of the thesis or generate text content.

Following tools were used during the research project and for the following purposes:

1. ChatGPT – OpenAI GPT-4.1 / GPT-4o

- Used for rephrasing, brainstorming, AI-baseline survey creation, invitations for thesis interviews, helping in thinking and ideation process, and generating the use of AI framework
2. Microsoft Copilot – Copilot with GPT-4/4o Integration
    - Summarization and translation
  3. Claude – Claude 3 Sonnet
    - Helping to create the table of contents
  4. Google Gemini – Gemini 1.5
    - Helping to create the interview questions

The ethical aspects of AI use were considered in this thesis. When considering data privacy, no sensitive or identifiable data were entered to AI tools to ensure confidentiality. Interview transcripts, organizational materials and internal information were managed by the researcher and analysed without AI assistance. This approach ensured participant privacy as well as prevents the unauthorised data exposure. The sources in this thesis were retrieved manually through academic databases to avoid the risk of AI creating inaccurate or non-existent references. No AI-generated references were used and all summaries or explanations by AI were cross-checked against literature. AI was used only for permitted, supportive functions as improving writing or assisting in thinking process. All contributions, analytical decisions and conclusions were made by the researcher ensuring AI did not influence the scientific contribution of this study. Lastly, the use of AI in this thesis followed the guidelines set by the university.

The quality of AI outputs was assured by factchecking and cross-checking as AI systems can produce inaccurate or general statements. The researcher as well manually checked all the content that was produced by AI. No AI-generated answer was included without researchers' confirmation. The researcher is responsible for shaping and validating the final content in this thesis. To minimize risk of bias, hallucinations, and inaccurate information the AI answers were critically evaluated, identified, and corrected.

While AI tools were used in this thesis to support the thinking process, writing, structuring and summarization, the influence of AI was reflected on during the research process. AI suggestions were treated more as advice, ensuring the responsibility for all decisions was maintained by the researcher. All AI-generated outputs were critically evaluated. The use of AI is explicitly reported, ensuring it is clearly reported which tasks were supported by AI and which remained entirely for the researcher. This transparency ensures better credibility and trustworthiness of the study.

## 6 MNC X AI Strategy guidelines

### 6.1 The Strategy Framework

Initiating the AI implementation process requires a clear definition of the overall strategy and its integral elements, serving as a foundational step before addressing the AI vision or operating model, which are discussed later. Based on insights of the interviews and the literature review, four strategic themes were identified as particularly influential in AI adoption: strategic intent, capability base, AI application scope, and organizational enablers and inhibitors. These strategic dimensions are summarized in Figure 8.

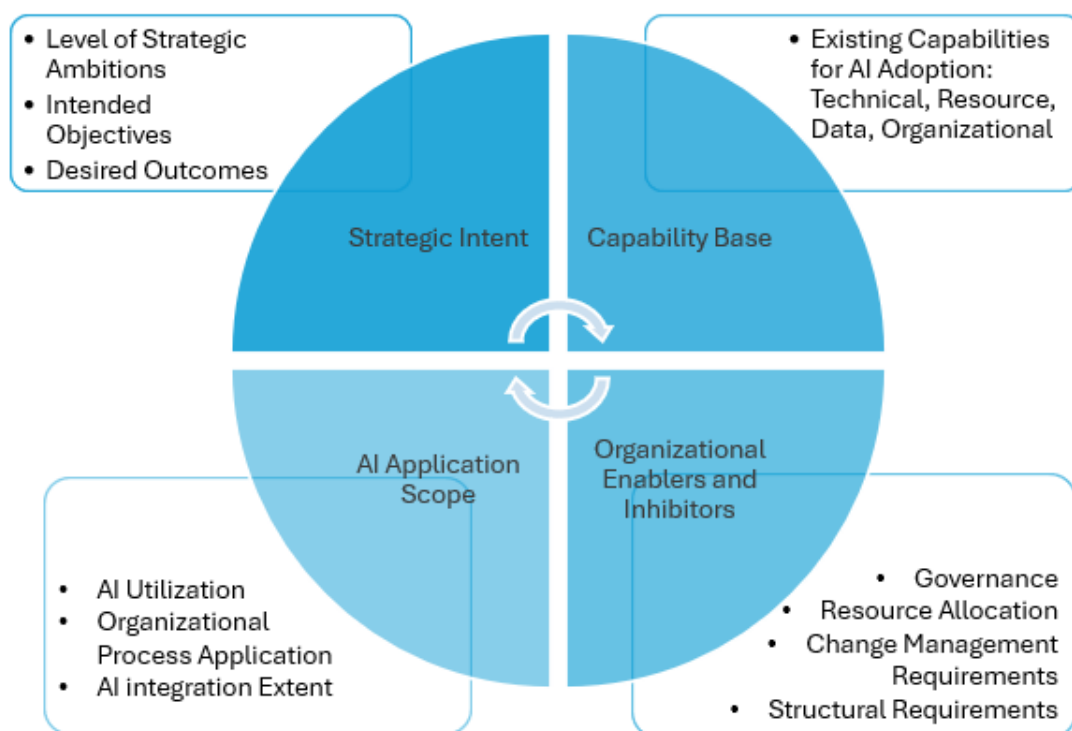


Figure 8 Four Strategic Dimensions of AI Adoption

Beginning with strategic intent, MNC X could adopt an enhancement strategy as defined Ruotsi et al. (2024), which focuses on leveraging AI to improve productivity and optimize processes. While the company's large and established core operations present challenges for full digitalization, AI can still be integrated across various processes and service offerings. The primary objectives of this strategy are to enhance both internal and external processes by applying AI to support services and products, thereby increasing efficiency and reducing errors. Achieving the full potential of this approach requires fostering cross-functional collaboration across the organization.

To implement the enhancement strategy by Ruotsi et al. (2024) effectively, the company should first conduct a thorough analysis of its operations to identify areas where AI can drive improvements. Subsequently, efforts should focus on automating tasks and processes while simultaneously strengthening the value of products and services. This strategy demands proactive leadership engagement, careful planning, and a clear understanding of how AI can enhance organizational performance.

The strategic intent for MNC X should be to enhance operational resilience while simultaneously strengthening its competitive advantage. Rather than pursuing the replacement of core manufacturing processes, the objective should be to augment existing operations through the systematic integration of AI capabilities. Such augmentation would aim to improve operational efficiency, flexibility, and quality performance.

The implementation of AI should focus on process optimization, error reduction, and workflow automation, thereby contributing to enhanced quality control and potentially increased throughput. Insights derived from the interviews indicate a clear organizational demand for AI applications in areas such as predictive maintenance, automated quality inspection, pattern recognition, logistics and supply chain optimization, and advanced data management. Accordingly, the organization's level of ambition should extend beyond isolated pilot initiatives. AI should be developed and embedded as a systemic operational capability, integrated into core processes and decision-making structures, rather than remaining confined to experimental or extempore applications.

*“ We do not create fundamentally new outputs through AI but rather AI enables the acceleration of existing processes and enhances organizational capability and efficiency in performing the tasks the organization was originally established to carry out. ” – Interviewee 4*

When assessing the capability base of MNC X, it is evident that the organization possesses a strong foundation in technical capabilities. MNC X operated within an advanced automation infrastructure characterized by sophisticated robotics, automated guided vehicles, and digitally enabled production systems. Furthermore, investments in an innovation centre signal a strategic commitment to technological developments and experimentation. From a resource-based perspective, these assets can be seen to constitute valuable and difficult-to-imitate resources that can serve as a basis for AI-enabled competitive advantage.

However, while the technical infrastructure is relatively mature, complementary capabilities required for effective AI adoption remain underdeveloped. In line with the literature on AI capability building,

successful AI implementation depends not only on technological assets but also on data, human, and organizational capabilities. At present moment, deficiencies in these domains appear to constrain the organization's AI transformation.

First, data capabilities require substantial strengthening. Although MNC X operates in a data-rich manufacturing environment, the data infrastructure is fragmented across multiple systems, limiting interoperability and the reliability of analytics. Prior research emphasizes that AI performance is highly dependable upon data quality, accessibility, and governance structures. Therefore, investments in integrated data architecture, standardized data governance frameworks, and improved data collection mechanisms are critical for scaling AI applications.

Second, human capabilities represent a significant bottleneck. While technical tools may already be available, the organization lacks sufficient AI literacy and advanced analytical skillsets among employees. AI transformation would require both specialist expertise and widespread organizational-level AI fluency among the employees. Systematic training programs, personalized learning content, cross-functional workshops, and the development of hybrid roles combining task specific expertise with data competencies would enable the organization to extract greater value from the existing AI tools and support more advanced use cases.

Third, organizational capabilities, which are generally well-developed in terms of structured processes and operational efficiency, are not yet aligned with AI-driven innovation. Established processes are optimized for traditional operational excellence rather than iterative experimentation and data-driven decision-making. Prior research as well as the interviews suggest that embedding AI as a systemic capability requires formalized governance structures, clear ownership of AI initiatives, and standardized processes for AI deployment, monitoring, and scaling.

The organization nevertheless benefits from several important enablers. Its highly automated production environment generates large volumes of operational data, creating favourable conditions for AI applications such as predictive maintenance, quality analytics, and process optimization. Moreover, a corporate culture that values innovation represents a critical intangible asset, as cultural openness to experimentation can be one of the key determinants of successful digital transformation. The existence of pilot infrastructures further provides a foundation upon which broader and more scalable AI implementation frameworks can be constructed.

At the same time, several inhibitors must be addressed. Data fragmentation across systems reduces transparency and delay end-to-end optimization. Skill gaps in AI literacy limit adoption and effective

use of AI tools, while potential resistance to change may slow transformation efforts. Leadership alignment, communication, and motivating structures will be essential to mitigate the resistance and foster employee engagement to AI. To summarize, MNC X demonstrates strong technical readiness for AI but faces capability gaps in data management, human capital, and AI-focused organizational design.

Regarding MNC X, the primary application scope of AI centres on augmenting human labour, enhancing decision-making processes, and supporting automated production systems. Rather than substituting human expertise, AI is positioned as a complementary technology that extends employees cognitive and analytical capabilities. AI systems enable the processing and analysis of large volumes of data with greater speed, accuracy, and consistency than would be feasible through manual effort alone.

This augmentation perspective is especially relevant in the context of increasingly complex office work. As the competitive environment becomes more dynamic and the organization pursues new strategic aspirations, such as scaling operations, increasing responsiveness, and managing global coordination, the knowledge-intensive tasks have grown in scope and complexity. AI can serve as a decision-support tool that enhances situational awareness, improves forecasting accuracy, and enables more data-driven managerial decisions.

Considering the organizational point of view, AI adoption thus contributes to managing greater workload and operational complexity without the demand to increase number of employees. By automating routine cognitive tasks and providing advanced analytical insights, AI can allow employees to focus on higher-value activities such as problem-solving, innovation, and strategic thinking. This aligns with the broader literature and interview results on human-machine complementary, suggesting sustainable value creation arises when AI systems are integrated in ways that enhance rather than replace human capabilities. Consequently, the application scope at MNC X reflects a strategic orientation towards AI as an enabler of scalable and knowledge-intensive operations supporting both operational efficiency and organizational adaptability in dynamic competitive environment.

*“ Manufacturing excellence constitutes the core competence and foundation of this company. Artificial Intelligence introduces new elements into this domain; however, it remains primarily a supportive tool rather than a threat to human expertise. A recurring theme in this context is the preservation and continuous development of organizational knowledge and human skills. “ – Interviewee 6*

The strategic integration of advanced technologies as AI into organizational context, to augment and support human capabilities rather than substitutes them, aligns closely with the core principles of Industry 5.0. The developmental focus is gradually shifting from pure automation and efficiency toward a more human-centric approach to business, emphasizing sustainability, resilience, and long-term value creation. In this perspective, technology is not positioned as a replacement for human expertise but as an enabler of enhanced performance.

Industry 5.0 encourages organizations to build capabilities that combine human knowledge and machine intelligence in a complementary manner. AI is viewed as supporting human judgement in complex and context-dependent tasks, enabling deeper analysis, improved decision-making, and new forms of innovation. Through this human-machine collaboration, organizations can create differentiated and adaptive value propositions that are more difficult to replicate.

## **6.2 AI Vision**

When conducting the interviews, one of the most central objectives was to formulate an AI vision for MNC X. An AI vision can be defined as a strategic articulation of what the organization seeks to accomplish through the implementation of AI, as well as the long-term objectives guiding its adoption and utilization. It clarifies the intended role of AI within the broader corporate strategy and establishes a coherent direction for AI-related initiatives.

A well-defined AI vision provides a strategic framework for development efforts, capability building, and the prioritization of investments. It ensures that AI investments are implemented in a systematic, coordinated, and organization-wide manner rather than as isolated experiments. Importantly, an AI vision must be context-specific and developed in alignment with the organization's strategic objectives, existing capabilities, technological infrastructure, and resource base. It should also reflect the company's readiness for organizational change, operational maturity, and competitive positioning, thereby ensuring that AI investments support long-term value creation and sustainable competitive advantage.

The AI vision for MNC X was synthesized from the empirical insights gathered through the interviews. Four key themes emerged as particularly significant: 1) institutionalization of AI capabilities, 2) AI-enabled enhancements of core competencies, 3) AI governance and organizational structures, and 4) integration of AI into core processes. These dimensions of the organizational AI vision are summarized in Figure 9. These dimensions can be interpreted as forming logical and temporal progression, where the institutionalization of AI capabilities provide the foundation for

subsequent AI-enabled enhancements of core competencies, which in turn enables broader integration into core processes.

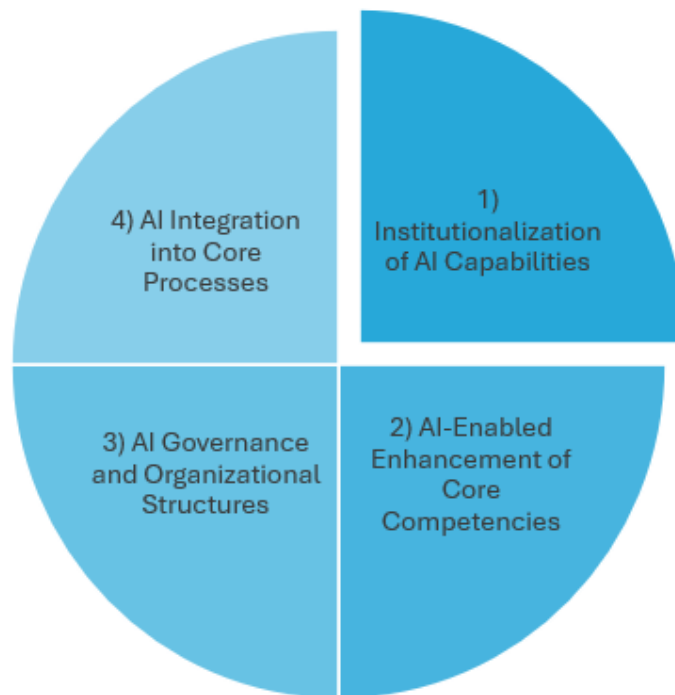


Figure 9 AI Vision: Organizational Implementation Framework for MNC X

The first dimension of the AI vision concerns the institutionalization of AI capabilities. Institutionalization implies that AI is not treated as an isolated technological initiative or a collection of pilot projects, but rather as an embedded and strategically anchored organizational capability. For AI to be institutionalized, it must be explicitly integrated into the corporate strategy, governance structures, and performance management systems. This requires that AI-related objectives are translated into measurable targets, resource allocations, and accountability mechanisms, thereby positioning AI as a strategic priority rather than an experimental add-on.

When AI is embedded in managerial decision-making processes, organizational routines, and knowledge-sharing practices, it becomes increasingly difficult for competitors to imitate. This aligns with prior literature emphasising that competitive advantage does not stem solely from access to advanced technologies, but from organization's ability to integrate, reconfigure, and leverage them effectively within its existing capability base. Institutionalization can be interpreted as a process through which AI is transformed into an organizational resource, which is valuable and rare (Barney 1991).

Moreover, institutionalization requires visible top management commitment and cross-functional leadership. Leadership plays a critical role in articulating a coherent AI vision, clarifying the intended long-term value creation logic, and reducing uncertainty associated with the change. From established strategic foundation, AI-related initiatives can then be systematically translated into operational actions. This includes prioritizing use cases aligned with strategic objectives, allocating resources accordingly, and defining implementation roadmaps. Without this structured linkage between strategy and execution, AI investments may generate short-term efficiencies but fail to contribute to long-term value creation.

To summarize, the institutionalization of AI capabilities forms the foundation of the AI vision by embedding AI into organization's strategy, governance, and routines. Through this process, AI evolves from isolated initiative into a coordinated and scalable organizational capability. It establishes the structural, strategic, and cultural conditions necessary for subsequent dimensions, as AI-enabled enhancements of core competencies and integration into core processes, to take place in a consistent and scalable manner.

*“If the organization lacks a clear understanding of its position in relation to artificial intelligence, it cannot establish expectations for its employees. Consequently, job roles and responsibilities are unlikely to evolve, as there is no strategic direction guiding the change “ – Interviewee 3*

The second level of the AI vision concerns the AI-enabled enhancement of core competencies. In the context of MNC X, core competencies reside primarily in human expertise, professional judgment, and the depth and quality of organizational knowledge. Consistent with the literature on human-machine complementary, AI should not be positioned as a substitute for human capabilities but rather as an augmentative technology that strengthens them. By embedding AI into knowledge-intensive tasks such as analysis, information summarization, forecasting, and decision support, the organization can enhance cognitive capacity, reduce errors, and improve responsiveness without eroding the strategic value of human expertise.

In this model, humans retain a central role at the initiation and conclusion of processes, particularly in defining problems, interpreting outputs, exercising contextual judgement, and ensuring ethical and strategic alignment. Routine, repetitive, and data-intensive tasks can be automated, thereby freeing time and cognitive resources for higher-level activities, including innovation, complex problem-solving, and strategic development. From a resource-based perspective, such human-machine collaboration can strengthen company-specific capabilities that are difficult to imitate. However, realizing these benefits requires systematic capability development, continuous learning, and the

cultivation of AI literacy to ensure that employees can critically evaluate and effectively utilize AI-generated insights.

*“The role of Artificial Intelligence will increase in daily use, but the role of humans in the beginning and end of processes will remain crucial. It is the human who makes the final decision based on the information and output given by AI. “ – Interviewee 4*

*“ The organization’s core offering is expertise. Artificial intelligence is not the product being sold, but rather it functions as an embedded component that supports and enhances the value of the primary offering. “ – Interviewee 12*

The third dimension of the AI vision concerns AI governance and organizational structures, which are critical for ensuring coherent and sustainable adoption of AI across the organization. Effective AI governance requires the establishment of dedicated structures, such as an AI function, centre of excellence, or cross-functional collaboration groups, with clearly defined roles, responsibilities, and accountability mechanisms. The literature and interviews emphasize that fragmented or part-time ownership of AI initiatives often result in incomplete adoption, limited scalability, and failure to realize the strategic potential of the technology. By allocating dedicated personnel or creating a formal AI organization, the company can provide a visible and authoritative driver for AI initiatives, enhancing both coordination and return on investment.

Management plays a central role in AI governance. Designating a prominent individual or team to take ownership of AI implementation by providing guidance, demonstrating the successful use cases, and aligning AI initiatives with strategic objectives can strengthen organizational commitment and reduce resistance to change. Transparency and visibility of ongoing AI projects, enhancements, and successes are also essential to increase trust, facilitate knowledge sharing, and encourage broader adoption across functional areas.

Moreover, AI governance is not solely structural but also cultural and strategic. It encompasses establishing ethical standards, compliance measures, and data management policies, as well as fostering culture of continuous learning and adaptation. By embedding AI governance into the central organizational structures, AI is positioned not as a series of isolated pilot projects but as an integral component of the company’s strategic architecture ensuring AI initiatives are aligned with organizational goals. This enabled systematically managed, and scalable initiatives, ultimately supporting the transformation of AI capabilities into sustainable competitive advantage.

The fourth and final level of the AI vision concerns the integration of AI into core processes, which represents the operational realization of the above-mentioned strategic and organizational foundations. Embedding AI into core business processes is essential for enhancing both efficiency and organizational flexibility. Through the automation of repetitive and standardized tasks, AI can reduce processing times, minimize human error, and optimize resource allocation, thereby strengthening operational performance.

Beyond efficiency gains, the strategic value of AI integration lies in its capacity to augment human expertise. By freeing employees from routine repetitive tasks, cognitive and temporal resources can be redirected toward higher-value activities such as complex decision-making, problem-solving, innovation, and continuous process improvement. In line with the human-machine complementarity perspective emphasized in the literature and interviews, AI should not replace human judgement but rather enhance it, creating synergy capabilities that are difficult for competitors to replicate.

From strategic standpoint, integration into core processes also signals transition from experimentation to institutionalized use. When AI becomes embedded in everyday workflows, performance metrics, and customer operations, it evolves from technological tool into a structural capability of the organization. This level of integration is critical for transforming AI adoption into sustained competitive advantage, as it anchors AI within the company's value-creating activities rather than treating it as an isolated initiative.

*“ All routine tasks that can be automated should be automated, as this constitutes a fundamental driver of productivity improvement. “ – Interviewee 6*

### **6.3 AI Operating Model**

The AI Operating Model is introduced as a structured framework to systematically conceptualize and coordinate the deployment of AI across MNC X, while simultaneously clarifying the organizational capabilities requires for its effective implementation. As AI adoption expands within the organization, the need for a coherent and integrated approach becomes increasingly important. A structured model is essential to guide the interpretation, deployment, scaling, and governance of AI technologies across functional domains.

Prior research indicates that AI is frequently conceptualized as an all-encompassing technology rather than as a portfolio of heterogeneous capabilities, tools, and applications. This conceptual oversimplification may generate unrealistic expectations, misaligned investment decisions, and an underestimation of the complementary organizational, human, and data-related capabilities required

for successful implementation. In absence of a clear operating logic, AI initiatives risk remaining fragmented, experimental, or disconnected from strategic priorities.

The proposed AI Operating Model, presented in Figure 10, addresses these challenges by offering a systematic framework for structuring AI-related activities, for defining roles and responsibilities, and guiding capability development within MNC X. By articulating the interdependencies between technological infrastructure, governance mechanisms, and organizational competencies, the model aims to support the transition from isolated AI experiments to an integrated, scalable, and strategically aligned operational capability.

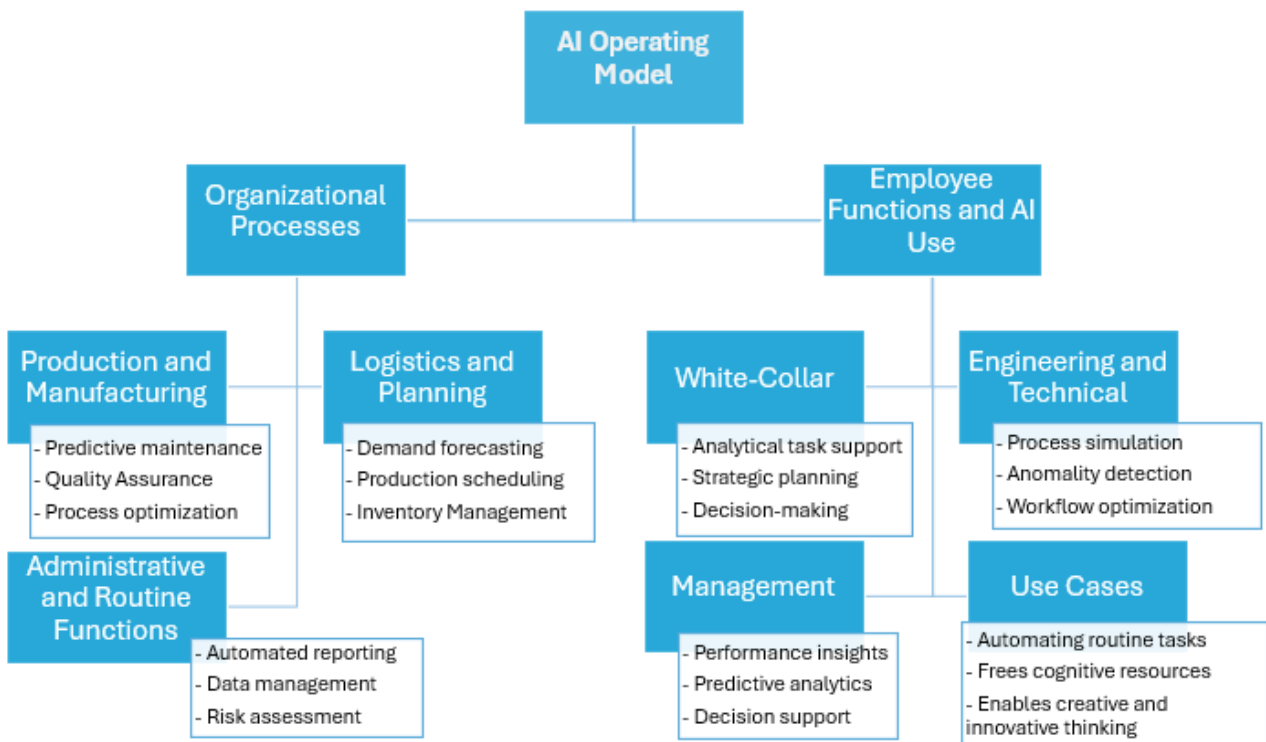


Figure 10 AI Operating Model in MNC X

The AI Operating Model differentiates between organizational processes, employee functions, and AI applications to provide a structures and integrative view of how AI capabilities are embedded within both operational workflows and individual roles. By explicitly distinguishing these dimensions, the model enables a clearer mapping of AI use cases to specific process stages and functional responsibilities. This structured approach facilitates the identification of high-value AI applications, supports the prioritization and optimization of deployment efforts, and enhances transparency in investment allocation. Moreover, by clarifying roles, ownership, and interfaces, the model contributes to the systematic governance of AI usage across the organization. In doing do, it

aims to reduce fragmentation, mitigate implementation risks, and strengthen the organizations' ability to scale AI as an integrated operational capability rather than as a collection of isolated initiatives.

The first dimension of the AI Operating Model focuses on AI applications at the organizational process level. At this level, AI is conceptualized as a capability embedded within core business processes, where its primary role is to enhance operational efficiency and enable systematic process optimization across domains such as production and manufacturing, logistics, and planning. Rather than functioning as an isolated technological tool, AI is positioned as an integral component of end-to-end workflows.

Key considerations at the process level include scalability, cross-functional integration, and organizational agility. For AI initiatives to generate sustained value, they must be deployable at full operational scale rather than confined to pilot settings. Capabilities such as predictive analytics, intelligent process automation, and risk detection mechanisms can streamline workflows across multiple internal functions, thereby improving throughput, reducing variability, and enhancing reliability. Furthermore, AI systems can strengthen data-driven decision-making by supporting demand forecasting, risk assessment, and production scheduling. Through these mechanisms, AI contributes not only to incremental efficiency gains but also to improved responsiveness and adaptability within complex operational environments.

The second dimension of the AI Operating Model addresses employee functions and AI use, emphasizing the role of AI as a tool for augmenting human performance and enhancing work efficiency. Within this dimension, AI is conceptualized not as a substitute for human labour, but as a complementary capability that supports employees in executing their tasks more effectively. For example, AI can automate routine and repetitive tasks such as reporting or data analysis, reducing administrative work and enabling employees to allocate more time for tasks that are value-creating and cognitively more demanding.

Beyond automation, AI can function as a decision-support assistant by providing tailored insights for specific roles. Through advanced analytics and tailored information, AI can enhance situational awareness and support more informed and timed decision-making across different roles. As a result, nature of work becomes more agile and flexible, with employees shift to a more proactive and developmental role, where reasoning and interpretative skills are crucial. Consequently, the integration of AI at the employee level not only improves productivity but also reshapes skill requirements and work practices within the organization.

## 6.4 Roadmap

An AI roadmap constitutes a critical strategic instrument for organizations seeking to leverage artificial intelligence in a structured, sustainable, and long-term manner. In the absence of a clearly defined roadmap, AI initiatives risk remaining fragmented, isolated, and confined to pilot projects with limited organizational impact. Such fragmentation may lead to non-ideal resource allocation, duplicated efforts, and misalignment with broader strategic priorities.

A well-defined AI roadmap provides a systematic framework for assessing existing technological, data-related, and organizational capabilities, identifying high-value use cases, and prioritizing investments in alignment with corporate objectives. By defining phased development stages, governance structures, and capability requirements, the roadmap facilitates coordination across functions and support more coherent decision-making. Moreover, by combining actionable implementation steps with a long-term strategic vision, an AI roadmap enables organizations to transition from experimentation towards scalable, enterprise-wide deployment strengthening the organizations capacity to institutionalize AI as a sustained source of operational and strategic advantage.

*“ A sustainable AI implementation requires that it is built correctly from the ground up. “ – Interviewee 4*

Figure 11 presents the proposed AI implementation roadmap for MNC X, outlining the key phases and implementation steps required to support systematic and scalable AI adoption. The roadmap begins with the formulation of a clear AI vision combined with securing the strong commitment from top management. Executive commitment is essential to ensure strategic prioritization, resource allocation, and organizational alignment across business units.

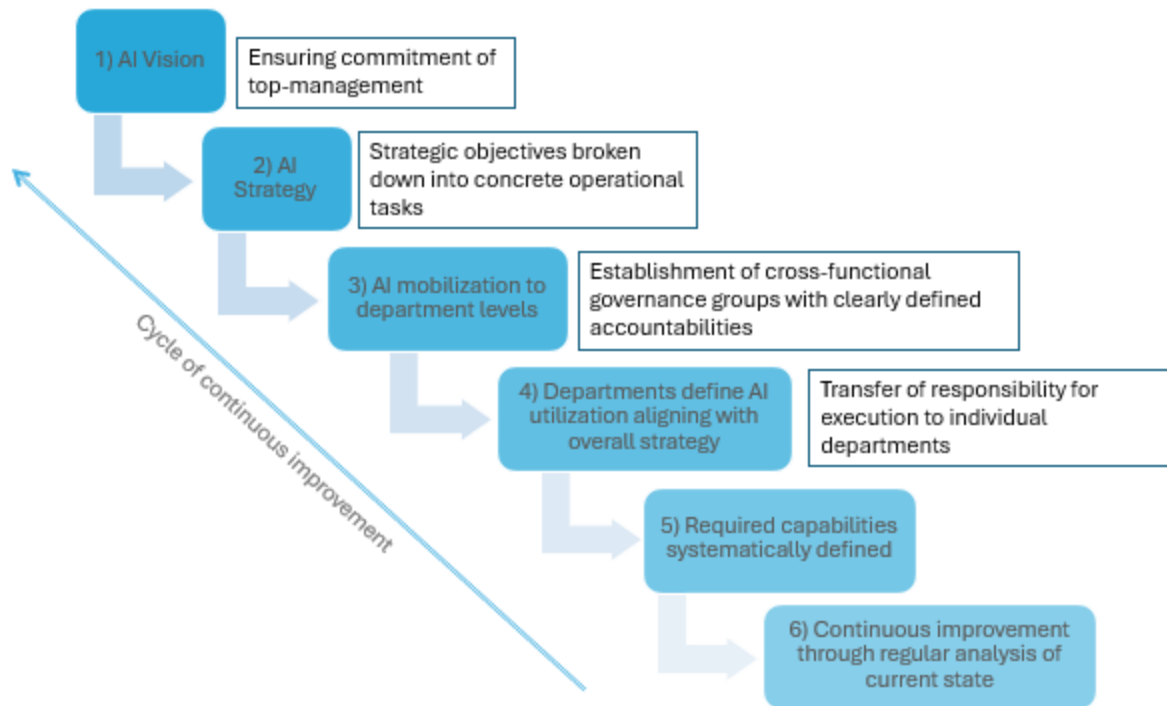


Figure 11 Roadmap for AI Implementation in MNC X

By adhering to this structured roadmap, the organization can ensure that AI initiatives are closely aligned with overarching strategic objectives and positioned to generate sustainable long-term value. The roadmap is conceptualized as a cyclical process rather than a linear sequence, emphasizing continuous learning, capability development, performance evaluation, and iterative refinement. Through this dynamic and iterative approach, AI implementation evolves from isolated initiatives into an embedded and continuously improving organizational capability.

The first stage of the roadmap centres on the formulation of a clear and coherent AI vision. Effective AI implementation should originate at the top-management level, ensuring executive commitment to both the comprehensive vision and its strategic implications. Establishing a well-defined AI vision is essential to align AI initiatives with the organization's broader strategic objectives and long-term aspirations.

The AI vision serves as the foundation for the entire transformation process, articulating why AI is being adopted, what value it is expected to generate, and how it will contribute to operational and strategic development. By clearly defining these elements, the organization creates a shared understanding of AI's purpose and scope. Once articulated and endorsed by management, the vision provides strategic direction for subsequent initiatives, investment decisions, and capability development efforts.

In addition to its strategic function, the AI vision operates as a critical communication instrument. It aligns diverse stakeholder groups by clarifying AI's role within the organization and reducing ambiguity or resistance. By initiating the roadmap with a clearly defined and strategically grounded vision, the organization enhances its ability to focus on long-term, scalable applications rather than fragmented experimentation. The specific AI vision developed for MNC X is presented in Figure 9.

Once the AI vision has been clearly defined, the next stage involves the development of a concrete AI strategy that translates the vision into actionable and measurable plans. While the vision defines the all-encompassing ambition and purpose of AI adoption, the strategy operationalizes these intentions by specifying priorities, resource allocations, and implementation pathways. The AI strategy should be structured around four key strategic dimensions: strategic intent, capability base, organizational enablers and inhibitors, and AI application scope, as illustrated in Figure 8. By systematically addressing these dimensions, the organization can identify high-priority use cases, evaluate capability gaps, and ensure that AI initiatives are closely aligned with broader business objectives.

Furthermore, the strategy should incorporate clearly defined performance indicators and measurable objectives, thereby enabling continuous monitoring, evaluation, and iterative improvement. In this sense, the AI strategy functions as a critical link between long-term ambitions and practical execution. It ensures that AI adoption remains strategically grounded and consistently value-creating. Following the formulation of the AI strategy, high-level strategic objectives can be broken down into concrete operational tasks and implementation initiatives. These can then be communicated and deployed across departments, facilitating coordinated execution and reinforcing organization-wide alignment with the AI vision.

The third level of the AI roadmap is focused on mobilization AI initiatives at the department level, where strategic objectives and organizational AI goals are translated into locally actionable priorities. At this stage, it is essential to ensure that the strategic intent is clearly communicated and that a shared understanding of purpose, expected outcomes, and value creation is established among stakeholders. Departments identify specific implementation areas and use cases based on their operational needs, process characteristics, and performance challenges.

Potential AI applications can be systematically identified by analysing where routine tasks can be automated, where decision-making can be supported, and where existing capabilities can be enhanced. Structuring AI implementation at the department level enables closer alignment with existing workflows and operations, while also allowing for controlled experimentation and iterative

refinement. Such an approach supports organizational learning and capability development. During or following this stage, cross-functional governance groups should be established with clearly defined roles, responsibilities, and accountability structures to ensure coordination, risk management, and scalability across the organization.

The fourth level of the AI roadmap involves departments defining their specific contexts of AI utilization in alignment overall AI strategy. At this stage, departments take ownership for determining how AI can be most effectively applied within their operational environments, while ensuring consistency with strategic objectives, established governance principles, and prioritize value-creation goals. Rather than adopting a generic or standardized approach to AI implementation, departments are encouraged to tailor AI initiatives to their specific process, existing capabilities, and level AI maturity.

This contextualized approach enables stronger strategic alignment and facilitates the embedding of AI into everyday operational activities and decision-making processes. As responsibility for execution shifts to individual departments, AI adoption becomes increasingly integrated into routine workflows rather than remaining centrally driven or experimental effort. From the perspective of sustainable competitive advantage, department-specific adaptation supports continuous refinement of AI usage in response to evolving needs, while maintaining organizational coherence and harmonization. Consequently, AI emerges as an integral component of the business model, embedded within operational practise.

The fifth level of the AI roadmap focuses on the systematic identification and definition of the capabilities required for the successful implementation and scaling of AI initiatives. At this stage, the organization defines the technological, organizational, and human capabilities necessary to operationalize and sustain AI adoption. By clearly defining these capability requirements, the organization can assess its current level of AI maturity, identify capability gaps, and prioritize investments in a structured and strategically aligned manner. This ensures that AI implementation is grounded in operational and strategic readiness rather than being driven solely by technological availability or external trends.

To support this process, organizations may develop structured assessment tools, such as an AI Capability Index to evaluate overall maturity or an AI Skill Matrix as introduced in Table 2. AI Skill Matrix enables employees to assess their individual competencies. Such instrument facilitates systematic evaluation across departments and roles, helping to identify critical skill shortages and inform targeted training initiatives. In addition to formal capability assessments, encouraging

employees to set annual AI-related development goals can help fostering continuous learning, skill enhancement, and proactive engagement with AI tools.

Table 3 AI Skill Matrix for Defining Capabilities

AI Skill Area	Description	Current /Target Level (1-5)	Development Actions
AI Literacy & Foundations	<ul style="list-style-type: none"> <li>Understanding basic AI concepts, terminology, strengths, and limitations</li> <li>Ability to explain how AI affects processes</li> </ul>	1 = Basic awareness 2 = Working knowledge 3 = Independent user 4 = Advanced user 5 = Expert	<ul style="list-style-type: none"> <li>Participate in AI awareness training</li> <li>Attend AI knowledge-sharing sessions</li> <li>Review company AI guidelines and roadmap</li> </ul>
Data Literacy	<ul style="list-style-type: none"> <li>Understanding data quality, bias, and what proper data looks like for different operations</li> <li>Ability to interpret, use, and question data</li> </ul>		<ul style="list-style-type: none"> <li>Train on interpreting data</li> <li>Practise with dashboards and KPIs</li> <li>Learn basic data validation and limitations</li> </ul>
AI Tools	<ul style="list-style-type: none"> <li>Using AI assistants, copilots, and analytical tools for reporting, documentation, analysis, or admin tasks</li> <li>Writing effective prompts and refining AI outputs</li> <li>Communicating about changes and training colleagues</li> </ul>		<ul style="list-style-type: none"> <li>Regular use of approved AI tools in daily tasks</li> <li>Guided practise sessions</li> <li>Peer learning through AI forum</li> <li>Documentation of best practices and examples</li> <li>Provide feedback to AI and IT teams to improve usability and relevance</li> </ul>
Process & Workflow Improvement	<ul style="list-style-type: none"> <li>Applying AI to automate or improve workflows</li> <li>Identifying repetitive or high-variance tasks suitable for or automation</li> <li>Contribution to AI-enabled improvements as reducing downtime, scrap,</li> </ul>		<ul style="list-style-type: none"> <li>Mapping repetitive tasks suitable for AI or automation</li> <li>Contributions to idea bank</li> <li>Use AI tools to analyse bottlenecks, defects, or inefficiencies</li> </ul>

	energy use, and defects		
Decision Support	<ul style="list-style-type: none"> <li>Using AI outputs to support decision-making, input to operations or strategic decisions</li> <li>Knowing when to trust, question, or override AI recommendations</li> </ul>		<ul style="list-style-type: none"> <li>Apply AI to support in projects</li> <li>Validate AI outputs against own expertise</li> <li>Training on interpreting AI recommendations</li> </ul>
Ethical, Safe, and Compliant AI Use	<ul style="list-style-type: none"> <li>Awareness of risks, bias, and compliance</li> <li>Escalating issues when AI may create safety, quality, or compliance risks</li> </ul>		<ul style="list-style-type: none"> <li>Training on data protection and EU AI Act</li> <li>Review ethical AI and security guidelines</li> <li>Increase awareness on bias and misuse risks</li> </ul>
Innovation & Experimentation	<ul style="list-style-type: none"> <li>Proactively looking for AI opportunities</li> <li>Participating in small experiments, sharing learnings, and scaling successful use cases</li> </ul>		<ul style="list-style-type: none"> <li>Participate in AI workshops</li> <li>Propose new AI use cases</li> <li>Test AI tools in controlled environment and share learnings</li> <li>Contribute to AI forum</li> <li>Document experimentation results and improvements ideas</li> </ul>

The final level of the AI roadmap emphasizes continuous improvement and systematic evaluation of the organization's current state. Continuous improvement mechanisms ensure that AI systems evolve in response to changing business needs, technological advancements, and the development of workforce capabilities. Through this process, all ideas, decisions, and implementation steps should be carefully documented, and pilot use cases should be systematically recorded.

This practise preserves organizational knowledge, facilitates knowledge transfer across teams, and prevents the loss of critical insights gained during experimentation. By monitoring outcomes and collecting structured feedback from users and stakeholders, the organization can refine AI applications, identify capability gaps, address operational bottlenecks, and ensure alignment with

strategic objectives. Regular assessment of AI performance and adoption rates is essential to maintain relevance and effectiveness.

To summarize, the proposed AI roadmap provides MNC X with a structured framework for implementing AI in a manner that supports sustainable competitive advantage. The six levels are designed to ensure that AI is embedded systematically into organizational processes and decision-making structures, rather than remaining isolated. By integrating elements such as strategic vision, strategy development, departmental mobilization, capability definition, governance structures, and continuous improvement, the roadmap facilitates the institutionalization of AI as a long-term strategic and operational capability.

## 7 Artificial Intelligence Development and Implementation in Organizations

### 7.1 Organizational-Level Guidelines

To further leverage the insights derived from the baseline survey and the interviews, a set of organizational-level guidelines were developed and are presented in Table 4. These guidelines demonstrate the key responsibilities and objectives across three organizational levels: strategic level, structural level, and individual level. These guidelines provide concrete action recommendations for each level. Although designed with MNC X as the primary context, the guidelines are formulated in a manner that is broadly applicable to other organizations seeking to integrate AI strategically. Emphasizing general principles rather than company-specific process goals, the framework highlights critical areas for AI adoption, capability development, and governance. As such, it serves as a practical reference for institutionalizing AI capabilities and supporting the attainment of sustainable competitive advantage.

Table 4 Organizational-Level Guidelines

Level	Core objective	Recommendations
<b>Strategic level</b>	<ul style="list-style-type: none"> <li>• Strategic goal setting</li> <li>• Defining vision</li> <li>• Governance</li> <li>• Resource allocation</li> </ul>	<ul style="list-style-type: none"> <li>• Create shared and scalable AI vision</li> <li>• Allocate budget and technology to ensure long-term sustainability</li> <li>• Company-wide annual objectives</li> <li>• Securing management's commitment to the objectives</li> <li>• Change management</li> </ul>
<b>Structural level</b>	<ul style="list-style-type: none"> <li>• Strategy implementation to daily operations</li> <li>• Transparent communication</li> <li>• Cross-functional coordination</li> <li>• Developing competences</li> </ul>	<ul style="list-style-type: none"> <li>• Establishment of a AI forum to share results from AI experiments, use cases and a platform for education</li> <li>• Designation of AI ambassadors</li> <li>• Feedback channels</li> <li>• Accessible support provided for the daily use of new AI tools, such as designated support channel or internal chat support system</li> <li>• Create and maintain a registry for ideas</li> <li>• Support continuous improvement</li> <li>• Develop targeted training programs</li> <li>• Augment roles to include AI competence</li> </ul>

<b>Individual level</b>	<ul style="list-style-type: none"> <li>• Increase hands-on tool use</li> <li>• Active participation and a culture of experimentation</li> <li>• Capability development</li> <li>• Increasing AI literacy</li> </ul>	<ul style="list-style-type: none"> <li>• Proactive encouragement to ideate and give feedback early in the adoption process</li> <li>• Develop skills and apply AI in daily tasks</li> <li>• Defining role-based skills levels</li> <li>• Motivation to challenge existing ways of working and innovate</li> <li>• Concrete annual objectives that are reviewed with supervisors</li> <li>• Initiative activities from AI perspective</li> <li>• Sharing knowledge and insights across teams</li> </ul>
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The strategic level of AI adoption focuses on top-management, whose core responsibilities include setting organizational objectives, defining the AI vision, and establishing governance structures for AI initiatives. This level is critical for successful AI implementation, as it determines strategic direction, prioritizes initiatives, and allocates resources. By aligning AI adoption with corporate objectives, management ensures that investments, change management efforts, and capability development support long-term business goals. In summary, the strategic level emphasizes the creation of a clear, corporate-aligned AI vision, supported by responsible governance and sufficient resources.

At the structural or organizational level, the focus shifts to translating the AI strategy into concrete actions within day-to-day operations. Key objectives at this level include fostering transparent communication, promoting cross-functional collaboration, and developing employee competencies through targeted training, lectures, and workshops. Establishing clear communication channels and forums is critical to ensure that information flows effectively across teams and departments. In summary, at the structural level, the AI strategy is operationalized through cross-functional coordination, clear communication, and the systematic development of AI-related skills within employee roles.

At the individual or operational level, the primary objectives centre on active participation, fostering a culture of experimentation, and developing AI-related competencies. This level also involves defining role-specific skill requirements and establishing personal development goals related to AI adoption. Overall, the focus is on developing employee competencies, promoting continuous learning, and contributing to ongoing experimentation and iterative improvement in applications.

Collectively, these guidelines provide a comprehensive framework for institutionalizing AI capabilities across the organization. By clarifying aligning actions across different levels, the model reduces fragmentation and supports coordinated implementation. Although developed in context of MNC X, the principles are applicable to any organization seeking to embed AI as a strategic and operational capability.

## **7.2 Strategic Risks and Challenges**

As artificial intelligence increasingly becomes a standard technological component across industries, organizations are progressively attracted by its potential to generate competitive advantage. However, despite its promise, numerous challenges must be addressed prior to full-scale adoption. These challenges extend beyond implementation related obstacles and encompass the strategic implications of choosing not to adopt AI. A comprehensive understanding of both operational and strategic risks is therefore essential in order to design an AI vision, strategy, and roadmap that are sustainable, feasible, and aligned with overarching business objectives.

While prior literature has identified a range of technological, organizational, and ethical risks associated with AI adoption, the interviews conducted for this study reveal additional challenges grounded in the practical experiences of an industrial multinational corporation. These challenges extend beyond day-to-day operational concerns and reflect broader, high-level strategic risks. As such, they underscore the importance of approaching AI adoption not merely as a technological upgrade, but as a strategic transformation requiring careful consideration of long-term implications, capability development, and organizational alignment.

One of the key risks highlighted in the interviews concerns a misaligned strategic focus in AI adoption. If organizations concentrate predominantly on short-term ROI and operational efficiency gains, they risk overlooking the broader transformative potential of AI. While efficiency improvements are important, AI can also serve as a catalyst for more advanced forms of innovation, enhanced strategic decision-making, and the development of new business models or operating standards.

A narrow efficiency-driven perspective may lead organizations to underestimate the long-term strategic value of AI initiatives, resulting in underinvestment or overly cautious implementation. Consequently, significant opportunities to build sustainable competitive advantage may be missed. Furthermore, when the application scope of AI remains confined to optimizing existing processes, the organizations may fail to reimagine its capabilities, workflows, and value propositions. Such

dependency on one path can constrain organizational innovativeness and limit the transformative impact of AI on future competitiveness.

*“ What is the actual problem that artificial intelligence is intended to solve? If the approach is purely human-centered and the only focus is on resources, trying to drive ROI and efficiency for the company, then we have been examining the issue from the wrong perspective. “ – Interviewee 8*

Another key strategic risk identified in the interviews concerns the potential consequences of failing to adopt AI in timely and systematic manner. For globally operating organizations, the absence of AI integration within core processes may lead to a gradual decrease of competitiveness in international markets. AI technologies can enhance global competitiveness by enabling accelerated process development, predictive maintenance, and more sophisticated analysis of market dynamics. Interviewees expressed concern that organizations failing to leverage AI strategically may lose competitive positioning to firms that integrate AI as a core operational and strategic capability. In rapidly evolving markets, delays in adopting data-driven and AI-supported frameworks may significantly constrain organizational agility and long-term performance.

While insufficient AI adoption presents strategic risks, excessive reliance on AI systems may also create vulnerabilities. Overdependence on AI decision-making can gradually erode critical thinking, domain expertise, and managerial judgement of humans. If AI-generated outputs are accepted without sufficient reflection or contextual interpretation, organizations may develop strategic blindness and reduced adaptability in unexpected situations. Maintaining a balanced human-machine complementary helps ensuring that AI does not replace strategic reasoning and organizational reflectiveness.

*“ An organization that is required to compete in a global market will, over time, lose its competitive position if it does not adopt artificial intelligence in some form. “ – Interviewee 4*

The interviews further emphasized the role of AI adoption in attracting and retaining talent, identifying insufficient AI integration as a potential retention risk. Increasingly, access to highly skilled professionals appears to be linked to an organization's level of AI maturity. Professionals who have previously leveraged AI tools in advanced and productivity-enhancing ways are more likely to be drawn to employers that offer comparable or higher-level technological environments. In many industries, AI-enabled tools are becoming a standard component of knowledge work, shaping expectations regarding workplace efficiency and innovation.

Organizations that are unable to provide access to relevant AI tools or that lack a clear and credible AI vision may risk losing talented professionals to more technologically advanced competitors. This dynamic can create a reinforcing challenge: without employees who are literate and experienced in AI utilization, the organization may struggle to implement and scale AI effectively, thereby further delaying adoption. Moreover, insufficient AI integration may contribute to an outdated organizational image, negatively influencing employer branding and external perceptions. Over time, such reputational effects may weaken the organization's competitive position in both job markets and broader industry ecosystems.

*“ The best experts seek out organizations where they can leverage AI tools. “ – Interviewee 3*

Another high-level strategic risk relates to technological dependency and potential lock-in to vendors. As organizations increasingly rely on external AI platforms and proprietary tools, they may become dependent on specific ecosystems that limit flexibility and strategic autonomy. Such dependency can expose the organization to rising costs, reduced bargaining power, and constrains in customizing solutions to organizational needs. Over time, limited control over critical data assets and AI infrastructures can weaken organization's ability to build organizational capabilities that support sustainable competitive advantage.

The interviews suggest that employees perceive AI-related risks not only in terms of operational and technical challenges, but also through broader strategic viewpoint. While AI adoption undoubtedly involves technological, organizational, and governance-related risks, the potential consequences of failing to implement AI may exert an even greater influence on long-term competitiveness. In particular, the risk of strategic inactiveness, decreased innovation capacity, and declining market relevance emerged as notable concerns. Although high-level strategic risks will vary across organizations depending on industry context, maturity, and competitive dynamics, the risks identified in this study provide indicative guidance for recognizing potential challenge areas. By systematically assessing both the risks of adoption and the risks of non-adoption, organizations can develop more balanced and forward-looking AI strategies that better safeguard long-term performance and strategic positioning.

### **7.3 Support mechanisms and Tools to Manage AI Change**

While technical infrastructure and tools are necessary enablers, their presence alone does not guarantee meaningful implementation or value creation. Instead, structured change management approaches and effective support mechanisms are required to facilitate organizational transition and

capability development. As AI is increasingly more relevant for organizations and begins to influence the core business processes it is crucial for organizations to consider clear structures for project ownership and governance.

Support mechanisms can be defined as critical enablers that establish the foundational conditions necessary for successful AI adoption. The findings of this study highlight several key support mechanisms, most notably governance structures, and continuous capability development. Formalized structures as AI governance team or designated AI leads create accountability and coordination across functions. Continuous development efforts, including training, cross-functional collaboration, and structured learning mechanisms, ensure that AI capabilities evolve in alignment with strategic objectives and organizational needs.

At the strategic level, the interviews underscore that executive commitment not only signals prioritization but also ensures the allocation of adequate resources. Management helps to foster an organizational culture that encourages responsibility, experimentation, and innovation. Moreover, accountability structures for AI-related activities contribute to coherence and reinforced alignment with long-term strategic goals.

At the organizational level, cross-functional collaboration emerges as a central enabler of effective AI adoption. Structures that facilitate cooperation between business units, IT, and domain specialists promote knowledge sharing and joint problem-solving. Such collaboration enables the scaling of successful initiatives across departments. By integrating diverse expertise, organizations can better align AI applications with operations and strategic priorities. Open dialogue regarding AI objectives, expected outcomes, and potential impacts on work practices can reduce uncertainty and mitigate resistance to change. When employees understand both the motivation and anticipated benefits of AI initiatives, trust can be strengthened, and adoption becomes more consistent.

The findings from the study and interviews further emphasize the importance of structured tools in managing AI-related transformation. Such tools provide systematic guidance, for instance, the proposed AI Roadmap in Figure 11 outlines a phased progression. In parallel, the AI Operating Model in Figure 10 clarifies how AI capabilities can be embedded within existing processes, roles, and governance structures.

Other additional instruments as capability assessment framework, the AI Skill Matrix in Table 3, and maturity assessment models identified in the literature introduced in Figure 7 enable periodic reassessment and adjustment of the AI approach as organizational needs and technological conditions

evolve. When applied in combination, they can promote consistency, scalability, and strategic alignment, thereby facilitating a more systematic and sustainable adoption process. Overall, the findings suggest that structured tools and support mechanisms are mutually reinforcing elements in successful AI implementation. Together, they provide organizations with practical means to coordinate initiatives, manage change, and address strategic risks.

## 8 Conclusions and Recommendations

### 8.1 Sustainable Competitive Advantage Through Artificial Intelligence

This chapter examines how the findings of this study relate to existing literature on artificial intelligence and sustainable competitive advantage. Its purpose is to identify key similarities and differences to assess how the empirical results contribute to the broader theoretical understanding of AI as a strategic resource. The chapter highlights areas where the findings align with prevailing theories while also identifying aspects that extend or refine prior assumptions. In particular, the discussion focuses on organizational and managerial dimensions of AI adoption.

Prior literature emphasizes that artificial intelligence remains a conceptually broad and, at times, at times, ambiguous term, encompassing a wide range of technologies and applications under a single umbrella term AI (Silo AI 2024, 18). This conceptual vagueness is also reflected in the empirical findings of this study. At the organizational level, an imprecise understanding of what constitutes AI was associated with unclear implementation practices, fragmented initiatives, and investments lacking strategic coherence. To address this challenge, the study proposes an Operating Model in Figure 10 that underscores the importance of clearly defined structures and responsibilities. The model is created to translate the abstract notion of AI into function-specific applications, governance principles, and processes. By doing so, it supports the transformation of AI into strategically aligned and manageable practices.

In the literature, Industry 5.0 is characterized by an increased emphasis on human-machine collaboration, where technology is not perceived merely as a tool for efficiency but as an enabler of innovation and adaptability in complex, context-specific environments (Tu 2024; Rashid et al. 2024). Rather than replacing human input, technology is positioned as augmenting human capabilities and supporting more creative and strategic forms of work. MNC X reflects a comparable understanding of AI indicating a shift from efficiency-driven automation toward capability augmentation.

Some differences were identified in relation to the perceived risks associated with AI. Prior literature highlights a wide spectrum of concerns, including job displacement, algorithmic bias, ethical dilemmas, and risks of overly narrow or automated decision-making (Rashid et al 2024; Kemp 2024, 620). In contrast, the findings of this study suggest that organizations primarily frame AI-related risks from an operational and strategic standpoint.

The interviews indicated that concerns were less focused on societal consequences and more centred on internal capabilities, implementation readiness, governance clarity, and the practical integration of AI into existing structures and processes. Notably, the absence of AI adoption was itself perceived as a major strategic risk. At the same time, a degree of cautious reflection emerged regarding the long-term sustainability and maturity of current AI development. Some interviewees speculated about the possibility of an “AI bubble,” expressing uncertainty about whether the current expectations may exceed realistic long-term value creation. This dual perspective illustrates a tension between the urgency to adopt AI and the need for critical evaluation of its long-term trajectory.

In contrast to the differences observed in risk perceptions, the challenges identified in the literature and in the interviews were largely aligned. Prior research consistently highlights obstacles such as shortage of relevant talent, undefined or weakly articulated use cases, limited scalability of infrastructure, unclear business processes and ownership structures, insufficient investments, and the absence of a coherent AI strategy or roadmap (Silo AI 2024, 11). The interviews conducted in this study reflected similar concerns. MNC X was found to struggle with clarifying ownership, defining scalable use cases, and ensuring adequate competencies and coordination across units. This alignment between theory and empirical findings suggests that the challenges emphasized in the literature accurately capture the practical realities organizations encounter in AI adoption. Consequently, the study reinforces the relevance and timeliness of existing academic discussions while providing contextual insight into how these challenges manifest at the organizational level.

Regarding the foundations of AI strategy, prior literature emphasizes the importance of a clearly articulated vision, a thorough understanding of technological and strategic requirements, long-term commitment, and coordinated or centralized governance structures (Asikainen 2025; Silo AI 2024, 12; Al-kfairy 2025, 9-10; Savolainen et al. 2024). These elements are presented as prerequisites for moving beyond isolated experimentation towards systematic and value-driven AI adoption. In relation to both the identified challenges and strategic foundations discussed in the literature, this study contributes to theory and practise by offering concrete responses to several of these requirements.

An AI Strategy Framework presented in Figure 8 was developed to tailor organizational needs, accompanied by a clearly defined AI Vision in Figure 9 to guide long-term direction. In addition, a structured Roadmap was proposed in Figure 11. By addressing gaps identified in both the literature and the empirical findings, these contributions provide actionable guidance for organizations seeking to leverage AI as a source of sustainable competitive advantage. The study aims to extend existing

discussions by operationalizing strategic principles into practical tools that support coherent and long-term AI integration.

When considering AI risk mitigation strategies, prior literature outlines multiple approaches, including careful integration planning, comprehensive education and training initiatives, and the formal incorporation of AI into organizational strategy with clearly defined objectives and governance structures (Rashid et al. 2024; Silo AI 2024, 12; Al-kfairy 2025, 11). Similar themes emerged in the interviews, complemented by the practical solutions developed in this study. Particularly significant finding in the interviews was the emphasis on establishing a dedicated organizational role or unit responsible for leading AI transformation. Such a structure enhances coordination across functions, clarifies ownership, and reduces the risk of fragmented initiatives. It was reinforced, that the AI solutions are only as effective as the knowledge and skills of those operating them. These results not only confirm existing recommendations but extend them by providing organizational-level guidance for effective risk mitigation in practice.

Literature underlines the importance of creating space for reflection, experimentation, and organizational learning, as well as fostering a culture that actively supports AI adoption. Leadership engagement is portrayed as particularly critical, as organizations that lack the ability to envision diverse AI-enabled futures are unlikely to achieve them. (Kotola & Turunen 2024; Silo AI 2024; Savolainen et al. 2024.) The findings from the interviews align closely with these principles. Long-term commitment, visible top management support, and cultural readiness were repeatedly highlighted as central enablers of successful AI integration. Furthermore, the insights derived from the literature directly informed the development of the strategic framework and recommendations proposed for the case company, combining theoretical perspectives with practical application.

This study reinforces the view that AI should be approached as a strategic and long-term commitment, comparable to traditional business strategies. A systematic approach, where existing processes are first critically reviewed, relevant use cases carefully identified, and initiatives are operationalized through structured tools, enhances the precision and relevance of AI deployment. By grounding AI applications in clearly defined business needs, organizations can reduce the risk of misallocated resources and underutilized solutions. The findings and models presented form a foundation for the managerial implications and future research directions discussed in the following chapters.

This thesis contributes to the existing literature by operationalizing AI-enabled competitive advantage for industrial MNCs through a set of interlinked managerial frameworks: the AI Strategy Framework (Figure 8), AI Vision (Figure 9), AI Operating Model (Figure 10), and a phased AI Roadmap (Figure

11). These frameworks demonstrate how AI can be institutionalized as an organizational capability, rather than pursued through isolated pilots or fragmented initiatives. Together, they provide a structured, scalable approach for embedding AI into strategy, governance, and operational processes.

Conceptually, this thesis bridges RVB and Dynamic Capabilities by explaining how AI becomes valuable, inimitable, and durable only when supported by strong governance and ownership structures. It clarifies how such structures transform generic AI tools into company-specific capability bundles that competitors cannot easily replicate. Through this perspective, AI adoption is reframed as a strategic capability-building process rather than a technological upgrade.

Furthermore, this thesis identifies foundational structures, as defined roles, cross-functional forums, organizational routines, and a role-based AI Skill Matrix, which translate abstract strategic principles into repeatable and scalable practice. These elements specify how human, organizational, and IT capabilities interact to enable long-term value creation. As a result, the thesis offers a concrete, practice-oriented explanation of how industrial MNCs can systematically build and sustain AI-enabled competitive advantage.

## **8.2 Managerial Implications and Recommendations**

This study provides managerial implications and recommendations for organizations seeking to integrate AI into their operations and strategic objectives. While technological infrastructure and tools are important, they do not themselves determine success. Rather governance, leadership commitment, capability development, and structural alignment play a decisive role. The findings further indicate that when AI initiatives are treated mainly as pilots or isolated efficiency-driven projects, organizations are likely to remain in a prolonged experimentation phase.

The findings of this study underscore that AI should be treated as a strategic capability rather than merely an operational tool. Managers are encouraged to define a clear strategic role for AI within the organization, ensuring alignment with hybrid competitive strategies (Porter 1985) and leveraging AI to create unique resource combinations (Barney 1991; Dzreke 2025). When guided by well-articulated strategy, AI can complement human capabilities and contribute to sustainable competitive advantage instead of simply automating existing processes.

Strategic integration also requires embedding AI into organizational routines and decision-making structures in ways that strengthen dynamic capabilities (Teece 2018). This involves, for example, establishing feedback mechanisms that support continuous learning and designing governance

structures that enable AI to enhance adaptability and innovation. In this sense, AI becomes part of the organizations capability to recognize and transform in response to the dynamic market conditions.

Workforce capability development is equally critical. Managers should systematically identify skill gaps, invest in reskilling initiatives, and align human expertise with AI systems to maximize human-machine complementarity (Savolainen et al. 2024; Dzreke 2025). The introduction of tools such as a skill matrix can support this process by clarifying required competence levels and linking AI adoption to inimitable resource configurations.

When considering investment in or its integration into organizational processes, managers must move beyond viewing AI as a discrete technological upgrade. Instead of positioning AI as an extension of IT development or efficiency optimization, organizations should evaluate how AI reshapes value creation logic, decision-making structures, and competitive positioning. The findings of this study suggest that competitive advantage does not arise from isolated AI applications, but from the extent to which AI is embedded into strategic priorities and organizational routines.

Rather than emphasizing short-term financial returns as the primary justification for AI initiatives, management should assess how AI contributes to capability development, innovation potential, and long-term adaptability. This requires explicit strategic prioritization, including the articulation of how AI supports core business objectives and differentiates the organization in its competitive environment. Embedding AI into executive-level discussions and governance structures ensures that investments are evaluated not only in terms of immediate efficiency gains, but also in relation to long-term strategic transformation and value creation.

The findings highlight the importance of clearly defined ownership and governance structures for AI. While prior literature on AI strategy and implementation emphasizes vision, capabilities, and technological readiness, the explicit question of organizational ownership received limited attention. The empirical results of this study indicate that the absence of clearly assigned responsibilities and governance mechanisms leads to fragmented initiatives, unclear accountability, and reduced organizational learning. To address this challenge, a formal AI governance structure should be established. This may include a dedicated AI function, steering group, or clearly mandated leadership role responsible for prioritization, coordination, risk management, and regulatory alignment. Clear accountability structures not only reduce duplication and inefficiencies but also enable more decisive implementation and systematic knowledge sharing across units. From managerial perspective, executive leadership plays a central role in legitimizing AI initiatives and embedding them within the

organization's operating model. By clarifying ownership management can ensure coherence, transparency, and scalability.

When considering implementation approaches, prior literature emphasizes the progression from experimentation toward scalable deployment. While initiating AI adoption through small-scale pilots is recognized as beneficial for learning and risk reduction, the interviews conducted in this study underscored that experimentation alone is insufficient as broader strategic impact remains limited. The findings indicate that an AI strategy must be supported by structured tools and organizations failing to adopt such a structured approach risk weakened competitive positioning and employer attractiveness in increasingly AI-oriented markets.

When implementing AI, alignment with organizational structures and core processes is essential. If AI initiatives are detached from existing operating models, they risk remaining isolated and delivering limited impact. Integration should therefore be guided by a clearly defined operating model tailored to the organizations structure and governance logic. A structured operating model clarifies interfaces between central AI coordination and business units, reducing ambiguity in roles and decision-making. At the same time, department-level implementations must reflect overarching strategic priorities while allowing contextual flexibility, this balance between central alignment and local adaptation supports coherent deployment without constraining functional relevance.

The results emphasize the role of capability development across all organizational levels. While prior research acknowledges AI literacy, the emphasis has often been on technical expertise. This study extends that view by highlighting the importance of broad AI awareness and clear usage guidelines also for non-technical employees. Effective utilization depends not only on access to tools but on the competence to apply them meaningfully in daily work. Systematic capability definition is therefore necessary. Instruments such as an AI Skill Matrix can help assess individual proficiency levels and link them to annual development objectives. Positioning AI literacy as a core competence, relevant for both managerial and operational roles, supports organization-wide maturity and reduces the risk of underutilized investments.

From a learning perspective, training initiatives should be tailored to individual needs, competencies, and development paths. Adaptive learning approaches can account for an employee's role, prior knowledge, and specific work tasks, enabling the delivery of targeted and context-relevant content supporting skill-based progression. Ultimately, personalized learning contributes to stronger alignment between individual capabilities and the organization's evolving skill requirements.

Competitive value is created when AI augments human judgement, supports complex problem-solving, and enhances creative capacity. An overemphasis on replacement risks eroding firm-specific knowledge, weakening employee engagement, and undermining the social foundations of performance. Accordingly, AI use cases should prioritize augmentation. Automating routine and repetitive tasks can release time for analytical, strategic, and innovative activities where human contribution remains critical. Structured support strengthens complementarity and maximizes the joint value created by human and technological capabilities.

AI-related risks should be addressed proactively to prevent concerns from slowing or undermining adoption. Organizations are advised to establish structured risk management mechanism that align with applicable regulatory frameworks, such as the EU AI Act. Clear governance policies and usage guidelines enhance transparency and accountability, thereby strengthening trust both internally among employees and externally among stakeholders. Given the rapid evolution of AI capabilities, continuous evaluation is equally important. Organizations should implement regular assessment mechanisms to monitor performance, compliance, and strategic alignment. Periodic reviews enable timely adjustments, ensuring that AI solutions remain relevant, responsible, and aligned with long-term organizational objectives.

Beyond internal implementation considerations, AI adoption also carries broader environmental implications. The growing demand for AI solutions has increased energy consumption, particularly in large-scale data centres required for model training and deployment. This development has intensified public discussion regarding emissions, energy efficiency, and the long-term sufficiency of resources. In addition to operational energy use, the production of AI-related hardware depends on scarce raw material and specialized components. Such cost pressures can affect not only organizations investing directly in AI infrastructure but also broader technology markets, creating ripple effects across industries reliant on similar components. Large-scale AI models, particularly cloud-based large language models, consume substantial computational power and energy, with additional demands for cooling and data transfers. (Jang 2025.)

Organizations can mitigate these impacts through several approaches. First, processing AI tasks locally, when possible, reduces energy-intensive data transfers while enhancing privacy and performance. Second, selecting models appropriate to the task, rather than defaulting to large models, can reduce computational load. Third, grouping tasks and optimizing workflows helps minimize unnecessary energy consumption. (Jang 2025.)

In conclusion, the findings underscore that successful AI adoption depends on strategic leadership, organizational readiness, and ongoing capability development. The managerial implications extend beyond MNC X and are relevant for a broad range of multinational corporations across industrial and other sectors. By framing AI as an organization-wide transformation rather than a series of isolated pilots or purely technological investments, managers can better capture the sustainable competitive advantage offered by AI while addressing strategic risks. The critical question for organizations is not whether AI will transform their operations, but whether management is prepared to deliberately guide that transformation. Organizations that proactively embed AI across their structures and processes are more likely to remain competitive, whereas those that delay adoption risk falling behind in an increasingly dynamic global landscape.

### **8.3 Limitations of the Study**

This study is subject to a few limitations that should be acknowledged. First, it approaches AI primarily as a strategic and organizational phenomenon rather than a technological one. While this perspective enables a deeper understanding of governance structure, strategic alignment, and operationalization processes, it limits the analysis of technical feasibility, systems architecture, and implementation-specific challenges. The study does not evaluate the performance or effectiveness of specific AI systems or solutions. Instead, the focus is on broader conditions under which AI can generate sustainable competitive advantage and strategic value. As a result, the findings emphasize managerial perspectives and strategic intentions related to AI adoption.

A clear distinction should be made between strategic intentions and actual operational outcomes. The findings capture how AI is perceived, framed, and positioned at the organizational level, rather than measuring the concrete performance or effectiveness of specific AI applications in practice. Therefore, differences may emerge between intended objectives and realized outcomes, suggesting a need for future research to examine the practical impacts of AI implementation more closely.

First, the empirical data were collected from a single industrial multinational corporation, which may limit the generalizability of the findings. Although the case organization represents a relevant context for examining AI strategy and organizational transformation, particularly among similar Nordic industrial companies, the results may reflect company-specific structures, culture, and strategic priorities. In addition, the organization was examined at a particular stage of its AI maturity journey. Its practices, capabilities, and governance structures are still evolving, meaning that the study captures a transitional phase rather than a stabilized or fully developed model. Consequently, the conclusions

should be interpreted as insights into an ongoing transformation process rather than evidence of a finalized strategic framework.

Although the frameworks and guidelines proposed in this study were developed for MNC X, they may be applicable more broadly. However, their effectiveness is contingent upon organizational context, including factors such as regulatory environment, industry characteristics, and existing capabilities. The study offers conceptual insights that organizations can adapt to their specific strategic and operational circumstances. Overall, these limitations are acknowledged to clarify the boundaries of the analysis and to emphasize that AI strategy should be understood as a dynamic and context-dependent process, not as a static or universally transferable model.

#### **8.4 Suggestions for Future Research**

Building on the findings of this study, particular emphasis is placed on the role of organizational capabilities and strategic alignment in AI adoption. Several directions for future research emerge from this perspective. Current academic literature on AI strategy remains relatively limited and often concentrates on short-term implementation outcomes, efficiency improvements, or isolated use cases. There is a clear need for research that examines AI from long-term strategic perspective rather than primarily through ROI metrics.

One important aspect concerns the development of AI-related human capabilities. Future research could explore what types of skills are required across organizational levels, how these competencies evolve over time, and how organizations can support continuous learning beyond initial training initiatives. Investigating the longitudinal development of AI capabilities would enhance understanding of how sustained value creation can be maintained in dynamic technological and market environments.

Another relevant area related to the integration of AI into the operating model after initial adoption. Future research could examine how AI becomes embedded within existing processes, governance mechanisms, and decision-making structures once the experimentation phase has passed. Particular attention could be given to cross-functional collaboration and the alignment between AI-enabled operations and strategic objectives.

Additionally, the trade-off between internal AI development and reliance on external provider requires further investigation. Factors such as speed to market, organizational competence, cost structures, data security, and long-term strategic positioning may influence this decision. Deeper

analysis could provide guidance on how organizations balance internal capability building with ecosystem partnerships in pursuit of sustainable competitiveness.

Finally, future research could assess whether AI represents a lasting structural transformation or a transitional phase in organizational development. While current trajectories suggest that AI will become increasingly embedded in business processes, long-term studies are needed to evaluate its durability as a strategic capability. Advancing research beyond short-term performance outcomes towards AI as a dynamic, evolving strategic resource remains a critical priority.

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## Appendices

### Appendix 1 AI Baseline Survey Structure and Content

Knowledge and Attitude	I understand what artificial intelligence (AI) means and how it works at a general level.
	I am familiar with practical examples of applying AI in working life.
	I have used AI (e.g., ChatGPT, Copilot, analytics) in my work or free time.
	I am interested in learning more about using AI in my work.
	I have been provided with the necessary tools by the company.
	I have received sufficient training from the company on the use of AI and the related risks.
Benefits and Risks	I see AI as a useful tool in my work environment.
	AI can improve the efficiency of my work.
	AI can improve the quality of my work.
	AI can bring new innovations and ideas to my work.
	Lack of skills is one obstacle to utilizing AI.
	Uncertainty related to data security and reliability is one obstacle to utilizing AI.
	I recognize the AI tools authorized by the company.
	I know what kind of information I can safely upload to AI applications.
	The company has provided sufficient information about the safe use of AI.
Competitive Advantage Perspective	AI could give our company a competitive advantage compared to other players in the industry.
	With the help of AI, we could deliver more value to customers than our competitors.
	Utilizing AI could improve the company's decision-making and responsiveness in the market.
	Our company's organizational culture and leadership support the adoption of innovative technologies, such as AI.
	The company has a good and clear AI strategy.
Future Needs	I would need basic training on utilizing AI in my work.
	I would need practical "hands-on" workshops for using AI applications.
	I would need guidance on the safe and ethical use of AI.
	I would need examples of how other companies in the industrial sector are successfully leveraging artificial intelligence.
Current use, Potential, and Impact	I use AI tools regularly in my work.
	Current AI applications effectively support the performance of my work tasks.
	I see clear opportunities for broader use of AI in my own work.
	AI could reduce the burden of routine tasks and free up time for more creative work.
	The use of AI improves the quality and productivity of work.
	The company has successfully implemented AI effectively in its operations.
	What opportunities do you see in leveraging AI to build the company's competitive advantage?

Open answers	In which work tasks do you find AI most useful?
	What are the biggest challenges or shortcomings related to AI at the company?

## Appendix 2 Interview Themes

1. What is your role in the organization, and how are you involved with artificial intelligence in your work?
2. How is AI currently being utilized in your organization?

### Strategic Vision and Goal Setting

1. Future Ideal State: What role do you envision AI playing as a core component of the company's business and competitive advantage over the next 5–10 years? (Describe the "dream scenario" you are aiming for.)
  - a. How can we ensure that AI becomes a permanent part of our operations?
  - b. How should the use of AI be monitored and developed going forward?
2. Clear Competitive Advantage: What is the most tangible business benefit or competitive edge that AI initiatives should deliver to the company in the coming years? (e.g. productivity, new services, process speed, etc.)
3. Current Barriers: What are the biggest current strategic gaps or bottlenecks (e.g., in data management, skills, budget) that prevent us from reaching this ideal state?

### Employee Engagement and Change Management

1. Changing Job Roles: How do you see AI changing the daily tasks and roles of regular employees?
2. Current Engagement Practices: How is it currently ensured that employees at various levels can participate in or influence the design and implementation of AI solutions?
  - a. How do we ensure that AI complements human work rather than replaces it?
3. Strengthening Engagement: What concrete actions should be taken to ensure that staff feel ownership of the AI transformation and are motivated to support it? (How do we ensure a genuine increase in capability rather than just automation?)

4. Job Retention: How can we ensure that the adoption of AI is seen as an opportunity to develop employee skills and retain jobs within the company? (e.g., retraining, creating new roles)

### **Risks, Ethics, and Sustainability**

1. Key Threat: What is the most critical threat or risk (e.g., cybersecurity, ethics, data governance, employee resistance) to long-term, sustainable AI implementation?
  - a. What is the risk of the "status quo" scenario?
2. Ethical Principles: Does the company have clear ethical guidelines or principles related to the use of AI? If so, how are they implemented in practice?
3. Resource Realism: Regarding the resources required to achieve the desired "dream scenario" — what can we realistically implement in the short term to avoid major risks and get started?

### **Appendix 3 Interview II Themes**

1. Future Job Role: How has AI already changed, or how is it likely to change, your key work tasks over the next 1–2 years?
2. Value of Work: What routine tasks would you like AI to handle so that you have more time to focus on your core expertise or customer work?
3. Skills: What new skills or training do you think you need the most to use AI effectively in your work?
4. Access to Information: How would you like the company to communicate about AI experiments, new pilots, and implementations?
5. Feedback Channel: What would be the best or easiest channel (e.g., workshop, team meeting, dedicated forum) for you to give development ideas or feedback on AI solutions?
6. Clarity of Goals: Do you feel that the goals and benefits of the company's AI strategy have been clearly communicated in relation to your work? If not, what information is missing?
7. Sharing Ideas: Do you feel that employees' practical ideas and concerns are currently considered well enough when developing AI solutions? If not, how could this be improved?

8. Inclusion: If you could create a practical mechanism (e.g., a new role, way of working in teams, reward system) to best include and motivate employees in AI development, what would it be?
9. Everyday Support: What kind of support or mentoring would you need in the initial stages of adopting a new AI tool to make it a permanent part of your work routine?

## Appendix 4 Prompts

**Claude AI (8.9.2025)** Assist me in developing a structured table of contents for a research paper examining how industrial firms can leverage artificial intelligence to achieve sustainable competitive advantage

**ChatGPT (9.9.2025)** Please rephrase the following chapter titles to make them more concise and academically appropriate: Literature Review; Competitive Advantage Theory; AI in Business Strategy; AI Applications in Office Work; Strategic Implementations; Theoretical Framework for AI-Driven Sustainable Competitive Advantage.

**ChatGPT (9.9.2025)** Help me generate potential sub-questions related to the previously defined research topic.

**ChatGPT (9.9.2025)** Please reformulate the following research questions to sound more professional: How can competitive advantage be created? What competencies are needed? How can AI be integrated into organizational operations?

**ChatGPT (15.9.2025)** I would like to design a baseline AI survey for white-collar employees in my company. Its purpose is to support my thesis by assessing the organization's current AI maturity. Could you draft a preliminary survey that addresses these objectives?

**ChatGPT (16.9.2025)** Please suggest an academically suitable title for a chapter discussing AI opportunities, risks, mitigation strategies, and relevant legal frameworks.

**ChatGPT (5.11.2025)** Help me draft an invitation for interview participants for my thesis. The interview concerns leveraging AI in the industrial sector for sustainable competitive advantage. The tone should be neutral yet slightly informal, and the interview will take place remotely via Teams for approximately 45 minutes.

**Gemini (4.11.2025)** Assist me in formulating interview questions for employees and managers of a large industrial company. The interviews focus on long-term and sustainable AI implementation, future organizational vision, required actions, risks and mitigation, ideal future scenarios, available and missing resources, and human sustainability considerations such as job retention.

- a) My contribution will be to propose an AI implementation goal and suggest how employees can be effectively involved. Please adapt the questions accordingly.
- b) Please tailor the questions specifically for white-collar employees to identify effective communication channels for AI experimentation and implementation, and ways to involve employees in the process.
- c) Ultimately, I plan to create a diagram outlining recommendations for employees, the organization, and leadership.

**Copilot (6.11.2025)** Please summarize the following text describing current uses of AI in work tasks, including chatbots, virtual assistants, document processing, ideation support, and information retrieval, noting that all outputs must be verified against existing knowledge or other sources.

**Copilot (6.11.2025)** Summarize the following text outlining current AI-related challenges in the organization, including rules and practices, slow integration, reliability issues, errors, and safety concerns...

**Copilot (6.11.2025)** Translate the following interview questions into English: ‘Mikä on roolisi organisaatiossa ja miten olet tekemisissä tekoälyn kanssa työssäsi? ...’

- a. Additionally translate: ‘Työnkuva tulevaisuudessa: Kuinka tekoäly on jo muuttanut tai kuinka se todennäköisesti tulee muuttamaan tärkeimpiä työtehtäviäsi seuraavan 1–2 vuoden aikana? ...’

**ChatGPT (16.11.2025)** Help me analyze how the lack of prior research and the absence of established theoretical frameworks may negatively affect the credibility of the study. Conversely, what factors could enhance credibility?

- a. Address the same question with respect to transferability.

Address the same question with respect to confirmability.

**Copilot (21.11.2025)** Please translate the attached text (picture insert)

**ChatGPT (21.11.2025)** Since no widely adopted framework exists for analyzing AI use in research, I intend to develop my own to improve transparency. The framework will address aspects such as purpose, boundaries, and tools. Can you help me generate ideas for such a framework?

**ChatGPT (8.1.2026)** I want to create an AI operating model diagram that distinguishes between company processes (e.g., logistics, manufacturing) and employee groups (e.g., white-collar workers, engineers), including concrete AI use cases. Can you help make the model more academically robust?

**ChatGPT (8.1.2026)** Please translate the following text: ‘selkeä osa strategiaa, johtamista ja mittareita...’

**ChatGPT (16.1.2026)** Help me develop an AI skill matrix to assess employees’ capabilities. Please suggest potential development actions for each skill category.

**Perplexity (16.1.2026)** Can you refine the AI skill matrix capabilities and indicate whether any competencies are missing or need adjustment?

**ChatGPT (20.1.2026)** Please rephrase the following sentences to make them more academically appropriate.

**ChatGPT (26.1.2026)** Help me structure these ideas on AI support mechanisms and tools for managing AI-related organizational change into more concise text.

**ChatGPT (28.1.2026)** Help me identify possible limitations of my study on the AI strategy of MNC X. I have already discussed the following themes....

**ChatGPT (29.1.2026)** Provide suggestions regarding what aspects should be included in the thesis abstract.

**Copilot (30.1.2026)** Translate the following text into Finnish.

**ChatGPT (2.2.2026-27.2.2026)** Please rewrite and rephrase the following text to improve academic clarity and style.

**Copilot (27.2.2026)** Please assist me in rewriting the prompt section to ensure it reflects a more formal and academically appropriate tone.