Implementation of Artificial Intelligence in Enterprises: Challenges, Opportunities, and Success Factors

Luca Allemann

Dissertation written under the supervision of Professor Pedro Parada

Dissertation submitted in partial fulfilment of the requirements for the MSc in Management with specialisation in Strategy, Entrepreneurship and Impact, at Universidade Católica Portuguesa, 12th September 2024.

Abstract

The adoption of artificial intelligence (AI) technologies in organizations has been very rapid and is changing the way organizations approach their business. This dissertation analyzes how different aspects of the challenges and opportunities of AI are impacting companies. It covers important areas such as data management, organizational changes and the legal aspects of AI adoption. Based on interviews with experts from different industries, the dissertation identifies many factors that are crucial for the successful implementation of AI. Furthermore, the dissertation shows that while the application of AI has numerous positive effects on business processes and customer relationships as well as on decision-making, it also raises certain concerns and questions, including those related to data protection, ethics and the cost of implementation. Finally, a tactical approach is presented on how companies can integrate AI into their operations and reap the associated benefits while minimizing the pitfalls associated with AI.

Keywords: Artificial Intelligence, Implementation, Corporate Strategy, Data Strategy, Machine Learning, Change Management, Ethics, Production Optimization

Title: Implementation of Artificial Intelligence in Enterprises: Challenges, Opportunities, and Success Factors.

Author: Luca Allemann

Sumário

A adoção de tecnologias de inteligência artificial (IA) nas organizações tem sido muito rápida e está a mudar a forma como as organizações abordam os seus negócios. Esta dissertação analisa a forma como diferentes aspectos dos desafios e oportunidades da IA estão a ter impacto nas empresas. Abrange áreas importantes como a gestão de dados, as mudanças organizacionais e os aspectos legais da adoção da IA. Com base em entrevistas com especialistas de diferentes indústrias, a dissertação identifica muitos factores que são cruciais para o sucesso da implementação da IA. Além disso, a dissertação mostra que, embora a aplicação da IA tenha inúmeros efeitos positivos nos processos empresariais e nas relações com os clientes, bem como na tomada de decisões, também suscita certas preocupações e questões, incluindo as relacionadas com a proteção de dados, a ética e o custo da implementação. Por último, é apresentada uma abordagem tática sobre a forma como as empresas podem integrar a IA nas suas operações e colher os benefícios associados, minimizando simultaneamente as armadilhas associadas à IA.

Palavras-chave: Inteligência Artificial, Implementação, Estratégia Corporativa, Estratégia de Dados, Machine Learning, Gestão da Mudança, Ética, Otimização da Produção.

Título: Implementação da Inteligência Artificial nas Empresas: Desafios, Oportunidades e Fatores de Sucesso

Autor: Luca Allemann

Table of Contents

List of figures

List of tables

List of Abbreviations

AI ..... Artificial intelligence
BI ..... business intelligence
BSI ..... Bundesamt für Sicherheit in der Informationstechnik
CCPA ..... California Consumer Privacy Act
GDPR ..... General Data Protection Regulation
IaC ..... Infrastructure as Code
IKA ..... Intelligent Knowledge Assistant
KPIs ..... key performance indicators
ML ..... Machine learning
NLP ..... natural language processing
PaaS ..... Platform as a Service
ROI ..... return on investment
SME ..... Small and Medium-sized Enterprises

1. Introduction[1]

"AI is the ultimate breakthrough technology, and it will redefine the nature of work and transform every aspect of our economy and society" (Nadella, 2023).
Artificial Intelligence (AI) has the potential to transform business processes. Technological advances require policy decisions that need to be adapted to current technological advances. Strategic decisions made by organizations have a significant impact on future business growth. These insights should be carefully examined and evaluated for their quality and reach. The goal of this research is to analyze the impact of AI on improving decision making in organizations. The key question is how organizations can plan and execute the implementation of AI to address existing challenges and capitalize on potential opportunities. Answering this question is critical as more organizations seek to apply AI to their operations and find new ways to differentiate themselves from their competitors.

To effectively integrate AI into the strategic plan, it's important to understand the overall capabilities of AI and an organization's goals. This includes assessing the current structure, determining the changes needed to integrate AI, and developing an appropriate structure that aligns with the organization's strategic plan. AI has it´s challenges and opportunities for application in our daily lives. Some of the areas of concern that organizations need to address are privacy, ethics, and employee replacement. At the same time, organizations need to understand how AI can help create new business models, increase customer and employee engagement, and make better decisions based on data analytics. To this end, this work evaluates several measures that can help determine how best to use AI to support an organization's strategic planning and how to put it into practice.

The goal is to analyze how AI can be implemented in an organization, how the risks can be managed, and what the opportunities are. The project aims to help companies develop strategies and tactics for integrating AI to overcome current problems and reap future benefits. Through expert interviews the goal is to provide a narrative of how organizations can leverage the opportunities of AI transformation to define and support long-term success.

[1] This part was written by the author originally in German, Deepl was used to translate it to English. There is a possibility that it will be shown as a written by AI, but it's written by the author.

2. Analysis of the current AI landscape in companies

The use of AI technologies is becoming increasingly common in business environments. To develop a competitive advantage and improve operational efficiency. As the analysis shows, AI can create added value in almost every function of the company. This chapter aims to provide a detailed analysis of the current market environment. What is the current state of AI in companies? It also explains how it indirectly influences performance through innovations in business processes, new management principles, and decision automation. (Moore, 2024, p. 7).

2.1 Dissemination of AI in the company[2]

Germany lags behind the US and China in AI adoption. Strategy, economics, and technology differ (Zimmermann, 2021, pp. 2-3). US and Chinese AI technologies are well-developed thanks to government policy and commercial investment. Given their AI research and innovation efforts, Google and Microsoft are the top two US players. China as a big player plans to lead AI by 2030 (Zimmermann, 2021, p. 3-4).

The massive research and development budget and several patents demonstrate this. China submitted 1,550 AI patents in 2018, while the US filed nearly 2,700. German corporations gained 400 worldwide AI patents during the same timeframe (Zimmermann, 2021, p. 3). These statistics show European AI development and utilization trends. Europe, especially Germany, is still slow to adopt AI technologies. AI adoption is 8%, with Germany lagging behind other nations (Sevindik, 2022, p. 4). This covers the cost of operations and the shortage of skilled workers. Other barriers to AI integration in Europe include data privacy and AI use laws and ethical concerns (Rammer, et al. 2020, pp. 17-19). AI can boost creativity and competitiveness in enterprises. According to Rammer, et al. 2020, pp. 11-13, AI-based inventions in Germany generated 11 billion euros in 2018. The global distribution of AI differs greatly. Due to government subsidies and backing, the US and China are ahead of Germany and Europe. Europe must take exceptional measures to use AI and reduce the backlog of applications and implementations (Zimmermann, 2021, p. 4).

[2] Deepl wright was used for an improved grammatical representation. There is a possibility that it will be shown as written by AI but it's written by the author.

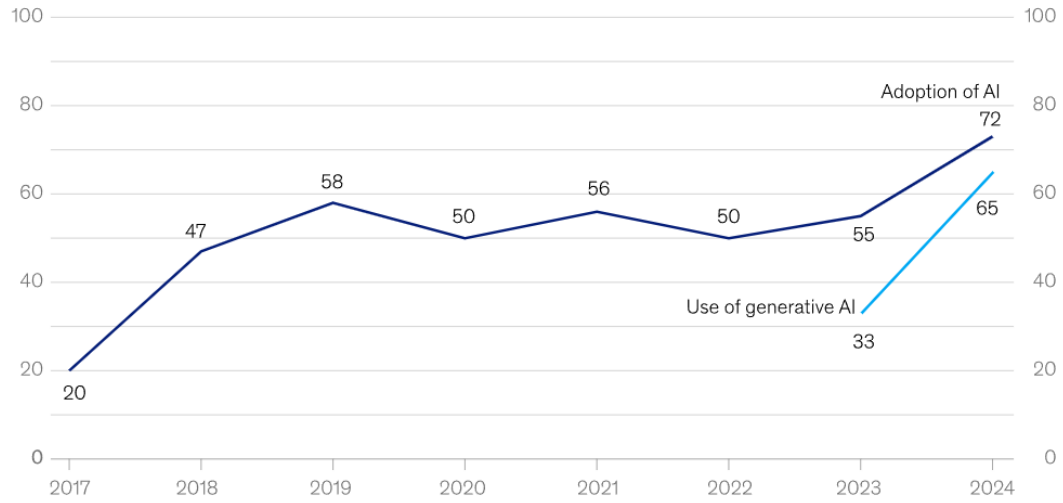

Figure 1: Organizations that have adopted AI in at least 1 business function (McKinsey 2023)

The Figure 1 shows the global trends of AI adoption in companies from the year 2017 to 2024. The data is based on a recent global survey conducted by McKinsey of companies that have adopted AI in one or several business functions.
The statistics indicate that more and more organizations have implemented the use of AI in the recent past years. In 2017, the share was 20%. This has risen to 58% by 2019 because more and more organizations have come to appreciate the value of the AI technologies.

In the early years, there was a enormous growth because organizations started to appreciate and apply the advantages of AI in their operations. There is also a level of fluctuation in the curve between 2020 and 2022, as it drops to 50% and then rises again in 2021, to 56%. This period of stagnation can be blamed on several factors such as the problem of the lack of a clear model to amplify AI treatments, concerns over data security and questions of ethics. The usage of AI has been also growing and is projected to expand to 72% by 2024, showing the recent trend of the subject's adoption. This is because of the increasing adoption of generative AI and this is made clear by the fact that the adoption of generative AI is expected to rise to 65% by 2024. New and improved AI technologies like GPT models have evolved and this is allowing companies to find new ways to enhance their operations. It can therefore be concluded that the application of AI has greatly risen in the last seven years and how important the companies see this opportunity.

2.2 Key technologies and their applications

The following section will provide only a general overview of the most important AI technologies, and more details would require a separate work. Nevertheless, it`s crucial to identify the crucial technologies which are being applied in the present business world to sustain competitiveness. Business intelligence (BI) systems are now incorporating the use of machine learning (ML) as one of the technologies that are essential to the system. Machine learning can be applied to analyze large volumes of data to gain meaning information, automate tasks, and make sound predictions (Bharadiya, 2023, pp. 124-125). These algorithms operate based on machine learning to develop on their own from the data given to them and to recognize intricate patterns without the programmer having to code them. The use of AI and machine learning in enterprises is considered an imperative to compete in the present world (Suryadevara, 2017, pp. 931-932). These technologies help in the streamlining of common tasks and provision of accurate and fast analytical decisions. This results in higher productivity, lesser expenses, and higher level of customer satisfaction (Suryadevara, 2017, p. 932). This is because companies can seize the market opportunities and meet the needs of the customers. (Bharadiya, 2023, pp. 124-125).

A part of Machine learning are some other important technologies include neural networks and deep learning especially in natural language processing (NLP). (Goodfellow, et al., 2016, p. 172). It's now used to investigate data that is not formal or organized in the form of text or images. (Bharadiya, 2023, p. 126). NLP is useful in the management of customer services because it's used in the creation of chatbots and virtual assistants. By employing it, companies can meet customer's needs and requests faster and enhance customer service, which in turn raises customer satisfaction and results. (Bharadiya, 2023, p. 127). Some of the key technologies used in today's AI systems include machine learning, neural networks, and deep learning. These technologies are also critical to helping businesses function effectively in an increasingly digital environment.

3. Strategic framework for AI implementation

This section deals with the strategic framework for implementing AI. Before implementation can be carried out, the framework conditions must be established. A strategic framework provides clarity on the objectives, resources and responsibilities required for the successful implementation of AI technologies (Obermaier, 2019, p. 159).

The main points of a strategic framework are discussed below. First, the implementation guidelines and compliance processes are examined. In addition, the objectives of an AI implementation must be defined. Then it looks at resource planning in more detail.

3.1 Policies and Compliance[3]

In order to successfully introduce and use AI, companies must take many factors into account. These include data quality, corporate culture, skills development, strategic planning, legal requirements, customer behavior and IT integration (Limat, 2022, p. 6). An early and thorough analysis of the impact of AI on corporate culture and processes can help This allows risks associated with the use of AI to be identified and managed (Limat, 2022, p. 8). AI systems carry the risk of unfairly discriminating against certain populations, so early action is needed to ensure fairness and avoid algorithmic bias (Schlimbach, et al., 2022, p. 627).

AI compliance regulations cover many areas to ensure that companies follow legal and ethical guidelines. Companies should regularly promote and monitor compliance. This is achieved through oversight bodies and ethical rules (Limat, 2022, p. 6). To handle AI data responsibly, companies should establish clear guidelines for the use, access and processing of data. This ensures that stakeholders understand what data is being published and why (Hartmann, 2021, p. 87).

Accountability and verifiability of AI models are compliance issues. Companies must explain their systems and decisions (Alpers, et al., 2024, p. 163). Several factors influence compliance with AI regulations. These include technology and organization. Traceability, explainability and open communication regarding the AI system are crucial. These challenges are difficult and are related to technical stability. Especially when it comes to explaining the organizational structures to users (Pentenrieder, et al., 2021, p. 58).

3.2 Goals of AI implementation

To this end, it´s crucial to understand that for the new technology of AI to work properly, it must be well utilized. This means that there is need to outline and schedule the way forward. Research shows that organizations can significantly benefit from using AI in three key areas. It covers process automation, cognitive insights, and cognitive alignment as the key elements.

[3] This part was written by the author originally in German, Deepl was used to translate it to English. There is a possibility that it will be shown as a written by AI, but it's written by the author.

Process automation encompasses activities that were hitherto done manually for instance in insurance or financial services (Davenport & Ronanki, 2018, p. 3). This type of AI services is defined as cognitive insights where the AI system can analyze huge amount of data and present patterns that can help in decision making. Cognitive interaction in essence comprises of the use of NLP and other forms of communication to interface with the customers or employees.

The first step to a good approach to AI is therefore to have well defined objectives. The goals must be relevant to the organization and the problems that the organization face. Possible objective can be to avoid the downtime by implementing the predictive maintenance and to extend the lifetime of the machine (Davenport & Ronanki, 2018, pp. 3-5). It's important that the goals consider both short-term and long-term aspects and include clear and measurable key performance indicators (KPIs) to monitor the progress and effectiveness of the implementation of AI (Davenport, et al., 2019, pages 32-33).
By focusing on these goals, companies can not only improve their performance, but also strengthen their competitiveness and open new business opportunities. Studies highlight that AI has the potential to fundamentally change marketing strategies and consumer behavior. This underscores the importance of clearly defined objectives and their continuous adaptation to changing market conditions. (Davenport, et al., 2019, p. 39).

3.3 Role of Stakeholder[4]

The effective implementation of AI technologies requires close collaboration and a clear distribution of roles between all stakeholders. These stakeholders include not only experts and programmers. They also include policy makers, businesses and consumers. Each of these individuals has useful skills that are essential for the sustainable and ethical development of AI systems. It's in every company's interest to involve a broad range of stakeholders to ensure that environmental and social values are preserved in the development of AI (Wynsberghe, 2021, p. 214). For example, technical experts responsible for developing and training AI models that take pollution into account. At the same time, business representatives are working to develop business models that support the integration of AI in an economically lucrative and environmentally friendly way. It's important that regulators and policy makers

[4] This part was written by the author originally in German, Deepl was used to translate it to English. There is a possibility that it will be shown as a written by AI, but it's written by the author.

issue guidelines to ensure that progress in AI meets ethical and environmental standards. One example of this is the implementation of regulations to reduce energy consumption in the development and application of AI systems (Wynsberghe, 2021, p. 215).

Software engineers are working on the development of generative AI models that can, for example, help to analyze large amounts of data and make better decisions. At the same time, policymakers are ensuring that these technologies are used in a way that respects diversity, inclusion and ethical standards. A concrete example would be the use of AI to improve communication and cooperation between different countries. Global problems such as climate change can also be tackled more effectively in this way (Renz & Hilbig, 2020, pp. 13-14).

3.4 Resource planning

Another factor that can help ensure that AI is used effectively in organizations is the ability to plan resources effectively. Resources refer to the physical and non-physical assets required to deploy and operate AI systems.

The physical resources required to develop and deploy the strategy should be mentioned. Some of the items include hardware such as servers and storage to handle massive amounts of data, as well as licenses for specific AI software and solutions. It will also be necessary to allocate sufficient budgets for these technologies to enable their financing. Money for subsequent repair and enhancement needs and for other related operations (Stohwaser and Suchy, 2020, p. 45). In addition to tangible assets, there are also so-called intangible assets. These include personnel and appropriate experience. The effectiveness of AI applications can be attributed, to a certain extent, to the expertise and knowledge of the people entrusted with the task of designing, integrating, and applying AI technologies. It should be noted that it's necessary to conduct regular training and education of employees, which would help them to always know the current situation and be ready to apply the innovations in the sphere of AI (Wynsberghe, 2021, p. 10).

This dissertation will argue that it's critical that strategic resource planning include the acquisition of physical and non-physical resources. This means that to promote the use of AI, one must assess the resources that are available and the areas in which they are lacking. Systematic resource planning is the process of developing a comprehensive plan of resource needs and the ways and means of obtaining the resources. This plan must be flexible to accommodate changes in requirements and new technologies. A few points out that typical

resource planning challenges include a lack of understanding of the future requirements of the infrastructure supporting AI systems (Renz & Hilbig, 2020, p. 10). There is a need to manage resources sustainably to implement AI effectively. This is done by monitoring and evaluating resource usage on a frequent basis. This helps to identify and manage potential bottlenecks at an early stage of the process (Wynsberghe, 2021, p. 11). Ongoing resource planning is therefore critical to the adoption of AI in organizations.

4. Challenges and opportunities of AI implementation:

The following chapter takes a closer look at the challenges and opportunities of implementing AI. These are very diverse. They affect many areas of life. This work and particularly this chapter deals with the challenges and opportunities that AI can offer for businesses. First, the challenges are addressed.

4.1 Challenges of AI

When implementing AI in the enterprise, organizations face several challenges that must be carefully addressed to be successful. There are several challenges that need to be considered for the successful implementation of AI. These include effective management, integration with existing systems, data security and cost.

4.1.1 Effective management[5]

It's worth noting that the use of AI in organizations requires specific competencies from leaders. For example, knowledge of the underlying algorithms required for AI, machine learning, predictive modeling, and data analysis is important. This technical expertise underpins the strategic decisions regarding the adoption, deployment, and fine-tuning of AI applications. It enables managers to make the right decisions and ensure the effectiveness of AI tools (Davenport, 2006, p. 3).

Moreover, it helps in communication as the managers have technical competence and interact with the different technical teams. This streamlines the work and makes it easier to implement AI in practice. Managers are also responsible for setting attitudes towards the use of statistics and new tools: they must ensure that their employees learn how to use new tools or provide

[5] This part was written by the author originally in German, Deepl was used to translate it to English. There is a possibility that it will be shown as a written by AI, but it's written by the author.

opportunities to acquire such knowledge (Moore, 2024, p. 5). This includes the dissemination of the use of data throughout the organization, so that the use of data in decision making is not just a fad, but an organizational culture. Communication of this method must be frequently emphasized, encouraged, and modeled by managers (Moore, 2024, p. 9).
Otherwise, the importance of technical knowledge parallels the appreciation of the leader's experience and intuition to recognize the imperfections of technology and ethical issues. A person must always decide when it's appropriate to go by the book and when it's appropriate to go by instinct (Davenport, 2006, p. 5).

4.1.2 Integration in existing systems

One crucial point that is important when integrating AI is complexity. The difficulty of integrating data, especially big data, poses challenges for companies (Fahlevi, et al., 2023). This means that AI can only work efficiently if there is a good flow of data. A large amount of data must be integrated. The AI algorithms must be easily integrated into existing systems. This is crucial for the success of implementing the tool in the company.
The first factor that affects the success of the implementation is the compatibility of the various systems involved in the process. Compatibility issues are among the challenges that can hinder the integration of AI technologies. The components and limitations of legacy systems should be considered so that new AI solutions do not affect the performance of existing systems (Davis, 2023).

It's also important that it's done right and by the right people. To embed an AI, one needs to have knowledge in some areas such as data science, machine learning, and data engineering. For effective implementation of AI and its full utilization, it's very important that quality issues that are missing internally are filled, or quality is brought in from outside (Khan, 2023). In this context, change management is required. The use of AI in organizations also means that there are profound changes in the organizational processes. Effective change management is crucial for the successful implementation of the system under discussion. This includes, for example, change management, adoption of new technologies, training, and development of employees in the use of new technologies, and process reengineering (Damsten, 2023). Intern or external quality brought in for AI to be fully utilized (Khan, 2023).

4.1.3 Data security[6]

Institutions face various obstacles when integrating AI into systems. Compliance with AI results and data security standards is challenging. This makes it all the more important for companies to protect their data, especially sensitive and valuable information. Sharing data can lead to issues with data security and competition if it's used for fraud or theft. The avoidance of illegal access and use requires data confidentiality and security. Companies must protect their data to remain competitive. This requires strict security measures. (Cook et al., 2024, pp. 122-123). When using generative AI, data security must be constantly monitored to avoid breaches or leaks. Organizations should implement strict security measures and regularly check data integrity to detect new threats. Generative AI systems face additional security challenges due to compliance with the GDPR and the CCPA. Companies must comply with requirements to protect user data and prevent misuse. Failure to comply with these rules may result in legal action and fines. Cybersecurity resources are necessary to prevent threats and achieve security. For secure data storage, transmission, and processing, companies should invest in technologies and processes. This includes encryption, restricted access, and security requirements. An appropriate and proactive data backup is necessary to maximize the potential of generative AI while protecting sensitive data. (Cook, et al., 2024, p. 125).

The ethics of IT security should never be violated. To avoid ransomware attacks and internal security risks, organizations could use digital loyalty insurance and compliance management systems to reduce data misuse. AI requires strong IT security to be used in the business sector. This includes structured IT change management, cloud service management, and compliance with BSI guidelines for critical infrastructures. (Gillhuber, et al., 2023, pp. 109-116). The ethics of handling data is of crucial importance. Data minimization and interoperability only allow for the necessary program authorizations. (Gillhuber, et al., 2023, pp. 93-103). To comply with GDPR standards, personal data should be anonymized, although this may reduce the amount of data. Synthetic data that mimics real data is used to solve this problem. (Gillhuber, et al., 2023, pp. 201-214).

[6] This part was written by the author originally in German, Deepl was used to translate it to English. There is a possibility that it will be shown as a written by AI, but it's written by the author.

Data management can be overwhelming when done incorrectly. The following points must be checked to avoid data concealment or legal violations. Sorting and classifying data, adhering to laws, and improving data quality are examples. (Gillhuber et al., 2023, 283-291). A proactive and rigorous approach is necessary to maximize the potential of generative AI while protecting sensitive data. (Gillhuber, et al., 2023, p. 290).

4.1.4 Investment and implementation costs

The integration of AI is an expensive method that has implications for finances and structure. First, its necessary to create a plan with understandable and clearly structured phases. (Pierre & Abend, 2022, pp. 38-39).

Challenges that need to be addressed include the development of initiatives for data science resources in medium and end-user organizations, the acquisition of specific skills by employees, and the development of the necessary IT resources. AI initiatives require a strong organizational focus as well as a central point of attraction. Some of the key cost factors include investments in a central data science infrastructure, costs for specialized personnel, including data scientists, data engineers, and machine learning experts, as well as costs for IT infrastructure and much more. (Pierre & Abend, 2022, p. 12).

The implementation of AI projects requires a team of data scientists, data engineers, and machine learning engineers. These are rare and therefore expensive, a situation that further increases the operating costs for these companies. (Ecker et al. 2021, p. 17).
Furthermore, this means that the successful implementation of AI requires a versatile hierarchical project management framework. There are strategies to reduce risks and achieve goals more quickly – effective examples include the use of a Minimal Viable Product (MVP) strategy and the implementation of decision gates.
This management framework facilitates the adjustment or termination of projects, thereby reducing long-term costs. Research has shown that global supply chains must prioritize fairness and long-term sustainability while simultaneously promoting a strong commitment to combating corruption and fraud. (Pierre & Abend, 2022, pp. 12-13).

The progress of AI heavily depends on the quality, diversity, and consistency of the underlying data, as well as the algorithms used. These measures are being taken to ensure data quality and to prevent unauthorized access and use. Furthermore, the innovative technology

must be seamlessly integrated into the existing IT infrastructure to enhance its use and maximize its value. (Pierre & Abend, 2022, p. 38).
Another risk element of AI implementation is the significant initial investment. The full benefits of such investments may only be realized after several years. This can pose a challenge for small and medium-sized enterprises (SMEs), as their financial resources are limited, which can hinder their ability to make long-term investments. (Ecker, et al., 2021, p. 19). The practical example from Beiersdorf shows that the sustainability of AI depends on its implementation through a top-down approach guided by a clearly defined central plan. (Pierre & Abend, 2022, p. 34). Additional examples of AI applications are described in 4.2 Opportunities of AI.

4.2 Opportunities of AI

4.2.1 Optimization of business processes

One of the greatest advantages of AI is its ability to carry out routine activities and operations. This way, a person can be freed from certain tasks and focus their concentration on other tasks. Its already being used a lot in production today to improve, for example, the automatic identification of barcodes and license plates on cars. This leads to a significant improvement in production rates and a reduction in error rates compared to manual methods. (Enholm, et al., 2021, p. 1722). AI also plays a role in processing and analyzing vast amounts of data, leading to better decisions. AI can assist in supporting strategic decisions by identifying patterns and trends in data. This is particularly useful in areas such as medicine, where AI can be used to identify anomalies in MRI scans, or in the business sector, where it can be employed to categorize customers based on their preferences and actions to enhance marketing techniques. (Enholm et al., 2021, p. 1721).

AI technologies are transforming new process design and management in process conversions, as well as the way work is carried out. (Bhalerao, et al. 2022, p. 3). However, the increase in efficiency will simultaneously lead to employees needing to develop new skills. (Chen, Chu & Zhao, 2024, p.4). In this way, companies can better organize resources, promote development, and contribute to achieving long-term sustainable goals. (Suryadevara, 2017, p. 935). AI also helps in the creation of new products and services, which in turn promotes business model innovation within organizations. Through AI, companies can launch new products or improve existing ones to surpass the competition.

In summary, it can be said that the use of AI in business processes can bring a lot of value and change. AI makes organizations productive and efficient in their processes by performing routine tasks, providing useful information, and restructuring business operations.

4.2.2 Improved decision making[7]

There are several approaches to integrate AI into the company to improve decision-making. AI learning systems can assist employees choose by providing alternatives and their effects. Work content arrangements require employee activity control (Stohwasser & Suchy, 2020, p. 11). The difference between human and mechanical approaches also affects AI system use. Clear methods are needed to separate AI system responsibilities and algorithm decision-making levels. To avoid acceptability and legal challenges, roles must be clearly specified (Stohwasser & Suchy, 2020 p. 14).

AI system knowledge is the final key. The AI technology should be explained in conjunction with employee information. Transparency must improve for user acceptance. Explaining AI promotes fairness and accountability for machine decisions and behaviors and prevents technology misuse (Stohwasser & Suchy, 2020, p. 17). Any situation with a company-consumer information gap and resource allocation benefits from AI. AI helps organizations reduce their dependence on external capital, cut agency costs, optimize the supply chain, and raise worker productivity and resource utilization, as well as manage business risks. The routes explain how AI can help achieve sustainable development and how managers can use it (Chen, Chu, & Zhao, 2024, pp. 32, 35). AI creates ethical challenges in society and social structure. AI is used in the military to develop tactics and reduce risks. Robots can cross mine fields instead of people (Kaplan & Haenlein, 2019, pp. 42-44). A survey at IE University in Europe found that Europeans accept AI as an administrator since it's better than political crooks that bribe and extremize. AI balances decision-making today (Kaplan & Haenlein, 2019, p. 46). Corporate sustainability depends on decision-making, and AI is an unchangeable part of that process. Without AI to manage resources and monitor the environment, sustainability policies are incomplete. It lowers pollution, improves environmental management, and meets regulatory criteria. Social media feedback from stakeholders

[7] This part was written by the author originally in German, Deepl was used to translate it to English. There is a possibility that it will be shown as a written by AI, but it’s written by the author.

improves product development, service delivery, and social responsibility (Chen Chung & Zhao 2024, pp. 38, 40).

Companies can solve their decision-making challenges with AI. Choice can be limited for efficiency and effectiveness, but not always. Establish clear lines of authority and accountability, adhere with legal transparency standards, and involve employees in system revitalization when merging systems.

4.2.3 Cost reduction[8]

As discussed in section 4. 1, the use of AI in one's own organization is expensive. Therefore, large investments should also create added value. Automation or mechanization can be described as the elimination of human intervention and thus the possibility of errors in order to increase productivity (Bhalerao, et al. 2022, pp. 2-3). For example, it could be used in factories to manage and coordinate activities within the factory to improve production. An example of this is BMW's "iQ Press" system, which has improved the efficiency and quality of production by evaluating production information (Stohwasser & Suchy, 2020, p. 12).

Cost savings are further generated by purchasing the necessary tools and equipment, modifying other systems and even training employees. In the long run, this means that fewer mistakes are made, more work is done in the same amount of time and the least amount of time is wasted, resulting in cost savings. In general, using systems such as ABB's Intelligent Knowledge Assistant (IKA) as an example, it can be said that the development and optimization of such systems has the potential to improve and fine-tune the processes in question and adapt them to existing needs (Stohwasser & Suchy, 2020, p. 6). Another example of the application of AI in the BMW Group is the press shop, where the analysis of data and optimization of processes has increased efficiency and reduced costs (Stohwasser & Suchy, 2020, p. 12).

[8]This part was written by the author originally in German, Deepl was used to translate it to English. There is a possibility that it will be shown as a written by AI, but it's written by the author.

5. Measurement of success and ROI[9]

Measuring the success and profitability (ROI) of implementing AI in companies is crucial to assess the effectiveness and added value of this technology. As mentioned in the literature review, it's crucial to establish the right KPIs. These KPIs help quantify the impact of AI in various business areas, including revenue generation, cost reduction, and operations. For example, process improvement can be achieved using AI by minimizing human errors and reducing the time taken to complete a task. It has been found that an appropriate approach to applying AI can improve the financial performance of the organization, for example through revenue growth and cost savings (Enholm, et al., 2021, pp. 1711-1716).
It's important for organizations to be aware of the timeframe in which investments in AI applications begin to generate positive cash flows, as well as the mechanisms to achieve this (Farayola, et al., 2024, pp. 430-431).

A study by Deloitte has shown that companies that have established a strong foundation for their AI initiatives are likely to see better returns on their investments. These companies have largely or completely adopted the right approaches for data management, outcome tracking, security, data protection, and ethics. The research also found that companies that achieve a high return on invested capital (over 5%) have an average payback period of 1.2 years. Smaller companies have a payback period of 1.6 years (Jarvis, 2020).

Figure 2 shows that companies that effectively implement AI selectively apply certain techniques. For example, companies that see more than 5% return on their investments in AI methods are much more likely to be inclined to use these techniques than companies that either see no returns or negative returns.
Although 90% of high performers address data protection, security, and compliance issues, only 7% of low performers do so. Similarly, 89 percent of above-average performers have guidelines and training on ethics in dealing with AI, compared to 9 percent of below-average performers. Important points also included the collection and preparation of data, the definition of AI performance metrics, the development of an AI platform, and the establishment of business value.

[9] This part was written by the author originally in German, Deepl was used to translate it to English. There is a possibility that it will be shown as a written by AI, but it's written by the author.

The differences underscore the importance of a thoughtful approach to AI projects. The differences show that careful preparation and strategic planning are crucial for the success of AI projects.

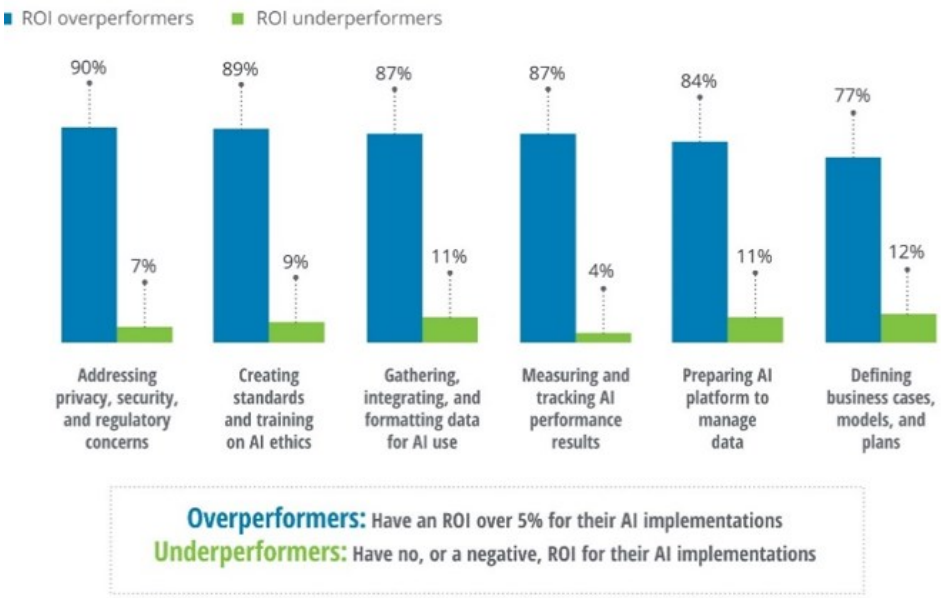

Figure 2: Percentage of companies that have implemented AI in practices

AI advancements should be able to define and clearly state meaningful targets that lead to real change. These goals should include the improvements in technology but also in economy and society (Rajagopal et al., 2022, p. 432). To involve people from various fields of work and to make the departments cooperate and consider all points of view it's necessary to form an interdepartmental group (Farayola et al., 2024, p. 433). It's crucial for AI programs to develop a sound data management plan for management of data, its quality and security. It's important that the data used in AI projects is of high quality and for this reason, measures are taken to confirm that the data is complete (Bhalerao, et al., 2022, pp. 4-5). Small and medium-sized enterprises should pay attention to the question of yield rates and measure the effectiveness of profitability to discover the value brought by AI. Therefore, it stresses the significance of right identification, KPI definition and the ongoing measurement of ROI to avail all the KPI capabilities (Bhalerao, et al., 2022, p. 3).

Small and medium-sized enterprises can increase their production, improve their customers retention, and defend against cyber threats with unique AI-based tools that open new competition. First and most important, to achieve high profitability and a stable place of AI technologies in the organization, it's necessary to approach the analysis of the efficiency of

the projects to which AI is applied with great attention and on a regular basis (Bhalerao, et al., 2022, p. 5).

6. Strategic development of AI Implementation

An effective AI implementation strategy can therefore not be only based on the technical aspects of the implementation but also have to consider the organizational aspects. It underlines the importance of the most important aspects of the AI technologies, including the comprehensibility, scalability, and stakeholder management when developing the strategic frameworks (Shaw, et al., 2019, pp. 3-5). To avoid wasting resources and to meet the set goals and objectives of the company, a proper assessment of business needs and opportunities should be done (Shaw et al., 2019, p. 6). A guide insists that it's necessary to harmonize the strategic objectives with the requirements and conditions of the organization to achieve the effective adoption of AI (Moring, 2021, p. 2).
The following goals should then be set to ensure that the AI initiative is specific, actionable, and achievable. This is the case since these goals should not only focus on the advancement of technology but also the economic and social aspects (Füller, et al., 2022, p. 11). Cross-functional employees should be engaged, and a cross-team team should be created to increase the chances of considering everyone's opinion (Füller, et al., 2022, p. 10).

Therefore, an organization must come up with a sound approach that can be used to address challenges such as data volume, variety, and velocity in relation to AI applications, data quality, and security. This reflects that the success of AI projects greatly depends on data quality and that proper actions should be taken to maintain data quality and accuracy (Shaw, et al. 2019, p. 7). Resource management including time and money as well as the choice of the appropriate technologies for the project is vital. It's crucial to provide proper planning and resource management to ensure that there are no constraints, and the process will be more effective (Lin et al., 2017, p. 431). These challenges include the need to also include the aspect of training when preparing for resources for the AI systems because the employees have to adopt the use of the systems (Moring, 2021, p. 3).

In that case, the ongoing assessment of the performance of AI systems is useful in identifying areas of concern and guaranteeing that, the application of AI in operations will have sustained effects. It's suggested to put in place a mechanism where adjustments are to be made based on

performance data as a way of refining the AI strategy (Shaw, et al., 2019, p. 8). To create ensure that the most can be gained from the integration of AI, it's necessary to fine-tune strategic plans to match the level of focusing on AI (Ruokonen & Ritala, 2023, p. 438). Thus, using these steps, organizations can systematically and purposefully approach the planning and execution of the AI projects to address existing challenges and to capitalize on the opportunities.

7. Methodology

7.1 Type of Methodology[10]

This study applies a qualitative research approach. The aim is to answer the question of how organizations can plan and implement the adoption of AI to overcome existing challenges and exploit potential opportunities. Through qualitative research, it's possible to understand people's personal experiences and views using face-to-face interviews (Hennink, Hutter, & Bailey, 2020, p. 10). By analyzing comprehensive expert insights, a sound understanding of the strategic integration of AI in companies is ensured. Semi-structured interviews are conducted with ten AI implementation experts, executives, and AI strategists from different industries.

The aim is to gain insights into the concrete difficulties and opportunities in the implementation of AI as well as the decisive success factors. An interview guide will be created to ensure consistency and cover key topics such as strategic planning processes, implementation strategies, challenges and benefits achieved. The interview questionnaire contains pre-formulated questions that serve to structure the interview and encourage the interviewee to answer in detail to ensure an orderly conversation (Baur & Blasius, 2022, p. 351). In order to ensure that the participants have extensive experience and knowledge in the implementation of AI, they are specifically selected by drawing a random sample (Flick, 2018, p. 108). Experts from different fields and positions are included in the sample in order to take a variety of viewpoints into account.

[10] This part was written by the author originally in German, Deepl was used to translate it to English. There is a possibility that it will be shown as a written by AI, but it's written by the author.

7.2 Data collection

In this master's thesis, information is collected by means of qualitative interviews. All interviews were recorded and written down before a thorough analysis. The participants were completely anonymized in the recordings. The surveys took place on the Internet and were recorded using the Webex video conferencing application. The duration of each interview was in the range of 10 to 30 minutes. A total of ten interviews were conducted. To ensure that they could make a significant contribution to the research question, it was necessary that all interviewees had professional experience in the field of AI implementation. The diverse expertise of the experts ensures a comprehensive examination of the research question and allows detailed insights into the various decisive factors for the success of the implementation. The following table explains the importance and function of the professionals.

Interview Partner	Position (Industry)	Reason for Selection
E1	AI Strategist (Automotive Industry)	Expertise in developing clear visions and strategies, as well as leadership experience in AI.
E2	Head of IT Department (Logistics)	Experience in integrating AI into existing systems and phased implementation.
E3	Professor of Artificial Intelligence (Academia)	Deep understanding of the role of research and development in AI.
E4	Operations Manager (Mechanical Engineering)	Insights into the positive effects of AI implementation on production efficiency.
E5	Digital Transformation Consultant (Consulting)	Comprehensive knowledge in data strategy and data management.
E6	Data Officer (Financial Services)	Experience with challenges in data collection and analysis, as well as data protection measures.
E7	Head of Innovation Management Department (Retail)	Expertise in the application of AI for optimizing supply chains and personalizing customer experiences.

E8	CTO (Technology Startup)	Experience in building a powerful AI infrastructure with limited resources.
E9	HR Department (Telecommunications)	Expertise in the impact of AI on the workforce and the need for retraining and upskilling.
E10	R&D Manager (Telecommunication)	Insights into the role of AI in accelerating research and development and interdisciplinary approaches.

Table 1: Interviews industry experts

Table 2 shows the prepared interview guide with 14 questions. These questions were created in a structured way to gain specific insights into the difficulties and opportunities in the strategic implementation of AI in companies. The questions are based on previously identified factors that are important for the successful implementation and application AI. The answers to these questions are intended to confirm the results of the literature search and provide additional information.

Question No.	Questions
Q1	What are the key considerations when starting an AI implementation project in a company?
Q2	How can leadership ensure that AI initiatives align with broader business objectives?
Q3	What steps are crucial in developing a practical and sustainable AI implementation roadmap?
Q4	What potential pitfalls do companies face when accelerating AI adoption, and how can they avoid these?
Q5	In what ways does corporate culture impact the effectiveness of AI integration, and how can it be shaped to support AI initiatives?
Q6	What are the main obstacles in merging AI with legacy systems, and what innovative solutions have you encountered?

Q7	How should companies approach organizational change to facilitate AI adoption?
Q8	What are the best practices for fostering effective collaboration between IT and business units in AI projects?
Q9	Which competencies are most critical for employees to effectively contribute to AI projects?
Q10	How can companies design ongoing training programs that evolve with AI advancements?
Q11	What are the foundational elements of a successful data strategy in the context of AI?
Q12	How can companies maintain high data integrity and accuracy in their AI initiatives?
Q13	What specific benefits have you observed from using AI in optimizing workflows or production processes?
Q14	How should companies address the ethical and regulatory challenges associated with AI to ensure compliance and trust?

Table 2: Interview guideline

8. Analysis and Results

The expert interviews showed a deep understanding of the strategic implementation of AI in companies and highlighted the associated challenges and opportunities.

8.1 Vision and Strategy

The importance of a clear vision and strategy for the implementation of AI was emphasized several times. E1 emphasized the importance of effective leadership and dedicated management to drive the integration of AI throughout the organization. A roadmap with short, medium, and long-term goals is essential. In the automotive industry, AI models need to be dynamic and continuously adapted to respond to changing market conditions. A one-off

strategy is not enough to remain competitive. Constant evolution is required. E5 emphasized that without a clear strategic direction, AI projects can often stall or fail to achieve their goals.

E2 also confirmed both statements and added that in practice, the mistake is often made of implementing too quickly and too hastily. According to E2, there are more negative examples from practice than you can imagine. If implementation is rushed, the positive effects cannot be realized, which only leads to negative consequences and costs. E7 emphasized that the long-term integration of AI into corporate strategy is not only a technical challenge, but also a cultural one. Companies must ensure that their vision and strategy are not only based on technology, but also on the willingness of employees to adopt and use it. The importance of monitoring and, if necessary, adapting the corporate culture to ensure successful implementation has been pointed out several times.

8.2 Integration with existing systems

E2 noted that perhaps the most critical issue is the fact that AI must be incorporated into other systems. Many enterprises have rather extensive, and often rather historically evolved IT systems and environments in which the new AI technologies are to be incorporated. E6 discussed the aspects of systematical approach to implementation and piloting of projects to prove the effectiveness of the AI solutions. This means that the employees should be trained on how to use the new technologies at the workplace from time to time. E3 discussed more on the need to use a proper change management process to minimize people's resistance to change.

E4 further pointed out that it's not only important to integrate the technical, but that it's also important that the organizational arrangements can accommodate the new technologies. This involves changing the processes and systems of the organization, coming up with new tasks and jobs within the company. E5 also underlines that it's essential to involve IT and business departments in the cooperation to ensure that the implementation of AI solutions leads to the expected outcomes and does not result in the creation of some separate AI islands.

8.3 Continuing education and capacity building

E3 stressed the role of research and development and stressed also the role of training and skills. This may lead to new ideas and to the creation of new solutions and their further development and implementation. According to E7, companies should spend on internal

training so that the employees are continuously trained and new skills are learnt. This also makes a point to make sure that AI is embraced and to make sure that the company has the adequate knowledge on how to use AI technologies. E8 say that training should not be restricted to technical aspects only. Managers and employees must have ethical and legal consequence of AI. E10 has noted that those organizations which can teach their staff these skills will be at an advantage over their competitors as they are more prepared in terms of technology, as well as the legal and moral considerations.

8.4 Optimization of production

E4 pointed out that it's not only important to integrate the technology, but also that the organizational arrangements can accommodate the new technologies. This means that the organization's processes and systems must be changed to create new tasks and jobs within the company. In addition, E4 emphasized that AI solutions must be tailored to the specific requirements of the industry to be fully effective. Generic approaches are often less effective and offer less value. By integrating AI, production processes could be improved and productivity increased. For example, one engineering company was able to optimize maintenance intervals and reduce machine downtime by 20% using an AI-based predictive maintenance system.

E10 emphasized that AI can analyze a large amount of data in real time, which facilitates the control of manufacturing processes. As a result, the time needed to carry out downtime is reduced, and resources are better utilized. According to E6, companies that use AI to improve their production are finding that it allows them to adapt to changing demand. This not only changes resource management but can also increase customer satisfaction as lead times are reduced and products can be brought to market more efficiently.

8.5 Data strategy and security

E5 indicated that there is no way that an AI project will be successful if the plan of how to work with data and how to manage it's not well pictured. Therefore, for companies, it's suggested that they should implement certain measures and methods for achieving the optimal results of the AI applications. The next area E6 identified that it's necessary to improve

protection of data and ensure its reliability as this will enable AI to work effectively and gain people's trust. In other words, it's impossible to imagine dependable AI models with shaky data management.

E9 stated that protection of critical data is not only the technical problem but also the organizational. It's therefore the responsibility of managers and business owners to ensure that their employees are aware on the right way of handling the data and that they have the right procedures to follow in handling the data. It's crucial because data breaches not only may result in legal penalties but also in the loss of customers' and other stakeholders' confidence.

8.6 Supply chain optimization and personalization

E7 discussed how AI can enhance supply chain management, and tailor the customers' experience. A particular big firm was able to decrease delivery time by 15 percent and increase the stock management by 30 percent with the use of AI in supply chain management. As part of the same response, E8 added that with the help of AI, it's possible to improve demand forecasting in order to optimize inventory management. This will decrease the cost of warehousing and at the same time improving the satisfaction of the clients. Customers' data can be analyzed by means of AI to offer the consumers more customized suggestions and offers and, therefore, improve the experience that the customers have with the company. E10 showed that the consumer experience has to be customized in the face of a rising number of competitors. Organizations that can effectively offer personalization can enhance the revenue, customer satisfaction, and reduce the customer churn rate.

8.7 Intelligent customer interaction

E9 is focused on a particular problem occurred in Deutsche Telekom. To streamline the handling of customer enquires the company has adopted the use of AI. Machine learning and NLP can be used to sort requests and forward them to the appropriate departments. This has led to shorter time to complete the tasks and very high level of satisfaction among the customers. As mentioned by E9, this kind of automation not only enhances the output but at the same time offers the prospect of improving the handling of customer problems.

8.8 Infrastructure

E8 discussed some of the difficulties in developing an effective AI infrastructure. Technology gaps can only be bridged by developing collaborations and partnerships that enable the development of a flexible and scalable infrastructure. For example, one start-up company managed to develop a flexible architecture that enabled it to bring its AI models to market with the help of cloud providers. This quote can also be attributed to Mark Twain: "The secret of getting ahead is getting started". With this approach, E8 emphasizes the importance of forward planning for the integration of AI in the company.

E7 emphasized that the right partners should be selected to design and develop an infrastructure that not only meets today's needs, but also those of the future. A flexible infrastructure is a feature that allows the company to respond to market changes and implement new technologies as they emerge.

8.9 Impact on the workforce

In explaining the impact of AI on the workforce, „E9 emphasized the need for reskilling and upskilling for the transition to the new AI approach. There is a need for more companies to implement training and development programs to enable employees to meet new challenges. The best results are achieved when AI complements human capabilities rather than replacing them. This requires new work models that create synergies between human and machine. E3 explained that while AI may lead to new jobs, it will also change current positions, especially in data analytics and AI development. Recently, a telecom company started offering its employees the training that would enable them to work with AI systems. It's clear from E10 that companies that invest early in staff training not only increase the flexibility of the workforce, but also its creativity. In other words, to reap the benefits of AI technologies, you have to invest in them, but you also have to take responsibility for your employees.

8.10 Interdisciplinary approach

When making the interview of the implications of AI for workforce, E9 stressed the nuances of the so-called reskilling and upskilling. Employers should therefore ensure they put their employees through training and development to enable them face various challenges that may come their way. According to E3, on the one hand, AI is expected to give rise to new jobs; on the other hand, it would alter the existing positions, especially in the analysis of data and the design of AI systems. Recently, a telecoms company initiated the provision of training to its employees with a view of acquiring the necessary skills to work with AI systems. As pointed

out by E10, the companies that start investing in the staff training are not only able to enhance the flexibility of their employees but also their creativity. In order to get most out of the available AI, one has to invest in it, at the same time, meeting social responsibilities regarding employees.

8.11 Transparency and ethics.

E6 believes that it's very right to approach the topic of AI with honesty and principles. Companies should guarantee that the results generated by AI systems are fair and unambiguous and that there are clear decision-making procedures. In the financial sector, transparency protocols are essential to ensure that AI decisions are traceable and ethical. E5 emphasizes the importance of adequately addressing the legal and ethical aspects of AI implementation and use to ensure that all stakeholders have confidence in the system. To avoid legal and ethical controversies, the financial firm has established an ethics committee to oversee all AI efforts. E7 emphasized the need to adhere to established ethical standards to ensure compliance with the law and gain competitive advantage. Accordingly, companies that demonstrate a high level of ethics and transparency are able to influence partners and customers and gain their trust, which in turn improves the company's position in the market. The analysis of the expert interviews made it possible not only to identify the strategic use of AI in business, but also to determine the potential and risks associated with it.

9. General discussion

9.1 key challenges[11]

Companies that use AI are confronted with numerous and different problems. Based on the literature and the results of the expert interviews, it's possible to identify several critical factors that are crucial for the effective use of AI.

One of the biggest problems in the application of AI is the lack of a suitable roadmap and strategy. Implementing AI across the organization and assessing how AI programmers are performing and whether they are on the right track requires leadership and management. It's vital that organizations develop a clear strategy and ensure buy-in and commitment from management. In this way, stagnation in AI implementation can be avoided. The success of AI deployment is therefore best determined by setting goals to be achieved in the short, medium

[11] This part was written by the author originally in German, Deepl was used to translate it to English. There is a possibility that it will be shown as a written by AI, but it's written by the author.

and long term. Another major challenge is adapting AI to the current IT infrastructure and business processes. In order to maintain the complexity and diversity of their IT systems, most companies will probably need to adopt the new and more advanced AI technologies. Roll-outs and tests are proposed for the target projects to verify their applicability and effectiveness. To minimize resistance to change and increase technology acceptance, controlled change is highly desirable.

To master the use of AI, new knowledge must be acquired, and existing knowledge updated. Internal programs should therefore be developed to give individuals access to the knowledge and training to use AI effectively in the provision of services. This will improve the use of AI and enable businesses to understand how to use AI tools effectively. Its therefore crucial to develop a good data strategy that will serve as the foundation for any AI solution to be implemented. To ensure that AI systems are used appropriately and gain the trust of the public, organizations need to establish policies and practices for data management, as well as secure methods for data security. The reason for this is that databases are of poor quality and AI models can therefore lead to unreliable results.

Another complex and costly task is the creation of an adaptable and efficient AI architecture. However, technological gaps and the creation of a flexible and expandable framework can be achieved through collaboration. Any IT infrastructure must also be flexible so that it can adapt to changes in the environment in the future. High-tech systems are not easy to set up or maintain. They require a high level of planning and funding. Ethics and fairness in the use of AI are crucial in the development of these systems and their integration into daily life. To this end, companies must ensure that the results generated by AI systems are fair and understandable to people by implementing decision-making procedures. The use of AI should be carried out with the highest level of transparency and ethics. It’s emphasized that ethical and legal concerns must be considered in order to build and maintain credibility with stakeholders. These are the points that show that the integration of AI is not a simple process and requires many considerations.

Literature review	Expertanalyze	New findings from the expert interviews
Based on the literature, effective AI is to have a well-defined vision and strategy plan that includes the objectives of the short and long-term plan and should be integrated with the business plan.	Experts also state that good planning and definition of goals and objectives is crucial. The leaders and managers were also emphasized to play their role in the implementation of AI.	Adapting the corporate strategy is essential. AI models must be continuously adapted so that they can be adjusted to changing market conditions. As in all areas, a one-off strategy will not be enough to survive on the market
The literature repeats the difficulties of integrating AI into existing systems. The need for a systematic approach is frequently mentioned. .	The experts confirm the challenges with existing systems. Technical and data compatibility are essential	N/A
It emphasizes the importance of continuous education and training to ensure the successful adoption of AI	This is confirmed by the expert interviews conducted. The human resource, just like the technical reosurce, must always be developed further	N/A
An AI implementation should deliver benefits. Production processes should be optimized to increase productivity	The expert interviews confirm that there are enough examples in practice of how efficiency can be increased. One example is predictive maintenance, which can significantly reduce downtimes in production	he experts emphasize that AI solutions must be tailored to industry-specific requirements. The full impact of AI will not be realized if only generic approaches are used.
The literature emphasizes that a successful AI implementation requires a clear data strategy. Furthermore, high security standards are required.	The expert interviews revealed that protecting critical data and ensuring its reliability are essential. This is the only way to create trust in AI systems.	N/A

Many cases of supply chain improvement are written about in the literature. For example, customer experience can be improved through personalized offers.	Experts see similar benefits, such as reduced delivery times and improved inventory levels, from using AI in the supply chain.	N/A
The need for ethical standards and transparency is emphasized in the literature. This must be ensured when using AI.	The experts emphasize that compliance with ethical principles and transparency are crucial for the success of AI implementation.	The experts emphasize that transparency protocols are essential in the financial industry to ensure that AI decisions are traceable and ethical.
The potential changes that AI can have on the workforce is also confirmed by the literature. This concerns retraining and new skills development	The experts emphasize in the interviews, as confirmed by the literature, that it's necessary to prepare the workforce for the transition to AI, including training and development programs.	Through new findings, experts emphasize that the best results are achieved when AI complements human skills rather than replacing them. This requires new working models. Long-term impact on workplace design: Experts outline that AI will not only create new jobs, but also fundamentally change existing jobs, which requires long-term planning.

Table 3: Summarize of findings

9.2 Key opportunities

Integrating AI into the enterprise is not an easy task but it also has several benefits that can contribute to the enhancement of the productivity of the enterprise and its competitiveness. Based on the theoretical foundations and the findings from the expert interviews, it's possible to identify several important possibilities. Optimization of production is a major potential. AI has been identified to enhance production processes and hence, increase productivity. As one of the engineering companies disclosed, predictive maintenance using technologies based on AI helps to improve the planning of the time periods for the maintenance with the reduction of the machine downtimes by 20%. These means that AI can analyze data in real time and therefore control and monitor industrial processes, minimize downtime and utilize resources to the optimum.

Data security and planning is another major area where the application of AI is possible and very effective. Thus, AI can be applied only if there is an efficient strategy for data as a key resource. Data handling policies and procedures should be set by organizations to get the best from the AI technologies. Thus, the high level of data protection measures and data quality are the identified factors that can contribute to the building of trust in AI systems and their effective application. According to the specialists, it's impossible to expect that the AI models will produce the right results in case there is no sufficient database.

The second and the third opportunities include enhancing the experience of the customer and enhancing the supply chain of the company. Leading firms have cut down on delivery times by 15 % while on the other hand, the accuracy of the inventory by 30% by adopting the use of AI in the supply chain management. Through the analysis of the customer data to offer the customer specific products and services, AI can enhance the demand planning, the inventory management, the inventory costs, and the customer satisfaction. Since customers' experience is unique when they engage with a business, the revenue of the business is likely to rise and the satisfaction of the customers will also rise.

Intelligent customer interaction is where AI can also be quite helpful. A system of AI used by Deutsche Telekom allows the company to answer the customers' questions faster. Due to the use of NLP and AI, queries are automatically sorted and forwarded to the right department. This enhances the speed at which resolutions are made, and as a result, the satisfaction of the customers.

Another important opportunity is to lay a foundation of AI. A technology startup was able to come up with a flexible platform that enables the quick and easy deployment of AI models through a collaboration with a cloud services provider. In future developments, the system should be designed in a way that it's easily expandable. This can only be done with some form of planning and investment which is quite steep in today's world.

In all, the use of AI in a business can have other advantages apart from the improvement of efficiency. Through organization of production, developing data strategies, supply chain management and customer experience enhancement companies can greatly enhance their competitiveness. Other possibilities for the effectiveness of AI are provided by such factors as the creation of scalable infrastructure and the intelligent handling of customers. From the expert interviews, the expert opinions and suggestions can be gained that can help in the effective exploitation of these opportunities.

10. Conclusion

10.1 General Conclusion[12]

The main objective of this master's thesis was to explore the strategic use of AI in organizations with emphasis on the prospects and issues. A series of meetings were held with representatives of the sector to get various opinions on the strategic approach to the use of AI after the research process was concluded. The variety of the backgrounds of the experts helped to highlight multiple points of view and emphasized that the modern issues and prospects for the application of AI in companies are not so clear-cut. The first section presented the general idea of the study and highlighted the significance of the current trends and the applicability of AI technologies to reshape business processes and enhance organizations' preparedness to operate in the rapidly changing environment. Technological, organizational, and ethical factors for the effective AI integration were defined in the course of the study. Of all problems, perhaps the most critical is the incorporation of AI into the existing information technologies and business processes.

Many firms have a lot of challenges in managing the current IT systems, let alone integrate new AI technologies that are available in the market. The focus is made on the process approach and the necessity of the trial and error approach when it comes to applying AI solutions. For employees to get the most out of new technologies, proper training must be provided, and appropriate change management strategies must be implemented to avoid any form of employee resistance. Another significant problem is to define the vision and the way of AI integration into the organization. Thus, leadership and management issues are the key factors that influence the further development of AI implementation within the organization. Following are the arguments made by the experts in this regard: According to the experts, current AI projects are simply not getting the support they need from executives and are therefore languishing or even being abandoned. To be able to track the progress of the implementation of AI it's important to coming up with a clear plan with achievable objectives for short- and long-term plans.

It's just as important to carry on training and developing to ensure that one can use AI effectively. The collaboration with the academic institutions, as well as the internal training

[12] This part was written by the author originally in German, Deepl was used to translate it to English. There is a possibility that it will be shown as a written by AI, but it's written by the author.

will contribute to the enhancement of the required competencies and information for managing AI technologies. Therefore, companies should spend their resources in internal trainings so that the employees can be trained and enhanced in their skills. This supports the adoption of AI and ensures that the company has the know-how to leverage on the AI technologies effectively. It's important that there is a proper way on how to approach the use of AI which is through proper data strategy. It's therefore important that organizations set out proper guidelines and practices for the use of data, as well as put in place proper measures to enhance the protection of data to increase confidence in AI systems and their application.

In essence, a model that is based on AI cannot offer proper results if there is no strong database to work with it. Experts pointed out that it's crucial to develop the mechanisms for protecting the data and enhance the data quality to enhance trust in the AI technologies. Another rather challenging and resource-consuming process is the development of an efficient and scalable AI infrastructure. By collaboration and cooperation, the limitations of technology can be avoided while an adaptable and expandable system can be established. General structure must be modular and scalable to be able to respond to the future shifts in the system. This, therefore, calls for strategic thinking and funds to support the development of new technologies. It's crucial that the use of AI systems is accompanied with the principles of openness and ethical concerns. Companies should therefore set policy guidelines on decision making and make sure that with the use of AI, justice is served equally. Regulations of rule and ethical standards have to be followed in order to acquire and sustain the trust of stakeholders.

Besides these challenges, the use of AI has also numerous benefits. Through this, companies can be able to enhance on the production aspect hence reducing the costs that are incurred in the process. For competitiveness it's recommended to develop a whole of government data strategy and enhance supply chain management. AI helps in the personalization of customers for instance a customer may be offered a product that is most suitable for him or her and which they may likely purchase. By effective and clear customer interaction, as well as the development of a framework, other possibilities can be realized to maximize the potential of AI. The research provides important specific cases and practical guidelines for the strategic management of AI in organizations and therefore addresses a research gap. These are the very useful guidelines for the companies which are willing to implement AI as a means of enhancing their strategic decision-making effectiveness and thus achieve lasting success. In

conclusion, the integration of AI in companies can be seen as a strategic advantage which pose both threats and opportunities. Thus, the proper planning, constant development, sound data policies, and compliance with the ethical principles will enable firms to harness the whole potential of AI and, therefore, enhance their future performance in the present environment. The use of AI in organizations brings the company both the threats and benefits.

Some of the challenges that have been discussed in this report include how to implement the AI within the existing systems, data security, managing for the costs of implementation and change, and organizational culture resistance. AI has also numerous potential benefits, for instance, enhanced business processes, enhanced processes of decision making, and decreased expenses. For the purpose of the efficient presentation of the key findings of this work, the following graphic provides a summary of the main elements that are critical to the application of AI. It's relevant to technological requirements, organizational challenges, leadership, target groups, and strategic chances.

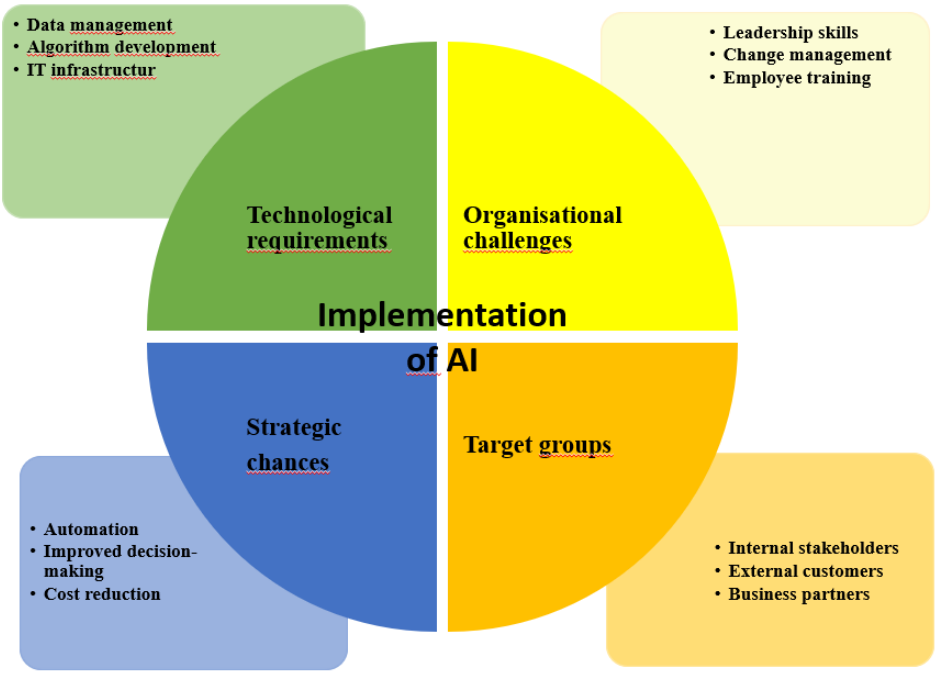

Illustration 3: Overview Implementation of AI

10.2 Limitation and further research[13]

While existing research positively contributes to the understanding of the strategic orientation of AI in organizations, caution is advised when interpreting the results due to inherent limitations. The literature review and the expert interviews mainly focus on specific types of companies or industries. They hinted that the literature and expert responses cannot generalize the results to all industries and company sizes. The results of these findings are not universally applicable, as the operational structures, technical requirements, and cultural dynamics between companies vary greatly. AI and its applications are growing rapidly. Potential developments in neural networks with deep learning, data analysis, and machine learning should provide a rough overview. There are many potential impacts of the topics addressed in this dissertation.

The comments and experiences of the professionals who participated in the interviews provided a solid foundational understanding. Despite the relevance of these perspectives, they represent a subjective assessment that may have been implicitly influenced by the personal or professional experiences of some of the experts. The objectivity and universality of the results could be compromised by subjectivities.

Only expert interviews were conducted, as a comprehensive insight into the topic had to be provided in a short time. A quantitative survey could provide even deeper insights.
Due to the scope, ethical and legal questions in a dissertation like this were only addressed in a rudimentary manner. This dissertation addresses only a few points of privacy as well as algorithmic fairness and ethics, which have become immensely important aspects of research due to the growing significance of AI. Not surprisingly, most of the scenarios and implementations discussed in the guide are still in the early phase. It's too early to assess what long-term effects this will have or whether they will be sustainable in the long run. The language of AI adoption evolves over time, with the consequences (both positive and negative) for business strategies and related outcomes only being fully recognized after several years. There are several approaches for future work that focus on AI and its strategic integration into companies. Future empirical studies that use larger and more diverse samples

[13] This part was written by the author originally in German, Deepl was used to translate it to English. There is a possibility that it will be shown as a written by AI, but it's written by the author.

are necessary to replicate the findings of this research. This could be further strengthened through large-scale surveys and quantitative analyses.

It's necessary to conduct long-term studies to examine the long-term effects of the use of AI on business strategies and outcomes over an extended period. Future studies should include comprehensive ethical assessments of the use of AI in businesses. These can include concrete case studies to ensure algorithmic fairness and the ethical development of AI systems. A holistic research methodology that combines the fields of economics, computer science, sociology, and law could help gain a deeper understanding of the various facets of AI implementation, thereby promoting the development of more effective and sustainable AI strategies. It's important to also consider the perspectives of employees and their adaptation to AI technologies in future studies. This could help gain a deeper understanding of social dynamics and acceptance factors. In general, the aim of these methods is to deepen the understanding of the strategic implementation of AI in companies and to support the development of more efficient and sustainably successful AI strategies.

References

Alpers, S. et al., 2024. Ethical, legal and social implications (ELSI) of the design of AI systems: Systematization of the consideration through procedure models and guidelines. *Zeitschrift für Arbeitswissenschaft ,* pp. 160-169.

Baur, N. & Blasius, J., 2022. *Handbuch Methoden der empirischen Sozialforschung.* s.l.:Springer VS .

Beckert, B., 2021. Vertrauenswürdige künstliche Intelligenz: Ausgewählte Praxisprojekte und Gründe für das Umsetzungsdefizit. *Journal for Technology Assessment in theory and practices ,* pp. 17-22.

Bhalerao, K., Kumar, A. & Pujari, P., 2022. A STUDY OF BARRIERS AND BENEFITS OF ARTIFICIAL INTELLIGENCE ADOPTION IN SMALL AND MEDIUM ENTERPRISE. *cademy of Marketing Studies Journal,* pp. 1-6.

Bharadiya, J., 2023. Machine Learning and AI in Business Intelligence: Trends and Opportunities. *International Journal of computer (IJC),* pp. 123-134.

Chen, P., Chu, Z. & Zhao, M., 2024. *The Road to corporate sustainability: The importance of artificial intelligence,* s.l.: ELSEVIER.

Cook, S., Hagiu, A. & Wright, J., 2024. Turn Generative AI from an Existential Threat into a Competitive Advantage. *Harvard Business Review ,* pp. 119-125.

Damsten, E., 2023. *OMNITAS Consulting.* [En ligne]
Available at: https://www.omnitas.com/migrating-legacy-systems-integration-challenges-and-strategies/

Davenport, H. T. & Ronanki, R., 2018. Artificial Intelligence for the Real World. *Harvard Business Review.*

Davenport, T. H., 2006. *Empirical evidence solidifies the importance of technical literacy as a core competency..* s.l.:Harvard Business Review.

Davis, A., 2023. *OpenLegacy.* [En ligne]
Available at: https://www.openlegacy.com/blog/legacy-systems-integration

Devenport, T., Guha, A., Grewal, D. & Bressgott, T., 2019. How artificial intelligence will change the future of marketing. *Journal of Academy of marketing Science ,* pp. 24-42.

Ecker, W., Coulon, C.-H. & Kohler, M., 2021. *KI in Anwendung bringen,* München : Lernende Systeme - Plattform für Künstliche Intelligenz.

Enholm, I. M., Papagiannidis, E., Mikalef, P. & Krogstie, J., 2021. *Artificial Intelligence and Business Value: a Literature Review.* s.l.:Springer Verlag .

Fahlevi, M., Aisjah, S. & Djazuli, A., 2023. *Corporate Governance in the Digital Age: A Comprehensive Review of Blockchain, AI, and Big Data Impacts, Opportunities, and Challenges.* s.l.:Management Department, Brawijaya University, Malang, Indonesia.

Farayola, O. et al., 2024. AI in Decision Making: Transforming Business Strategies. *International Journal of Research and Scientific Innovation,* pp. 423-444.

Flick, U., 2018. *An Introduction to Qualitative Research.* s.l.:Springer.

Füller, J. et al., 2022. How AI revolutionizes innovation management – Perceptions and implementation preferences of AI-based innovators. *ELSEVIER,* pp. 1-22.

Gillhuber, A., Kauermann, G. & Wolfgang, H., 2023. *Künstliche Intelligenz und Data Science in Theorie und Praxis.* s.l.:Springer Spektrum.

Goodfellow, I., Bengio, Y. & Courville, A., 2016. *Deep Learning.* Massachusetts: The MIT Press Cambridge.

Hartmann, E. A., 2021. *Digitalisierung souverän gestalten - Innovative Impulse im Maschinenbau.* s.l.:Springer Verlag .

Hennink, M., Hutter, I. & Bailey, A., 2020. *Qualitative Research Methods.* s.l.:SAGE.

Hildebrandt, A., Landhäußer & Werner, 2021. *CSR und Digitalisierung.* s.l.:SingerGabler .

Huang, K. et al., 2023. *Beyond AI: ChatGPT, Web3, and the Business Landscape of Tomorrow.* Cham: Springer Nature Switzerland AG.

Jarvis, D., 2020. *Deloitte Insights.* [En ligne]
Available at: https://www2.deloitte.com/us/en/insights/industry/technology/artificial-intelligence-roi.html

Kaplan, A. & Haenlein, M., 2019. Rulers of the world, unite! The challenges and opportunities of artificial. *Journal ELSEVIER,* pp. 37-50.

Kaplan, A. & Haenlein, M., 2020. Rulers of the world, unite! The challenges. *Elsevier,* pp. 37-50.

Khan, T., 2023. *IBM.* [En ligne]
Available at: https://www.ibm.com/blog/legacy-application-modernization/

Limat, C., 2022. Disruptionspotenzial künstlicher Intelligenz: Ein Reifegradmodell zur Einführung ganzheitlicher KI-Initiativen in Unternehmen. *Wirtschaftsinformatik & Management ,* pp. 1-8.

Moore, B., 2024. *What competencies will be needed to?.* s.l.:Springer Verlag.

Moring, A., 2021. *KI im Job: Leitfaden zur erfolgreichen Mensch-Maschine-Zusammenarbeit.* s.l.:Springer Verlag .

Nadella, S., 2023. *Satya Nadella Says AI Golden Age Is Here and 'It's Good for Humanity* [Interview] (18 January 2023).

Obermaier, R., 2019. *Handbuch Industrie 4.0 und digitale Transformation.* Wiesbaden: SpringerGabler.

Pentenrieder, A., Hartmann, E. A. & Künzel, M., 2021. *Digitalisierung souverän gestalten II.* s.l.:Springer Verlag .

Pierre, K. & Abend, S., 2022. *KI-Lösungen nachhaltig implementieren,* s.l.: Springer Professional .

Rammer, C. et al., 2020. *Einsatz von Künstlicher Intelligenz in der Deutschen Wirtschaft: Stand der KI Nutzung im Jahr 2019.* Berlin : Bundesministerium für Wirtschaft und Energie .

Renz, A. & Hilbig, R., 2020. Prerequisites for artificial intelligence in further education: identification of drivers, barriers, and business models of educational technology companies. *International Journal of Educational Technology in Higher Education,* pp. 1-21.

Schlimbach, R., Khowsrawi-Rad, B. & Robra-Bissantz, S., 2022. *Quo Vadis: Auf dem Weg zu Ethik-Guidelines für den Einsatz KI-basierter Lern-Companions in der Lehre?.* s.l.:Springer Verlag .

Sevindik, U., 2022. *SevindikVerbreitung und Einsatz von Künstlicher Intelligenz in Deutschland – Auswirkungen auf berufliche Anforderungen und Strukturen,* s.l.: Bundesinstitut für Berufsbildung.

Shaw, J., Rudzicz, F., Jamieson, T. & Goldfarb, A., 2019. Artificial Intelligence and the Implementation Challenge. *Journal of Medical Internet Research ,* pp. 1-11.

Singla, A. et al., 2024. *McKinsey&Company.* [En ligne]
Available at: https://www.mckinsey.com/capabilities/quantumblack/our-insights/the-state-of-ai

Stohwasser, S. & Suchy, O., 2020. *Einführung von KI-Systemen in Unternehmen ,* München : Lernende Systeme-Die Plattform für künstliche Intelligenz.

Suryadevara, C. K., 2017. Transforming Business Operations: Harnessing Artificial Intelligence And Machine Learning In The Enterprise. *International Journal of Creative Research Thoughts ,* pp. 931-938.

Wynsberghe, v. A., 2021. Sustainable AI: AI for sustainability and the sustainability of AI. *AI and Ethics ,* pp. 2013-2018.

Zimmermann, V., 2021. s.l.: KfW Research .

Appendices

Detailed Codebook

Category	Definition	Application criteria	Expert	Text excerpt (examples)
Technological challenges	Difficulties and obstacles in the implementation of AI technologies in companies.	This code is used when interviewees talk about specific technical issues, integration difficulties, or infrastructural challenges that arise in connection with the implementation of AI systems. .	E3	"We had great difficulties integrating the new AI modules into our current IT systems. It was a great difficulty to connect the different technologies without disrupting the existing processes."
			E8	"The biggest challenge was to meet the data security since we were working with the customers' information. It was imperative to encrypt all the data and protect them from the unauthorized access."
			E1	"Our systems are not designed to integrate AI, which is why significant adjustments were necessary."
			E6	" The difficulty of the AI algorithms was a significant problem for our developers" That is why we had to revolutionize our architecture. To perform the algorithms effectively, certain skills and much time for practice had to be done."
			E10	" Our systems were not designed for the large amounts of data that could be generated by AI. We were forced to invest large sums in new servers and storage solutions."

			E4	"There was a lot of difficulty in interoperability between different AI tools and our existing systems. In order to make the integration possible, individual solutions had to be developed."
Organizational adjustments	Changes and adjustments required within an organization to successfully implement AI.	This code is used when interviewees talk about changes in organizational structure, training, or changes in corporate culture. .	E5	" It was necessary to set up new teams that deal exclusively with the implementation of AI. To ensure that all aspects of the implementation were taken into account, these teams worked beyond the department"
			E1	"In order to use the new AI tools effectively, employees needed thorough training. Training was held regularly to ensure that all employees were aware of the latest technical developments."
			E9	"In order to respond more flexibly to technological advances, it was necessary to change our corporate structure. Agile methods were introduced and a more flexible working atmosphere was promoted.."
			E4	"The implementation of an agile way of working played a decisive role in the success. By applying agile methodologies, we have been able to respond faster to change and

				implement AI more efficiently."
			E3	" To support the AI projects, our departments had to cooperate more intensively. In order to exploit synergies, the cooperation between IT, data analytics and business units has been intensified."
			E8	Change management played a central role in overcoming resistance. We have conducted extensive communication campaigns to communicate the benefits of AI and increase adoption."
	Practices and challenges in dealing with data	This code is used when interview participants discuss the collection, storage,	E10	"To do this, we had to make sure that our database met the legal requirements. This included complying with all data protection regulations and implementing strict security protocols."
			E2	" The problem was that many data sets were incomplete or inconsistent in terms of data quality. It took a lot of effort to standardize and clean the data."

Data management	required to implement AI.	protection and evaluation of data.	E7	"Standardizing and consolidating the data from different sources was a difficulty. To create a uniform database, we had to develop special tools and processes."
			E4	"The processing of data volumes was not a concern to us because we have already put in place a good data structure. Our present systems were flexible and we did not encounter any difficulties with the increased data."
			E1	"It was necessary to continuously monitor and adapt data management. To ensure that our systems meet the current requirements, we were forced to review and adapt them regularly."
			E6	"We have set up special teams that deal only with data management. The responsibility for these teams was to control the quality of the data and ensure that all data was properly captured and stored."
			E3	" Due to the use of a scalable cloud infrastructure, we were able to handle the data volumes well. This allowed us to react quickly and flexibly to changing requirements."

Leadership roles	The role of leaders and their influence on the successful implementation of AI.	This code is used when interviewees talk about management help, strategic decisions, or the vision of executives.	E7	"The support of senior management was crucial to the success of the project. The executives provided the necessary resources and support to make the implementation possible."
			E4	" Our leaders have a clear vision of how AI can be integrated into our business processes. The alignment of the entire organization around a common goal was supported by this vision."
			E6	" Management actively supported and encouraged change, which made it much easier to implement. Their commitment made it possible to quickly overcome resistance."
			E10	"The transition was facilitated by the ongoing provision of resources and the promotion of an open communication culture. This led to the creation of an environment of trust and cooperation."
			E2	" Strategic decisions were made quickly to speed up implementation. The managers were able to react quickly to problems and develop solutions."
			E5	The tour created an environment that included the promotion of innovation and experimentation. This allowed the teams to try

				out new methods and develop innovative solutions."
			E9	"A long-term strategy has been developed by the executives to promote AI initiatives in the long term. This strategy ensured that the projects were not only successful in the short term, but also offered long-term benefits."
Strategic opportunities	Opportunities and potentials that arise from the implementation of AI.	This code is used when interviewees talk about competitive advantages, efficiency gains, or new business opportunities enabled by AI.	E9	" By adopting AI, we have been able to significantly change our production processes. Automation has allowed us to reduce manufacturing costs and increase efficiency."
			E6	"AI opens up new opportunities for us to offer tailored services to our customers. Now we can offer individual solutions that are specifically tailored to the requirements of our customers."
			E2	"By improving efficiency through AI, our operating costs have been significantly reduced. We were able to automate many manual processes, which resulted in significant savings."

			E5	"The use of AI to develop new products and services offers us significant potential. By evaluating extensive data sets, we can identify trends and develop creative solutions."
			E1	" AI has helped us enter new markets and expand our business globally. Our offering can now be adapted to the needs of international customers, which allows us to better serve them."
			E3	"AI automation has significantly increased the productivity of our employees. Our employees now have the ability to focus on tasks that add value while automating routine tasks.."
			E4	"By implementing AI, we were able to perform market analysis more accurately and respond to trends faster. In this way, we were able to take advantage of a competitive advantage in a rapidly changing market."
Target groups	The various internal and external stakeholders affected by the implementation of AI.	This code is used when interview participants talk about the various stakeholders, their requirements and expectations.	E5	"Our customers expect us to provide them with better services with the latest technologies." "Employees initially had concerns about how AI might affect their workplaces, but implementing AI helps us

				meet those expectations and satisfy our customers."
			E8	"Employees were initially concerned about how AI might affect their workplaces. However, through transparent communication and training, we have been able to allay these concerns."
			E10	"To ensure a successful integration, our partners and suppliers also had to be involved in the process. " This required intensive cooperation and regular exchange."."
			E3	"Regulators are instrumental in setting standards and guidelines for the application of AI." We had to make sure that we met all the legal requirements."
			E7	"To ensure a successful implementation, it was important to take into account the expectations of all stakeholders. This included regular updates and open conversations to build trust."
			E2	"Communication with the target groups played a crucial role in creating trust and acceptance for the AI projects. To make sure everyone was informed, we used

				different ways of communication."
			E6	"To address their concerns and ensure transparency, we have organized regular meetings with stakeholders. This avoided misunderstandings and supported the implementation smoothly."
Economic impact	The economic benefits and challenges arising from the implementation of AI.	This code is used when interviewees talk about the economic effects of AI implementation, such as cost savings, ROI, or financial risks.	E1	" The use of AI had many economic benefits, most obviously in the sphere of production. We have also been able to improve on the production efficiency and minimize on the production of by-products.."
			E3	"Realizing the ROI of our AI projects has been much faster than expected. " The investment in AI has quickly paid off as efficiency and productivity have increased."

			E5	"By increasing process efficiency, investments in AI have quickly paid for themselves." "We were able to start more AI projects because the savings were so significant."
			E9	" AI has provided us a means to generate new sources of revenue and this is through provision of services that are informed by data. Here, the growth in our sales was greatly boosted by the new business models."
			E7	"The initial investment was high, but the long-term savings and profits significantly exceeded the costs." "AI has proven to be very profitable."
			E4	"The economic risks have been reduced through thorough planning and risk analysis." To ensure that AI implementation is financially viable, we conducted a thorough analysis."
			E10	"According to our financial predictions, AI will make a significant contribution to the growth of our company in the long term." We expect AI initiatives to increase our competitiveness and consolidate our position in the market."

Table 4: Appendix

Interview transcript – Expert 3

[00:00:01.500] – Interviewer:
Thank you so much for taking the time to talk to us. To jump right in, what are the most important strategic considerations when a company starts an AI implementation project?

[00:00:12.200] - Expert 3
The vision and objectives of AI project must be well defined and specific for the success of the project. That is why it's crucial for organizations to know in detail what kind of tasks they are going to solve with the help of AI and how this technology is going to support the achievement of the organizational objectives. The reliability of the basic data is crucial, and so is the company's preparedness to spend on the right tools and personnel development. It's important to involve the right people from the beginning and to define, at least, the short-term and the long-term goals. This paper recommends that to ensure that the start of the implementation of AI is good and that it can be sustained in the future, there is a need for the company to create an environment where learning and openness to new technologies are encouraged.

[00:01:52.200] - Interviewer
How can business leaders ensure that AI initiatives are aligned with the overall business goals?

[00:02:01.300] - Expert 3
The management of business organizations must therefore avoid developing AI strategies as stand-alone projects, but as part of the business strategy. It means that AI teams should work in compliance with the business units to make sure that the projects are relevant to the company's strategy. This is to mean that there is need to regularly review and adjust make sure that the projects are in a position to adapt to the changes that are likely to occur in the business environment. Managers should also ensure that there is proper management of resources and that there are quantifiable objectives that show the performance of projects. These are openness, whereby feedback is encouraged and used, to enhance the chances that the AI initiatives are effectively incorporated into the overall strategy.

[00:03:19.300] – Interviewer
What steps are crucial to develop a viable and sustainable AI implementation strategy?

[00:03:28.800] - Expert 3
One of them is to perform an assessment of the current state of data and IT infrastructure of the company. Therefore, it's important for companies to set up their roadmap that will include short term achievements and distant objectives. The plan should be flexible enough to be able to accommodate for new technologies in the future. It's essential to start with the small-scale tests of the AI technologies and measure their effectiveness, before scaling up the implementation. It's crucial to involve all the stakeholders, including IT and senior management, to make the strategy applicable to all. Finally, it's recommended that the company should regularly spend its resources in the training of its employees so that they are in a good position to work with new technologies in the market.

[00:05:06.900] – Interviewer:
What potential pitfalls do you see as companies accelerate the adoption of AI, and how can they be avoided?

[00:05:16.100] - Expert 3
One flaw of AI integration is that data, which is central to the AI, is not well prepared, which is a result of the fast development of AI. Firms that move too quickly may end up with data that is not cleaned or properly formatted and hence produce wrong or meaningless results. Also, there is an issue of the lack of harmonization of artificial intelligence with the current business operations. There is the need to ensure that all the integrated AI solutions are well harmonized within the existing systems in order to get the best results. In conclusion, companies have to guarantee that their staff members are equipped and engaged in the process. The following are some ways through which resistance can be minimized; First, by ensuring that good communication is done, second by ensuring that enough training is given to the employees and lastly through a step by step implementation plan.

[00:06:44.100] – Interviewer
In what ways does organizational culture influence the effectiveness of AI integration, and how can it be designed to support AI initiatives?

[00:06:53.100] - Expert 3
The culture of the organization is an essential factor in achieving the right integration of AI. Having a culture that supports innovation, learning, and change enables the organization to adapt easily to the new technologies. Managers should make efforts to develop this kind of culture, promoting openness and positive attitudes towards change. The implementation of AI cannot be done otherwise than with the support of employees who will be able to exploit the full potential of the technology. This includes the following: treating errors as lessons and ensuring that the employees are free to report and share their observations and suggestions. Another way that can be taken by the companies is to develop incentives that help in the adoption of AI and the commitment towards it, such as recognizing and rewarding people with innovative ideas or projects that are effective.

[00:08:32.100] – Interviewer
What are the main problems with integrating AI into legacy systems, and what innovative solutions have you seen in your work?

[00:08:41.100] - Expert 3
The problem with legacy systems is that it's quite challenging to incorporate AI because these systems were not built with the capability of dealing with huge amounts of data that are required by AI. One way is to employ middleware that acts as a bridge between the current systems and the new ai applications. This middleware has the following characteristic of transforming the information into a format that is easily understandable by the AI system. Another approach is to implement artificial intelligence in the organization step by step, starting with the so-called proof of concept that does not necessitate significant changes to the existing processes. In this way, the companies can experiment on the new technologies and by doing so the infrastructure will also get transformed slowly. Cloud services can be a quite versatile and scalable approach in some cases, for instance, when systems that have been implemented are not easily scalable.

[00:10:29.500] - Interviewer
How should companies approach organizational change to facilitate the adoption of AI?

[00:10:38.500] - Expert 3

It's imperative to understand organizational change when it comes to AI adoption and such processes should be well planned for. It's therefore important to have a clear plan and a good leadership when it comes to managing change. The next thing is to ensure that employees are involved at the initial stage and are offered with the tools which they require to go through the changes. The plans put in place for change management should work towards understanding those who are likely to resist and deal with them. Pilot projects are therefore useful in this context, for they allow the employees to get introduced to the new technologies in a phased manner and voice any concerns they have in a low-risk environment. Other factors that are important in order to ensure that employee's commitment and support are sustained include frequent and open communication of the progress of the project.

[00:12:46.500] – Interviewer
what are the best practices to foster effective collaboration between IT and business units in AI projects?

[00:12:55.500] - Expert 3
One of the best ways is to create cross-functional teams that would cover both technical and business aspects to guarantee that all the right approaches are considered when developing AI solutions. Such groups need to meet frequently and keep everyone informed to avoid misunderstandings. It's therefore useful to have IT and business objectives that are aligned and to have measures that are applicable to both IT and business. Thus, both parties are able to comprehensively discuss certain issues and possibilities concerning the development of the project in the framework of workshops and training courses. It's necessary to encourage cooperation in all levels of the hierarchy, including leadership and working teams, to guarantee that the AI projects are well executed.

[00:14:43.500] – Interviewer
What competencies are most important for employees to effectively contribute to AI projects?

[00:14:52.500] - Expert 3
To be useful in AI projects, the employees should possess both technical and non-technical skills. Technically, one needs to know about data analysis, machine learning and programming. Besides, they should have a comprehension of the technological and platform support of AI systems. In addition, there are certain soft skills which are critical such as critical thinking and problem-solving skills. The employees should be able to dissect problems and offer solutions which are practical in the organization as well as in the technology world. Interpersonal skills are also essential since the employees have to share their findings with other stakeholders in a simple manner. As for the matter of fact, the possibility to learn and develop within the sphere of AI is one of the most significant competencies.

[00:16:56.500] – Interviewer
How can organizations design continuous training programs that keep pace with advances in AI?

[00:17:05.500] - Expert 3
Training programs should be modular, and the training should be flexible enough to enable organizations to update the training as and when new developments emerge in the artificial intelligence field. Businesses can also leverage on the e-learning platforms wherein the employees can learn on their own and from which can be accessed with numerous training

modules. Moreover, it's necessary to update the training on a frequent basis, that is, to include new technologies and methods. To this end it's recommended that the training program includes practical exercises and projects that employees can apply in the workplace on the same day. Therefore, it's recommended that companies engage universities and research institutions to guarantee that their workers have an option of quality work related training materials and courses. This is to enhance the learning culture in the company and as such the employees should be given chance to enhance knowledge and skills, they have learnt with a view of preparing them for the upcoming challenges.

[00:19:22.500] – Interviewer
What are the fundamental elements of a successful data strategy in the context of AI?

[00:19:31.500] - Expert 3
The first principle of a good data strategy is data quality. Organizations should make sure that the information they are using and processing is complete, consistent, accurate and timely. An AI system cannot give proper or useful output if it does not have good data. Another factor is data management which deals with the proper handling, storage, preparation, and protection of data. It's important to set down specific requirements and guidelines for data management and the aspects of data quality and protection. It should also be able to be scalable and accommodate additional features and changes to the technology.
The data strategy should also allow for the organization to be able to change and meet new challenges and advancements that it may encounter. Lastly, the approach to data should be very much aligned with the approach of the company. We should not consider data as an isolated item but as a tool which can be very beneficial in the achievement of the company's objectives. It's therefore important that data specialists and business function collaborate so that the data strategy both defines the right priorities and provides the necessary business intelligence.

[00:21:58.500] – Interviewer
How can organizations maintain high data integrity and accuracy in their AI initiatives?

[00:22:07.500] - Expert 3
Ensuring that the quality of data is highest possible is very crucial for any AI project to be successful. There is therefore the need for organizations to establish strong data management procedures and policies that will help in maintaining consistency of data. It's advisable to conduct periodic data audits in order to avoid such problems in future. Also, employees should be made aware of the significance of data quality and should be taught on how to use the proper handling of data. Third, organizations should also employ the data validation tools that help in verifying that data fed into AI systems is accurate and consistent. This is particularly important where external sources of data are used, and the data collected needs to be accurate. It's recommended that organizations should promote data stewardship culture in which all the employees are aware of their responsibility concerning data quality and use.

[00:24:41.500] – Interviewer
What specific benefits have you seen from using AI in optimizing workflows or production processes?

[00:24:50.500] - Expert 3
this has made it possible for companies to realize a great amount of efficiency by implementing artificial intelligence in production of goods and services. The real-time

analysis of large volumes of data is a major strength that AI offers to businesses as they are in a better position to anticipate how they will run their operations and therefore avert congestion. In manufacturing, artificial intelligence has been used to minimize the time machines are not in use by conducting maintenance, hence cutting on cost and improving efficiency. Also it has been noted that use of AI in demand forecasting makes the process more accurate and the supply chain better managed. Moreover, artificial intelligence in quality assurance has enhanced the identification of defects in products hence minimizing on the production of faulty products. In general, the application of AI technology has improved the performance of organizations; at the same time enhancing the quality of their products.

[00:27:51.500] – Interviewer
How should companies address the ethical and regulatory challenges associated with AI to ensure compliance and trust?

[00:28:00.500] - Expert 3
To be on the right side of the law and to foster the trust of the people key stakeholders in companies must ensure that their use of artificial intelligence is ethical. This entails following on the guidelines that are laid down by the data protection laws and ensuring that any data that is used in the AI models are in accordance to the current legal provisions on data protection. It's crucial that firms guarantee that the AI systems are interpretable and understandable by people so that the outcomes that these systems produce are easily understandable. There are necessary steps that should be taken to monitor and regulate AI systems to make sure that they are not prejudiced and do not have bias. It's also important that employees are to be provided with regular refresher courses on ethic concerns in AI to enable them to recognize any possible ethic concerns that may arise. In conclusion, it's crucial that companies continue to engage in an open dialogue with the stakeholders in order to guarantee that all of the stakeholders' expectations and requirements are met by the AI initiatives and, therefore, raising the overall trust in the technology.

[00:31:20.500] – Interviewer
Thank you for your valuable insights. Their expertise will certainly help develop a better understanding of the challenges and opportunities involved in implementing AI.

[00:31:29.500] - Expert 3
It was a pleasure to talk about this important topic. Thank you very much for the interview.