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Integrating AI in BPM of Russian Medium-Sized Furniture Manufacturing Companies

Bachelor of Business Administration
International Business
Spring 2025

KAMK • University of Applied Sciences

Abstract

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Title of the Publication: Integrating AI in BPM of Russian Medium-Sized Furniture Manufacturing Companies

Degree Title: Bachelor of International Business

Keywords: AI Integration, Business Process Management, Russia, Manufacturing, Automation

Abstract:

This thesis investigates the integration of Artificial Intelligence (AI) into Business Process Management (BPM) within medium-sized furniture manufacturing companies in Russia. Guided by the Resource-Based View (RBV) framework, AI is conceptualised as a strategic resource that can offer competitive advantages through enhancement of business processes. The necessity of this research stems from raising level of AI adoption around the world comparing to its uncommon utilisation among medium-sized manufacturing companies. The findings of this study provide a significant opportunity for companies to identify and leverage the full potential of AI technologies, address its integration challenges, and devise suitable strategies.

The research employed a qualitative methodology with data gathered through semi-structured interviews from three Russian furniture manufacturing firms. Thematic analysis was applied deductively based on the RBV framework to identify key themes: enhanced business processes, integration challenges, and strategic enablers. Eventually, the research questions were addressed, and the objectives of the thesis were met.

The findings of the interviews were in line with the theories and RBV framework. It was found that AI technologies are rapidly developing in Russia and some companies are already utilising them successfully in their business processes in a significant capacity. An evaluation of the challenges associated with AI integration was conducted in conjunction with the formulation of strategies to address difficulties.

This research contributes to the limited body of empirical knowledge on AI adoption among Russian SMEs and offers practical insights for manufacturing firms seeking to enhance their BPM through strategic AI integration.

Foreword:

I would like to express my sincere gratitude to the individuals who were involved in conducting this thesis, either to a greater or lesser extent. Firstly, I would like to express sincere gratitude to my supervisor, his motivation at critical moments, patience, and support over the past semester have been invaluable. Secondly, I would like to express gratitude to my father, who demonstrated understanding of my frustration with the research and agreed to provide support by offering contacts of potential interviewees. Thirdly, I would like to express thankfulness to the individuals who agreed to participate in interviews and provided a wide range of information, thereby facilitating the realisation of the idea.

During the course of thesis, there have been occasions when I have felt overwhelmed and out of place. The subject matter proved to be a challenge for me. However, as time has passed, I have come to recognise that this experience has been a necessary part of my professional development. I suppose that each of us, students, is on the right way, it is just a matter of perspective. I perceive my journey at KAMK as an experience that allowed me to know myself better and that is why I am very thankful to it. As Henry Ford once said “Experience is the harvest of life, and every harvest is the result of a sowing. The experience which young people must crave is that of success in some service for which they are naturally fitted."

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1 Introduction

Business Process Management (BPM) empowers firms to create, analyse, and enhance their workflows to promote their alignment to achieve set goals. According to Özkan et al. (2023) firms focusing on the improvement of work processes positively influence their product quality, customer satisfaction, and performance of their innovations.

Artificial intelligence (AI) is a field of technology concerned with the development of computer systems that are capable of emulating human-like abilities, including learning, comprehension, problem-solving, decision-making and creativity (Stryker & Kavlakoglu, 2024). It is an increasingly popular tool adopted by firms seeking to enhance their business process management (BPM) capabilities, with studies such as that reported by Gomes et al. (2022) indicating that the incorporation of AI into BPM can lead to significant improvements in operational efficiency, cost savings and growth, alongside increased levels of innovation.

1.1 Research Problem

Most of the AI users in BPM are large-sized companies, while medium and small-sized manufacturing companies hardly invest in such technologies. Lada et al. (2023) indicate three fundamental inhibitors to AI adoption in the case of SMEs: lack of required skills, weak infrastructure, lack of commitment on the part of senior leaders to raise investments in AI technologies. Schwaeke et al. (2024) state that AI-adopting SMEs can benchmark their working processes and improve competitiveness by conforming new technologies to existing practices.

1.2 Research Questions

The guiding research questions are stated as follows:

1. RQ1: Why should medium-sized manufacturing companies in Russia integrate AI into their Business Process Management (BPM)?

2. RQ2: What benefits can AI integration bring to business processes?

1.3 Aim/Objective

The research aims to investigate practices that facilitate the integration of AI into business processes of medium-sized Russian furniture manufacturing companies to promote efficiency of operations, enhance decision-making, and improve process automation. In other words, the aims are:

1. To critically examine the impact of AI in BPM and establish its value among medium-sized Russian manufacturing companies.
2. To investigate effective strategies to integrate AI in the business processes of medium-sized Russian manufacturing companies.
3. To identify effective AI tools that enhance the business processes of medium-sized Russian manufacturing companies.
4. To investigate the challenges and risks faced in the adoption of AI tools in the business processes of medium-sized Russian manufacturing companies.

1.4 Output

The researcher focused the study on firms among Russian small-medium sized furniture manufacturing companies, examining the factors influencing AI integration in BPM within this sector. European Commission (2024) defines SMEs as enterprises which employ fewer than 250 persons and which have an annual turnover not exceeding 50 million euro, and/or an annual balance sheet total not exceeding 43 million euro. Therefore, only manufacturing firms within the SME categories will be considered in the research.

1.5 Beneficiary

The outcome will be beneficial for SMEs in manufacturing sector in Russia. The research will allow managers to identify the full potential of AI in BPM and evaluate the integration strategies employed by companies in this sector.

2 Theoretical Framework

This chapter provides a review of the theoretical literature of the project. The guiding resource-based view (RBV) theory is justified based on the aim of the research. The central concepts include: the integration of AI in enhancing the BPM of furniture manufacturing firms, challenges faced by manufacturing SMEs when adopting AI in business processes, and strategies that can be adopted to improve the uptake of AI in SMEs. The literature gap and summary of the insights are also presented in this chapter.

2.1 Furniture Manufacturing Industry

According to European Commission (2024), the furniture manufacturing sector is predominantly composed of SMEs and micro firms. In the EU alone, there are approximately 130,000 companies in this sector, employing around 1 million workers and generating an annual turnover of about €96 billion which contributes to overall economic growth.

Recent technological advancements, including those in the field of AI, have had a significant impact on the growth of this sector in recent years. AI have provided furniture manufacturers with unique opportunities that can result in an enhanced BPM. Özkan et al. (2023) reported that increased competitiveness and market share for SMEs depend on innovative processes and implementation of new technologies, including AI. Customers are more conscious of product quality and efficient production processes influencing purchase decisions. The following subsection discusses business process management in SMEs.

2.2 Business Process Management (BPM)

Understanding how AI transforms business requires reviewing business process management and its core elements. Van der Aalst (2013) conceptualizes BPM as a discipline combining knowledge from information technology and management sciences. It applies this to processes of business operation to enhance the operations of an organization. The contemporary business environment is increasingly becoming competitive; as a result, firms need to adopt innovative techniques, including AI. Similarly, Ubaid and Dweiri (2020) reported that BPM is a structured approach aiming

to enhance product and service quality through the analysis, improvement, control, and management of processes. BPM focuses on improving the quality of products and services by automating processes, analysing operations, and organizing work. The next chapter examines how to improve the BPM of manufacturing firms using AI applications.

2.3 Role of AI in Improving BPM of Manufacturing Firms

This section reviews studies on the specific roles of AI in enhancing BPM in SMEs operating in the manufacturing sector. Companies that invest in improving their business processes enhance the quality of their products, the satisfaction of their customers, and their competitiveness in the market (Özkan et al., 2023). The adoption of AI and machine learning tools in business processes is empowering companies to lower their costs, enhance efficiency, and improve their innovativeness (Gomes et al., 2022). However, Lada et al. (2023) report that only large-sized companies are leveraging AI tools to transform their business processes, while small and medium-sized firms are delaying adopting the technologies.

2.3.1 Lowering Costs and Production Efficiency

Modern enterprises leverage emerging AI technologies to transform their business processes. Nalgozhina et al. (2023) reported that automation of manufacturing processes through robotics enables companies to lower costs and improve productivity. In agreement, Kitsantas et al. (2024) observed that robotics transforms manufacturing processes by improving efficiency and reducing errors. AI promotes accuracy through the automation of routines and time-consuming tasks. However, Gomes et al. (2021), and Schwaeke et al. (2024) noted that AI-driven applications could significantly alter organizational culture, leading to losses and conflicts. AI implementation must be aligned with organizational culture and existing barriers eliminated.

2.3.2 Efficient Decision-Making and Predictive Analytics

AI improves BPM through decision-making systems that leverage insights from large datasets. Gurjar et al. (2024) reported that AI systems enable businesses to make accurate decisions. AI automation contributes to data-driven predictive analytics and improved decision-making in

highly complex scenarios. Similarly, Surmi et al. (2021) observed that AI systems are integral to the process of supply chain management in manufacturing firms, where they facilitate decision-making, sales forecasting, and customer segmentation. Applying AI-generated data to inform businesses' production and operation decisions is associated with greater positive outcomes. Kinkel et al. (2023) also revealed that AI systems enable manufacturing firms to adapt to changing customer demands through predictive analytics and market trend forecasts. Predictive analysis and market forecasting allow firms to identify potential future changes to customer needs, tastes, and preferences. SME manufacturing companies may not adopt AI predictive analytics to transform decision-making and trend analysis processes due to the complexities involved.

Data generated through AI applications is critical to planning and implementing market-specific demands based on accurate decisions. Zhong et al. (2019) reported that AI predictive analytics technologies enable companies to improve product quality through smart manufacturing, where new products are developed through limited human involvement. Predictive analytics transform BPM through decision support, where big data analysis leads to accurate decisions. Smart manufacturing systems develop quality products by learning and adapting to changes in data. However, Dubey et al. (2019) noted that AI implementation to support critical decision-making processes is challenging due to the complexity and requirements for changes in production practices to integrate the technologies. Implementing AI technologies requires many resources. Thus, only a few businesses can manage the process successfully.

2.3.3 Risk Monitoring and Mitigation

Integrating AI into BPM significantly improves risk monitoring and mitigation activities in manufacturing organizations. Manufacturing organizations often face multiple risks such as supply chain disruptions, demand uncertainties, production stoppages, extended lead times and others. AI technologies address these challenges by using data-driven and predictive methods to predict and mitigate unexpected risks in production processes.

Supply chain operations are particularly sensitive to fluctuating market dynamics. AI enables manufacturers to adapt by providing actionable insights that anticipate and respond to these changes. For example, Sotamaa et al. (2024) highlight the role of AI in small and medium-sized enterprise (SME) manufacturing, where it helps identify risks associated with evolving consumer behaviour, changing user habits, and varied purchasing decisions. Advanced AI models analyse both text and

image data to refine risk prediction and management strategies, enabling companies to proactively manage potential disruptions.

2.3.4 Forecast Risks and Uncertainties

Kalogiannidis et al. (2024) pointed out that using AI for risk management enables manufacturing companies to undertake predictive maintenance and forecast when machinery is likely to break down. Subsequently, the companies can eliminate downtime and guarantee continuity in operations.

However, the deployment of AI in risk management in high-impact industries such as manufacturing can be challenged by the lack of expertise in domain knowledge to leverage such techniques. The implication is that more training is required for the employees in manufacturing firms to ensure AI can be leveraged to improve risk management. (Sinha, 2024)

2.4 Challenges of SMEs Adopting AI in Manufacturing Business Processes

Despite the diverse benefits of AI in transforming the business processes of different manufacturing firms, various challenges have been identified that hinder successful implementation. One of the barriers is the high-cost implications of acquiring the necessary infrastructure and expertise to leverage the technology (Cubric, 2020). AI technologies, like robotic process automation and machine learning, automate repetitive tasks, enabling workers to focus on operations and enhancing productivity and efficiency.

AI-powered analytic tools assist businesses in making accurate and faster data-driven decisions by identifying patterns and analysing large amounts of information not easily detected by human beings. Peretz-Andersson et al. (2024) observed that implementing AI in SMEs is challenged by incompatible business models. Manufacturing SMEs may be discouraged from venturing into AI technologies due to bottlenecks associated with feasible integration mechanisms and high initial capital investment outlay. However, Kovič et al. (2024) noted that manufacturing companies navigate AI implementation by relying on cloud-based services that are more flexible and cost-effective. Thus, manufacturing companies are not required to invest in expensive hardware and software as they leverage AI-as-a-service in cloud models to drive innovation and efficiency in their operations.

2.4.1 Lack of Technical Expertise

Competency setbacks that hinder the implementation of AI in manufacturing SMEs encompass diverse aspects, including the lack of a strategy to guide implementation and the lack of technical expertise to identify the readiness of SMEs to adopt AI. However, Merhi and Harfouche (2023) noted that firms could navigate these challenges by outsourcing such solutions from other experienced stakeholders. Although firms need more technical expertise to implement AI, they can mitigate the problem by outsourcing such skills. Hangl et al. (2023) reported that collaboration with different stakeholders ensures that firms implement AI solutions to drive strategies. SMEs in the manufacturing sector needing more skills and competencies to implement AI technology rely on partnerships with industry leaders and outsource the solutions.

2.4.2 Information Leakage

For instance, some workers steal data and auction it to rival companies, causing operational and management challenges. Similarly, Hansen and Bøgh (2020) observed that manufacturing SMEs are challenged by the lack of strategy to implement and leverage AI within their operations. Thus, organizations must anchor AI integration into BPM using clear strategies that consider all workers' aspirations and perceptions. Every process should be above board and devoid of corrupt practices.

2.4.3 Job Loss Anxiety

Another challenge hindering the implementation of AI within SME manufacturing companies regards the resistance and negative attitudes of employees within the firms who are anxious about job loss. Reim et al. (2020) observed that resistance by employees and the lack of trust towards AI implementation due to fears of job security and a lack of understanding about how AI operates hinders the adoption of the technology. Most employees feel insecure because of AI adoption and exhibit minimal cooperation, leading to potential failure or undesired management and operational outcomes. Enholm et al. (2021) noted that employees' resistance to AI introduction concerns that job insecurity hinders the uptake of the solutions. Company culture exerts a

significant impact on the successful implementation of AI within SME manufacturing firms where resistance to trying out AI capabilities contributes to reduced adoption of the solutions.

Employee attitude significantly influences AI integration into BPM and subsequent use to drive efficiency. Makarius et al. (2020) reported that employees who need more of an understanding of the roles of AI in the firm are likely to resist working with the technology, especially when their work responsibilities are redesigned. Workers must be trained on the value of AI-driven business processes to dispel these fears and enhance acceptability and usability. However, Mikalef and Gupta (2021) observed that companies fostering favourable cultures where employees are allowed to exploit new ideas lead to improved adoption of AI technologies. Manufacturing companies are not only required to educate employees concerning the value of adopting AI technologies but also to allow them to experiment with new ideas.

2.5 Strategies to Promote Adoption of AI in SME Business Processes

The discussion in the previous section identified diverse challenges faced by manufacturing SMEs when implementing AI in their processes, including high financial costs (Cubric, 2020), lack of technical expertise (Peretz-Andersson et al., 2024), negative attitudes and resistance by employees (Reim et al., 2020), lack of support from senior management (Lee et al., 2019), and complex regulations (Coombs et al., 2020). This section reviews the strategies applied by SMEs in the manufacturing sector to ensure seamless AI integration into the BPM. The specific strategies are discussed in the following subsections.

2.5.1 Use of Cloud-based Technologies

To address the diverse challenges, various strategies are promoted to encourage SME manufacturing companies to adopt AI. Thus, to curb the setbacks concerning the high financial costs when acquiring necessary infrastructure, the use of AI-as-a-service is advocated to enhance intelligent manufacturing operations (Li et al., 2017). The advanced argument indicates that small-scale manufacturing companies can leverage cloud-based AI services to access flexible, cost-effective, and scalable AI solutions in their operations. Lu and Xu (2019) noted that cloud-based AI solutions eliminate the need for small-sized companies to have in-house experts or infrastructure to leverage the technologies in operations. Small businesses need to adopt appropriate mechanisms to

support AI use without over-stretching their resources, which could cause significant losses and focus on the ever-changing market forces.

Moreover, cloud-based technologies contribute to significant adjustments to BPM and business efficiency. Kovič et al. (2024) observed that cloud-based AI solutions can be tailored and personalized to address the operational needs of the firms. The insights from these studies indicate that cloud-based solutions are effective in addressing the high costs incurred. However, Ivanov et al. (2020) contradict Lu and Xu (2019) and Kovič et al. (2024), who report that legacy manufacturing equipment is not smart enough to be connected to the cloud due to unreliable mechanisms to monitor the operations. The implication is that cloud-based AI in manufacturing companies is only suitable for advanced autonomous technologies to ensure on-demand cloud manufacturing services.

2.5.2 Employee Training and Empowerment

A further challenge hinders the uptake of AI in manufacturing SMEs regarded the need for more technical expertise to leverage such technologies within the operations. To address such issues, a potent solution regards shifting to cloud-based AI models, which eliminate the need for in-house technical expertise (Lu & Xu, 2019). Companies can tailor the cloud-based AI to support workflows in manufacturing companies. A further strategy regards increased training of the employees to ensure they are skilled and competent in utilizing AI solutions to enhance the operations of the firm (Enholm et al., 2021). In this view, Enholm et al. (2021) advocate for companies to allocate a budget to implement AI training for employees to equip them with technical skills to use and deploy the solutions. Training should be tailored to meet employees' needs and AI new developments.

Businesses and firms need to invest considerably in employee training to address emerging AI-related issues to support growth and sustainability. Companies could also recruit technical experts with the required competencies to use the technologies to improve their operations. Therefore, there is a need to consider cloud-based models and train employees to ensure AI solutions can be integrated within manufacturing SMEs. However, Cubric (2020) argued that high costs may discourage companies from investing in training, while the lack of technical expertise in using the technology within SMEs may lead firms to avoid investment in upskilling employees. AI technologies are expensive, and not all businesses can acquire them promptly. A thorough analysis of the

technologies should be undertaken to identify the businesses' priority areas for improvement processes.

Another challenge hinders the adoption of AI in manufacturing SMEs was the resistance by employees and negative work culture, which discouraged experimentation with new technologies. To address such issues, Sharma et al. (2021) emphasizes the education of the employees and raising awareness about the values of adopting AI to enhance the operations of manufacturing firms. The education is poised to change the negative attitudes of employees and foster a culture that accepts the technology. Hansen and Bøgh (2020) also highlight the need for more partnerships between the developers of AI technology and SMEs to increase the positive perceptions regarding the benefits of adopting the solutions. As such, the partnerships ensure that more education and awareness can be delivered to the employees.

2.6 Theoretical Framework (RBV Model)

The guiding theoretical framework in this research is the resource-based view theory. According to Barney (1991), the resource-based view (RBV) theory defines how companies can outperform their rivals in the market by leveraging human, technical, and other resources. The theory further outlined the attributes of the strategic resources that enable companies to achieve high competitiveness where they are valuable, rare, inimitable, or costly to imitate, and non-substitutable or exploitable by the firm (Barney, 1991). Figure 1 showcases the RBV theory adopted in the study.

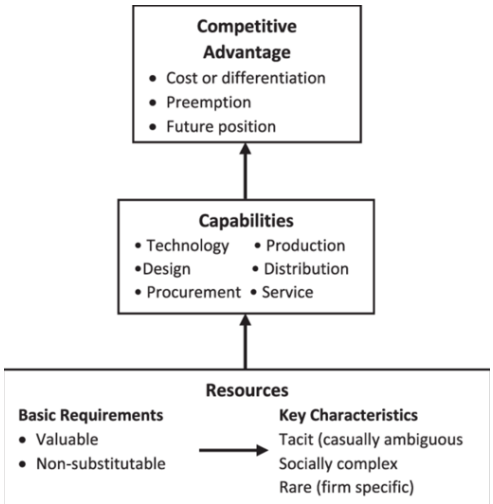

Figure 1. Components of the RBV theory (Adapted from Barney, 1991)

In Figure 1, the key elements of the RBV theory are showcased where valuable and inimitable resources possessed by firms translate to higher capabilities and the development of sustained competitive advantages. Alm. E & Chiu Falck. J (2024) aligns with the views of Barney (1991) and postulates that the RBV theory emphasises the deployment and utilisation of resources which culminate in competencies that are resource-driven and which lead to improved competitiveness. In the current study, the RBV theory is justified as it argues that leveraging AI as a unique and valuable resource leads to the improvement of business processes within small and medium-sized manufacturing firms in Russia.

Additionally, the RBV theory is justified in the current research as other similar studies have considered AI as a unique resource that creates competitive advantages for companies. Ristyawan (2020) showed that SMEs that integrated AI as part of their strategic resources enhanced their competitiveness in the market. For instance, AI is associated with increased customer experience and personalisation because it analyses customer behaviour and data to yield tailored recommendations. Chen et al. (2022) reiterated Ristyawan (2020) and further demonstrated that AI transformed the competitiveness of firms by influencing creativity, decision-making, and management processes. Many firms employ AI to transform logistics and supply chain processes by optimising demand forecast, transport logistics, and inventory management, leading to cost reduction and increased efficiency. Moderno et al. (2021) also showed that RBV concepts were enhanced by integrating robotic process automation based on AI to improve the competitiveness of firms. Based on the synthesis of these studies, the RBV theory is justified in this research where AI is a strategic resource that improves the business processes of manufacturing companies.

The frame of reference in the study based on the guiding RBV theoretical framework and the defined central concepts is also illustrated in Figure 2 below.

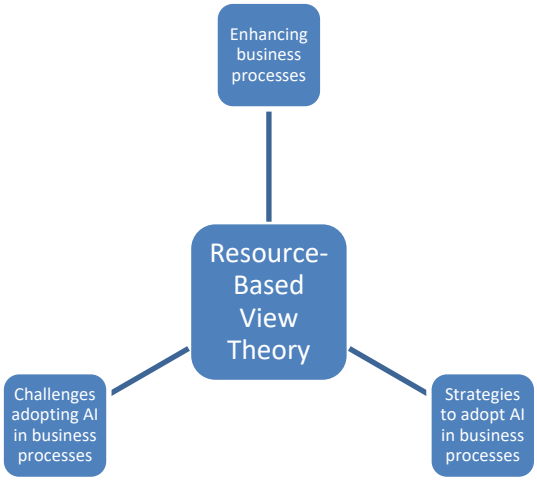

Figure 2. Frame of reference in the research

In Figure 2, the frame of reference considered in the research is detailed where the RBV theory is the guiding framework. The central concepts in the research encompass the integration of AI in enhancing the BPM of furniture manufacturing firms, challenges faced by furniture manufacturing SMEs when adopting AI in business processes, and strategies that can be adopted to improve the uptake of AI in SMEs.

3 Methodology

The research adopts the exploratory research design. Hallingberg et al. (2018) posit that exploratory research designs are suitable where researchers are interested in conducting feasibility studies to generate evidence and determine whether to proceed with full-scale studies. Makri and Neely (2021) also report that exploratory research is adopted where minimal studies have been conducted, and researchers seek to establish emerging insights concerning a given research problem. The rationale for adopting the exploratory research design arose from the lack of studies that focused on the adoption of AI to enhance the business processes of medium-sized furniture manufacturing companies in Russia.

The qualitative method was employed in this research. Sutton and Austin (2015) describe the qualitative method involves the qualitative systematic review of individuals. Busetto et al. (2020) add that the qualitative method is appropriate when examining the nature of phenomena and why something is observed within its natural environment. Therefore, the qualitative method was justified based on the need to examine the experiences of Russian medium-sized companies that adopted AI to enhance their BPM.

3.1 Data Collection

A primary research method was considered in data collection regarding the research phenomena. This method involves conducting interviews to gather first-hand experience of company's AI integration specialists who are responsible for organization's technological needs. These individuals are engaged in the process of AI integration into business operations.

The objective of conducting interviews with AI integration specialists is to achieve a comprehensive understanding of company's experience in AI integration. It encompasses the study of enhanced business processes, challenges and strategies associated with integration of AI into furniture manufacturing processes in Russia.

A semi-structured interview method was identified as the most suitable for the exploratory research design due several factors. According to Ruslin (2022), semi-structured interview allows researcher to acquire in depth information from interviewees while considering the focus of the

study. In addition, it allows flexibility and adaptability for author to hold his track as compared to an unstructured interview.

Due to the limited number of available AI integration specialists, the author narrowed down the number of participants to 3. The participants are currently engaged in professional activities and provide consultancy services for 3 different companies who are interested in AI integration. The companies and specialists expressed a desire to maintain confidentiality with respect to their identities, as the data provided could conceivably be utilised against them. According to that, author will differentiate companies by naming them as Company 1, Company 2, and Company 3. Company 3 is a medium-sized furniture manufacturer and timber house builder that has been specialising in manufacturing for over 20 years. Company 2 is a medium-sized furniture manufacturer and distributor, which has been rapidly evolving in this sector for over 20 years. Company 3 is a small furniture manufacturer and distributor that has been operating in this sector for over 10 years. A selection of companies has already integrated AI into their BPM systems in a significant capacity and are exploring new possibilities for integration. The interviews will allow author to supplement theories with actual insights provided by companies who are operating in furniture manufacturing sector.

The participants agreed to give an interview via email and WhatsApp in form of written correspondence. According to Dahlin (2021), such interviewing can be fruitfully combined with explorative research, offering the author a way to strategically work with the extended time frame. This gives author an opportunity to work with open-ended questions, follow-up questions, and cross-fertilisation of multiple interviews carried out simultaneously. Such approach of interviewing can be effective when conducting in-depth interviews and can generate rich qualitative data. The interviews will be taken in Russian language and then translated into English for further analysis. DeepL application will be used for translation.

3.2 Data Analysis

Thematic analysis (TA) was employed to analyse the collected qualitative responds to interview questions. Naeem et al. (2023) postulate that TA regards the identification of patterns and recurring themes from qualitative data to interpret the findings. The justification for thematic analysis in the study arose from its wide acceptance within the scientific community, where themes are extracted from qualitative findings.

For the interview data analysis, the author focused on deductive approaches by applying the RBV framework. It involved coding data and creating themes in line with the central concepts of RBV framework including: enhanced business processes, challenges, and strategies according to reflections of interviewees.

TA was conducted following Braun and Clarke's (2012) framework. The transcribed interviews were afterwards reviewed and adjusted to ensure accuracy. The data underwent a familiarisation phase, followed by initial coding based on the interviewee's insights. Following the pattern of deductive TA themes representing enhanced business processes, challenges and strategies were afterwards created and reviewed in relation to the entire dataset.

3.3 Data Interpretation

The researcher conducted data interpretation to promote value judgments according to the evaluation criteria set in this project. Thus, making learning lessons, and identifying influential factors that affect the findings. (Braun & Clarke, 2023). The research processes were evaluated and examined throughout the course of the thesis to their alignment with the project's originally set objectives and purpose.

In the context of this study, RBV model is used as a central concept based on which the author can identify: 1) What is the impact of AI integration. 2) What are the key challenges that need to be addressed to ensure successful integration of AI. 3) What strategies are considered efficient to adopt AI. The research data is interpreted in accordance with the RBV model, which allow readers to identify AI as a strategic resource.

3.4 Validity and Reliability

In this project, the researcher ensured that the methods used were both valid and reliable, ensuring the relevance of the conclusions drawn. The construct and content validity of the primary data collection methods were assessed to ensure high-quality interview results were obtained for analysis to address the objectives and answer the questions, as Naeem et al. (2023) reported. By including relevant study materials for analysis, this research was able to demonstrate both reliability and validity, providing a comprehensive view of AI integration into SMEs' BPM and factors that contribute to successful outcomes.

3.5 Research Ethics

This research was conducted in compliance with the ethical guidelines provided by the Finnish National Board on Research Integrity (TENK). The researcher complied fully with the criteria delineating study quality to enhance its ethical acceptability. Firstly, the researcher respected the dignity and autonomy of human research participants. Secondly, the researcher respected material and immaterial cultural heritage and biodiversity. Thirdly, the researcher conducted his research so that the research does not cause significant risks, damage or harm to research participants, communities, or other subjects of research.

The researcher endeavoured to adhere to set standards for research planning, implementation, interpretation, evaluation, as well as reporting. Second, the researcher respected other scholars' work and integrity by being honest regarding the value of this investigation and the importance of their earlier contributions. Finally, the author maintained objectivity during primary data collection (Sutton & Austin, 2015). The findings of interviews were not altered to express the researcher’s pre-determined AI integration dynamics.

4 Research Findings

The following sections present the findings of interviews. To analyse the data gathered through the research methods, the author utilised thematic analysis, described in more details in previous chapter. This analysis was instrumental in addressing the research question guiding the study.

4.1 Interview Findings

The interviews were analysed with the utilization of deductive thematic analysis, organising the results into three main sections of RBV: Enhanced business processes, challenges, and strategies associated with AI integration. Such selection of sections is justified in section 2.6. To illustrate the full picture of companies' path of AI integration, the author added Motives & Scope theme. More detailed information can be found in Appendix 1 with the screenshots of the coding process and link to excel file. In this section, the author provides an overview of themes with the most significant findings in order to address the research questions.

4.1.1 Companies' backgrounds

Company 1 identifies itself as "a renowned manufacturer of futuristic furniture facades, facade panels, table tops and wall panels. The production of customised furniture also constitutes a significant aspect of the company's operations. The customer base of the company are individuals interested in expensive high-quality furniture from our catalog." Company 1 has a workforce of 93 employees and recorded annual revenues of 730,201,259 rubles (equivalent to €7,770,496 at current exchange rates). Such figures indicate that Company 1 fits the description of an SME described previously by European Commission.

Company 2 positions itself as a "Russian furniture manufacturing company established in 2002 in Penza. Specialising in high-quality, affordable furniture, we produce a wide range of products, including items for living rooms, bedrooms, and kitchens. Our manufacturing process utilises advanced equipment, ensuring thorough quality control at every production stage. Products are available through online store and various retail partners." The company has workforce of 236 individuals, with an annual revenue of 3,198,550,000 RUB (equivalent to 34,169,367 EUR at

current exchange rates). Such figures indicate that Company 2 fits the description of an SME as defined previously by the European Commission.

Company 3 states, "[**Company 3**] was originally established as a timber house builder. Our company offers a comprehensive service, providing ready-made house designs for clients and also producing the furniture for these properties. If the client agrees to build a house with us, he gets a discount for furniture. Over time we became not only a house builder but also a manufacturer of personally designed furniture which is very popular among those who live on the countryside/ in the cottages." Company 3 employs 138 people and the annual turnover is 825,437,884 RUB (equivalent to 8,783,964 EUR at current exchange rates). These figures indicate that Company 3 fits the description of an SME as defined previously by the European Commission.

4.1.2 Motives & Scope

Both Company 1 and Company 2 acknowledge the recent advancements in the domain of AI in Russia as a pivotal factor in facilitating the integration of AI technologies. As Company 1 asserts, "specifically, it refers to cloud-based solutions as they do not require high amount of financial investment to be effective in our processes." Furthermore, it is acknowledged by both Company 1 and Company 2 that AI is a contemporary catalyst for competitive advantage. It is therefore imperative for them to invest in AI in order maintain competitive edge in the future. Additionally, Company 1 acknowledges AI as "a possibility to provide customers with a high-quality and personalised products which also drives progress foreword". Company's 3 motive is strictly focused on the improvement of operational efficiency factors including energy usage reduction, quality control, reduced human error, minimised waste, and faster production cycles by automation of the equipment through AI. "[Company's 3] aim is to produce goods faster with less efforts and in greater quantities."

In terms of the scope of AI implementation, all three companies have effectively incorporated AI-driven machinery into the manufacturing process to a greater or lesser extent supplemented by predictive maintenance to optimise the manufacturing processes. Company 1 and Company 2 takes additional measures to enhance their AI capabilities. The primary objective of Company 1 is to enhance the efficiency of its decision-making processes. Additionally, the organization seeks to foster enhanced customer engagement through utilisation of chatbots. Company 2 focuses on

demand forecasting tool and experiments with AI-based tracking system to optimise inventory and supply chain management.

4.1.3 Enhanced Business Processes

Companies notice sufficient **improvement in manufacturing processes** due to integration of AI-driven machines. It is asserted that the deployment of CNC machines, which are automated and driven by AI, has a considerable impact on enhancing production efficiency. To illustrate the increased production speed effect AI-driven machines provide to manufacturers the following example of Company 2 was considered: “if we’re cutting components for a chair and then switch to a table, the machine’s AI quickly recalibrates on its own. This has cut down setup times dramatically – I’d estimate our overall throughput (pieces produced per day) has gone up by about 15%”. Company 1 explanation on how AI-driven machines contribute to cost-reduction and sustainability is as follows: “By squeezing more product out of the same amount of material, we not only save on material costs but also lower the environmental footprint”. Company 3 notices a direct influence of AI on customer feedback stating, “Positive feedback from customers indicates the speed of production and quality of the order has significantly increased”. Furthermore, Company 3 quotes, “the precision of CNC machinery has been demonstrated to contribute to waste reduction and energy efficiency” and highlights that regular worker’s safety factor was enhanced through AI by “offloading dangerous or repetitive jobs (cutting, sanding) to machines”. Furthermore, all three companies pay attention to the fact that the need for regular workers reduced. Company 2 quotes, “We do not require a large number of workers to do all the job manually, just a few observers who can make sure that the equipment is working according to a plan”.

The integration of AI technology has led to significant advancements in the realm of manufacturing processes. In consideration of the aforementioned facts, companies have indicated that their investments in AI equipment have yielded a range of benefits. These benefits include the optimization of production processes, enhanced production speed and precision, improved product quality, a reduction in the number of employees required to perform routine tasks, a decrease in employee error rates, a reduction in production costs, decreased idle time and injury risk.

The findings of the interview demonstrate that the implementation of AI has shown to **facilitate continuous production**, thereby reducing the occurrence of equipment failure-related downtime. The utilisation of AI tools, such as predictive maintenance, has been demonstrated to be a highly

effective method for the prevention of production stoppages. Company 3 characterises the values of the predictive maintenance tool as such: “With this software we can always check the condition of the machine and if the main components are not in standard condition, we are able identify it in advance, before the machine breaks down.” Company 2 further elaborates: “instead of waiting for a machine to break down, factories perform predictive maintenance – servicing equipment at just the right time”. As Company 3 states: “This predictive maintenance approach has prevented at least a couple of major breakdowns so far. We value this system very much.” Company 2 expounds on the impact of predictive maintenance on manufacturing processes by quoting “In a furniture manufacturing context, that means the critical machines are available and running optimally more often, keeping production on schedule.”

The findings demonstrate that usage of AI in companies’ datasets **enhance decision making process**. Company 1 and Company 2 utilise demand forecasting AI tool which analyses historical data, generate patterns, and make predictions about customer demand. As posited by Company 1: “by tracking e-commerce sales and web analytics, we can see which products are gaining traction with which customer segments. Afterwards we can provide this information to supply chain, inventory managers and other teams who can then make quick decisions regarding production and management processes including ordering necessary materials, communicating with suppliers and customers.” Companies indicate that demand forecasting also has a positive impact on inventory turnover, “It maximises revenue by aligning stock with customer needs”. Along with demand forecasting Company 2 utilises real-time inventory tracking system. “This live picture of inventory, combined with AI algorithms, helps us immediately detect anomalies or needs – for example, flagging that a popular dining set is selling faster than expected in the past week and will stock out in a few days unless replenished”. The utilisation of systems such as demand forecasting and inventory tracking by companies enables the acquisition of invaluable insights, which can subsequently inform future decision-making. As company 2 states: “our inventory level has been reduced by 16% and we were able to eliminate one rented warehouse, saving about $15,000 per month in operating costs. Along with demand forecasting and inventory tracking systems, we can guarantee a rapid response to changes in the market.”

As exemplified by Company 1, the utilisation of AI chatbots **enhance the customer service**. Chatbot programs are designed to facilitate interaction with website visitors, answering their queries and providing guidance on products and services. Company quotes “This round-the-clock availability means potential customers get answers even outside of business hours, which is invaluable for online customer base.” Additionally, AI chatbots have the capacity to function as virtual sales

assistant, as Company 1 quotes “By leveraging machine learning on customer data, a chatbot can personalise product suggestions (e.g. suggesting a particular dining table based on the user’s browsing history or design inputs). This creates a more engaging, tailored shopping experience similar to an in-store associate’s help.”

4.1.4 Challenges associated with AI integration

The interviewees concur that **the lack of local technical expertise** is a challenge for AI integration in Russia. Companies asserts that the integration process is protracted due to this fact. Company 3 states: “To be honest, I would not say that Russia is fully ready for AI integration, the lack of sufficient expertise slows down the process very much.” It is evident that Company 1 has made more progress in terms of AI integration in comparison to Company 3. This can be attributed to the fact that Company 1 is of a smaller size and the number of changes that needed to be addressed by experts is less. Company 2 opted against the pursuit of Russian-based experts, instead extending their reach to other countries. Such decision led to the establishment of partnerships with Chinese platforms and experts, however it necessitated a substantial additional investment.

The integration of AI is accompanied by the increased potential for valuable **data leakage**. Company 3 provides an exposition of such risks, stating: “Integrating AI often means collecting and connecting data (machine data, product data, customer data) – which expands the “attack surface” for cyber threats.” Company 1 has already experienced data leakage due to “unconsciousness of cloud storage partners”. Company 2 assess the risks by stating: “The main risks are associated with cloud-based data storage, the misconfigurations in cloud security settings can lead to data breaches. Also, there is always a risk of unauthorised access to sensitive data. If some external parties or unauthorised employees will access our dataset, they can steal sensitive info including customer details, financial records, and operational data”. Nevertheless, companies implement measures such as multi-factor authentication, identification and labelling of sensitive data, perform constant updates and secure communication channels. However, Company 1 admits that there still be a risk of leakage due to the unreliability of employees who have access to sensitive data through AI systems.

It has been posited by companies that the **issue of job loss anxiety** experienced by employees can negatively effect on integration process. It has been observed that the implementation of AI machinery in corporate environments has led to a decline in the demand for manual labour.

Consequently, it has caused employees to feel anxious about the security of their jobs. Company 1 mentions that such issue can negatively affect the production efficiency. As company quotes: “employees become negligent in their work and start to quit their jobs unexpectedly”. As indicated by Company 3, employees are beginning to articulate fears of skill redundancy due to their inability to adapt to AI technologies. Afterwards, Company 3 says: “We presume that with the flow of time the amount of negative attitude will reduce.” While Company 1 is trying to take measures towards this problem by explaining politely, Company 2 has cited its position, stating: “Our attitude towards that is strict, we explain the reason of shifting towards AI and emphasise employee's anxiety is beyond our concerns."

In addition to the aforementioned challenges, companies address concerns regarding high amount of investments and financial risks, dependency on external partnerships and employees’ training challenges. Company 2 quotes, “It took a lot of time to train employees to work with AI-driven systems – whether it’s teaching factory operators to interpret predictive maintenance alerts, or training office staff to use an AI-enhanced systems.”

4.1.5 Strategies associated with AI integration

In response to the question of how to leverage high financial costs, all interviewees cite **cloud-based technologies as a solution.** To provide an explanation of how cloud-based platforms assist in adoption of AI, Company 1 quotes “Basically, without cloud-based platforms we wouldn't even think of integration because otherwise we would have to invest in expensive on-site servers and computing power to handle AI algorithms for demand forecasting, chatbots and predictive maintenance tools. We definitely can’t afford that.” Furthermore, cloud-based platforms can provide pre-built models, eliminating the need to develop AI algorithms from the outset, companies simply need to tweak them for their own purposes. As outlined by Company 2, cloud-based servers can analyse data instantly, provide built-in security features. Additionally, Company 2 states: “It is cost effective, it doesn’t require us to have a ton of AI experts in our team, it doesn’t require us to update and maintain data systems, cloud-based platforms can help us with that”. Company 3 has concurred with the aforementioned statement, as evidenced by their citation: “they (cloud-based platform partners) provided us with technicians who helped us to do the necessary job connecting the machines (sensors) to the cloud and develop AI quality control algorithms to detect product defects.” In order to facilitate the integration process, companies are partnering with cloud-based platforms.

In the course of the interviews, respondents placed significant emphasis on the **importance of employee empowerment and training practices** in facilitating the successful integration of AI. Company 1 states “It is important to make employees understand that it is not about replacing humans, but it is about enhancing collaboration. We provide them appropriate guidance on operating with AI equipment, hold regular meetings to address employee queries, and employ a phased integration approach to ensure employees have sufficient time to familiarise themselves with the new systems.” Company 2 adds: “Our employees are empowered to be part of the process, express their ideas, or speak up regarding their misunderstandings. Such practices drive the progress foreword.” Company 1 asserts that they adopt a phased integration approach when integration AI. This approach is intended to provide employees with sufficient time to familiarise themselves with the newly implemented systems. It is important to note that, as highlighted by Company 3, a proportion of the workforce may not be suitable candidates for retraining or requalification due to their age. This aspect must be given due consideration when integrating AI.

In addition to the aforementioned strategic considerations, companies mention important points about AI integration. Company 1 pays attention to the significance of the companies’ size and readiness factors by stating “Identify the readiness for AI integration. Our company is small, so it was probably even easier for us to adopt AI because we didn't have to make as many changes as a large company.” Company 2 agrees with the importance of readiness factor and emphasises the gradual approach of integration by stating “Evaluate the current infrastructure to determine its readiness for AI integration, do the necessary upgrades. Set goals to track the progress and assess the impact”. Company 3 highlights the importance of partnership quoting “Find appropriate long-term partners, secure the partnership by aligning your objectives with theirs. It is really important to discuss everything with potential partners at the beginning to avoid possible disagreements.”

4.1.6 Future outlook

In response to the final question of the interview, namely, "What is your prediction for the future evolution of AI in your industry over the next five years?", companies concur that AI is undergoing rapid development in Russia, the prevalence of cloud-based solutions is on the rise, the number of potential partners is increasing, and the number of manufacturing companies that employ AI in their operations is definitely set to rise within the next five years.

4.2 Discussion

Since the results from the interviews have been presented, it is important to discuss how the answers of interviewees relate to research questions presented in section 1.2 as well the connections between the findings and theories.

The underlying motivations of corporations are mostly obscured by the pursuit of competitive advantage, whether it be the acquisition of a competitive edge or the maintenance of a positional advantage within their respective marketplaces. Furthermore, manufacturing companies are interested in incorporating AI due to its beneficial impact on operational efficiency of business operations. Such motivations expressed by the interviewees align with RBV framework evaluated by author in section 2.6 based on Barney (1991) and Alm. E & Chiu Falck. J (2024) articles.

In order to address the RQ2, the author refers to Section 4.1.3, where it is shown how AI technologies can have a positive impact on business processes in small and medium-sized manufacturing organizations. Such tools as AI-driven machines, predictive maintenance, demand forecasting, inventory real-time tracking and chatbots are utilised by the companies to improve their BPM.

AI-driven machines increase the operational efficiency rate of factories by automating, optimising, and streamlining manufacturing processes. Specifically, the integration of AI-machines is associated by the companies with increased product quality, production speed, sustainability, consistent outcomes, enhanced worker safety, reduced costs, and workforce reduction. Predictive maintenance tool ensures production continuity by monitoring the equipment condition and predicting the need for its maintenance. The impact of such tool is of crucial significance for manufacturers, as it has the capacity to mitigate the risk of unexpected production stoppages, or even major breakdowns. Demand forecasting is utilised by companies to enhance and accelerate the decision-making process by analysing the customer data through various channels (E-commerce sales, customer data, etc.). By leveraging AI capabilities such as data mining and trend detection, businesses can expeditiously ascertain which products are gaining popularity with their customers and draw conclusions towards that accordingly. Inventory real-time tracking system proved to be invaluable in managing inventory and making cost-effective decision based on AI analysis. Chatbots can be utilised to enhance customer service through 24/7 availability and constant provision of product recommendations to customers.

The author expounds on the potential challenges that may emerge during the integration process to provide a reasonable answer to guiding research question. As was observed in Section 4.1.4,

one of the primary challenges encountered by companies seeking to incorporate AI was the lack of local technical expertise. Companies try to outsource expertise or even partner with platforms who can provide guidance and equipment. However, each interviewee conceded that a shortage of local expertise delays the integration process. A potential solution for companies can be to focus on international service, but this requires significant investments. It has been established that the integration of AI into various systems and applications is associated with an elevated risk of data leakage. This is attributable to the potential for access to valuable information (e.g., customer data, financial data, etc.) by individuals who may be untrustworthy or for the purpose of theft. Such risks can be controlled to a greater or lesser extent, except the possibility of data theft by employee who has access to it. Job insecurity has been identified as a contributing factor to diminished production efficiency and an unfavourable working environment. This can be caused by negligent attitudes of employees who perceive the reduction in workforce as a consequence of AI integration.

As evaluated in sections 2.5 and proved by interviewees in section 4.1.5 there are ways to facilitate the integration. The use of cloud-based technologies sufficiently simplifies the process by its cost effectiveness. Cloud-based AI solutions eliminate the need for companies to have on-site computing power and in-house experts. Instead, all interviewed companies are partnering with cloud-based platforms to facilitate the integration. To address the issue of job loss anxiety companies must act patiently towards employees and invest in trainings, hold meeting to those who have concerns, and empower employees to be part of the process. The gradual process of integration can give more time for employees adapting to changes. Surprisingly to the author, Company 1 which is the smallest company on the list with regard to its financial figures and the number of employees, integrated AI in a very significant capacity comparing to Company 2. Such progress illustrates that, in comparison to medium-sized companies, smaller companies may possess a greater capacity for AI integration.

Taken into consideration all the aforementioned factors, author addresses the RQ1. The enhancement in BPM can be achieved through AI integration among SMEs in sufficient manner with assistance of cloud-based platforms. Companies can potentially focus on areas of BPM which have low investment barrier for integration and in which they need AI assistance the most. The possible challenges must be considered to avoid unplanned investments, risks and delays, especially due to the lack of technical expertise. While strategies should be considered to streamline the process of integration and minimise investments. Referring to section 4.1.6, the prevalence of cloud-based solutions is on the rise, and the number of manufacturing companies that employ AI in

their operations is set to rise within the next five years in Russia. Considering all findings and RBV framework, SMEs in Russia should integrate AI in their BPM due to its identified effectiveness and the development of cloud-based platforms in Russia as well as internationally. It is evident that AI solutions begin gaining popularity among Russian manufacturing companies. Therefore, it can be concluded that initiatives undertaken towards AI integration now have the potential to be a source of competitive advantage in the future.

5 Conclusion

The main objective of this thesis was to investigate the integration of AI in SMEs and provide an overall overview of practices utilised to facilitate the integration in Russia. To address this objective author started the thesis with laying necessary background and providing the reader with conceptual framework which is evaluated in three guiding RBV sections of the research to address the objective of thesis. The interviews were instrumental in illustrating the practical experiences of the companies, thereby enabling author to supplement theoretical concepts with empirical findings. Surprisingly, the manufacturing sector in Russia has developed far beyond the author's expectations, which has facilitated a thorough assessment of all aspects of the RBV framework illustrated in Figure 2.

The empirical part of the research has shown that companies have progressed with AI adoption to greater or lesser extent. Such progress was enough to capture improvements in business processes as manufacturing, permanent production, customer service, and decision-making. The utilisation of AI tools including AI-driven machines, predictive maintenance, demand forecasting, real-time inventory tracking, and chatbots have been instrumental in enhancing the automation, consistency, speed, and effectiveness of the aforementioned processes. Consequently, this has enabled companies to attain enhanced operational efficiency rates. Nevertheless, the challenges encountered by companies have the potential to impact the successfulness of the integration process. The lack of local expertise can delay the integration process due to Russia's incompetency in AI technologies, however it is still possible to find suitable specialists and solutions. While integrating AI companies face elevated risks of data leakage which might result in critical consequences associated with valuable data theft. Additionally, companies have to address the fact of job loss anxiety which is evident to result in employees' negligence to operates according to the schedule.

To leverage high costs of integration companies practice outsourcing or partnership with cloud-based services. It allows them to find appropriate experts faster and receive guidance on integration process. Additionally, it was found that training sessions on how to operate with AI and empowerment practices among employees are of crucial importance to facilitate the overall success on transition from manual to AI-driven operational methods, especially in Russia where AI-driven practices are not commonly used yet. However, interviewed companies observe the shift towards AI practices due to recent development of cloud-based services sector and appearance of suitable

partners on the Russian's market. Except this fact, medium-sized companies also have opportunities to invest in international services to facilitate the integration. Additionally, It can be stated that even small-sized companies can sufficiently integrate AI which confronts to the common opinion that only large sized organisations have the capacity to adopt such revolutionizing technologies. The AI technologies are developed enough to begin utilising them in SME's BPM and according to specialists' opinion its evolution will rapidly continue in the next years. In light of the aforementioned facts, it is evident that manufacturing companies in Russia should consider AI technologies as a genuine opportunity to enhance their BPM.

The author confirms that thesis objectives listed in section 1.3 were met and the answers to the guiding research questions were reasonably justified. Author highlights that the research possesses the exploratory character due to the lack of studies on this topic. The overall objective of the present study was to explore a subject that has not yet been extensively studied in a practical context. The main purpose was to gain insights, generate ideas, and clarify concepts. Considering the fact that a total of three companies agreed to be interviewed, the author was able to extract enough information from the participants to produce a well-structured findings section that can serve as a basis for future researches. The continuation topics should be addressed to the technical difficulties of AI integration into companies' infrastructure, which necessitates an expertise of AI technologies degree graduates, programmers, and direct access to cloud-based services. Additionally, author proposes to address a topic of employee's job loss anxiety in the face of AI. It is assumed that such challenge of human nature can result in serious consequences when most of manufacturing companies will admit the necessity of AI technologies in their processes. Author is of an opinion that it is an interesting research topic for students or graduates of psychological studies or human sciences.

Following a thorough review of the thesis's overall success, the author concludes that the research proceeded in accordance with the formulated plan, acknowledging that numerous difficulties were encountered due to lack of empirical studies and practical experience of AI utilisation in manufacturing nowadays. Nevertheless, a number of companies willing to participate in interviews were identified, thereby furnishing the thesis with a segment of empirical studies pertinent to the theories and research questions. Finally, the thesis proffers a substantial body of evidence that has the potential to expedite the process of AI adoption in furniture manufacturing industry by demonstrating the practical experience of certain companies.

6 References

An official website of the European Union. (Nd). Internal Market, Industry, Entrepreneurship and SMEs. Furniture Industry. 1. Retrieved 2.1.2025 https://single-market-economy.ec.europa.eu/sectors/raw-materials/related-industries/forest-based-industries/furniture-industry_en

An official website of the European Union. (Nd). Internal Market, Industry, Entrepreneurship and SMEs. SME definition. 1. Retrieved 2.1.2025 https://single-market-economy.ec.europa.eu/smes/sme-fundamentals/sme-definition_en

Barney, J. (1991). Firm Resources and Sustained Competitive Advantage. *Journal of Management*, *17*(1), 99–120. https://doi.org/10.1177/014920639101700108

Braun, V., & Clarke, V. (2023). Toward Good Practice in Thematic analysis: Avoiding Common Problems and becoming a Knowing Researcher. *International Journal of Transgender Health*, *24*(1), 1–6. https://doi.org/10.1080/26895269.2022.2129597

Braun, V. & Clarke, V. (2012) Thematic analysis. In H. Cooper, P. M. Camic, D. L. Long, A. T. Panter, D. Rindskopf, & K. J. Sher (Eds), APA handbook of research methods in psychology, Vol. 2: Research designs: Quantitative, qualitative, neuropsychological, and biological American Psychological Association, 57-71.

Busetto, L., Wick, W., & Gumbinger, C. (2020). How to use and assess qualitative research methods. *Neurological Research and Practice*, *2*(1). https://doi.org/10.1186/s42466-020-00059-z

Chen, D., Esperança, J. P., & Wang, S. (2022). The Impact of Artificial Intelligence on Firm Performance: An Application of the Resource-Based View to e-Commerce Firms. *Frontiers in Psychology*, *13*. https://doi.org/10.3389/fpsyg.2022.884830

Coombs, C., Hislop, D., Taneva, S. K., & Barnard, S. (2020). The Strategic Impacts of Intelligent Automation for Knowledge and Service work: an Interdisciplinary Review. *The Journal of Strategic Information Systems*, *29*(4), 101600. https://doi.org/10.1016/j.jsis.2020.101600.

Cubric, M. (2020). Drivers, Barriers and Social Considerations for AI Adoption in Business and management: a Tertiary Study. *Technology in Society*, *62*(1), 101257. https://doi.org/10.1016/j.techsoc.2020.101257

Dahlin, E. (2021). Email Interviews: A Guide to Research Design and Implementation. International Journal of Qualitative Methods, 20. https://doi.org/10.1177/16094069211025453

Dubey, R., Gunasekaran, A., Childe, S. J., Blome, C., & Papadopoulos, T. (2019). Big Data and Predictive Analytics and Manufacturing Performance: Integrating Institutional Theory, Resource-Based View and Big Data Culture. *British Journal of Management*, *30*(2), 341–361. https://doi.org/10.1111/1467-8551.12355

Dwivedi, Y. K., Hughes, L., Ismagilova, E., Aarts, G., Coombs, C., Crick, T., Duan, Y., Dwivedi, R., Edwards, J., Eirug, A., Galanos, V., Ilavarasan, P. V., Janssen, M., Jones, P., Kar, A. K., Kizgin, H., Kronemann, B., Lal, B., Lucini, B., & Medaglia, R. (2021). Artificial Intelligence (AI): Multidisciplinary Perspectives on Emerging challenges, opportunities, and Agenda for research, Practice and Policy. *International Journal of Information Management*, *57*, 101994. https://doi.org/10.1016/j.ijinfomgt.2019.08.002

Enholm, I. M., Papagiannidis, E., Mikalef, P., & Krogstie, J. (2021). Artificial Intelligence and Business Value: a Literature Review. *Information Systems Frontiers*, *24*(5), 1709–1734. https://doi.org/10.1007/s10796-021-10186-w

Gomes, P., Verçosa, L., Melo, F., Silva, V., Filho, C. B., & Bezerra, B. (2022). Artificial Intelligence-Based Methods for Business Processes: A Systematic Literature Review. *Applied Sciences*, *12*(5), 2314. https://doi.org/10.3390/app12052314

Gurjar, K., Jangra, A., Baber, H., Islam, M., & Sheikh, S. A. (2024). An Analytical Review on the Impact of Artificial Intelligence on the Business Industry: Applications, Trends, and Challenges. *IEEE Engineering Management Review*, 52(2), 84-102. http://dx.doi.org/10.1109/EMR.2024.3355973

Hangl, J., Krause, S., & Behrens, V. J. (2023). Expert interviews of drivers, barriers and social considerations for AI adoption in SCM. *Technology in Society*, 1-20. http://dx.doi.org/10.2139/ssrn.4416083

Hansen, E. B., & Bøgh, S. (2020). Artificial intelligence and internet of things in small and medium-sized enterprises: A survey. *Journal of Manufacturing Systems*, *58*(1), 362–372. http://dx.doi.org/10.1016/j.jmsy.2020.08.009

Hallingberg, B., Turley, R., Segrott, J., Wight, D., Craig, P., Moore, L., Murphy, S., Robling, M., Simpson, S. A., & Moore, G. (2018). Exploratory Studies to Decide Whether and How to Proceed with

full-scale Evaluations of Public Health interventions: a Systematic Review of Guidance. *Pilot and Feasibility Studies*, *4*(1), 104. https://doi.org/10.1186/s40814-018-0290-8

Jafarzadeh, P., Vähämäki, T., Nevalainen, P., Tuomisto, A., & Heikkonen, J. (2024). Supporting SME companies in mapping out AI potential: a Finnish AI development case. *The Journal of Technology Transfer*. https://doi.org/10.1007/s10961-024-10122-5

Kalogiannidis, S., Kalfas, D., Papaevangelou, O., Giannarakis, G., & Chatzitheodoridis, F. (2024). The Role of Artificial Intelligence Technology in Predictive Risk Assessment for Business Continuity: A Case Study of Greece. *Risks*, *12*(2), 19. https://doi.org/10.3390/risks12020019

Kinkel, S., Capestro, M., Di Maria, E., & Bettiol, M. (2023). Artificial intelligence and relocation of production activities: An empirical cross-national study. *International Journal of Production Economics*, *261*, 108890. https://doi.org/10.1016/j.ijpe.2023.108890

Kovič, K., Tominc, P., Prester, J., & Palčič, I. (2024). Artificial Intelligence Software Adoption in Manufacturing Companies. *Applied Sciences*, *14*(16), 6959. https://doi.org/10.3390/app14166959

Kitsantas, T., Georgoulas, P., & Chytis, E. (2024). Integrating Robotic Process Automation with Artificial Intelligence for Business Process Automation: Analysis, Applications, and Limitations. *Journal of System and Management Sciences*, (14)7, 217-242 https://doi.org/10.33168/jsms.2024.0712

Lada, S., Chekima, B., Karim, Mohd. R. A., Fabeil, N. F., Ayub, M. S., Amirul, S. M., Ansar, R., Bouteraa, M., Fook, L. M., & Zaki, H. O. (2023). Determining factors related to artificial intelligence (AI) adoption among Malaysia's small and medium-sized businesses. *Journal of Open Innovation: Technology, Market, and Complexity*, *9*(4), 100144, 1-10. https://doi.org/10.1016/j.joitmc.2023.100144

Lee, J., Suh, T., Roy, D., & Baucus, M. (2019). Emerging Technology and Business Model Innovation: The Case of Artificial Intelligence. *Journal of Open Innovation: Technology, Market, and Complexity*, *5*(3), 44. https://www.mdpi.com/2199-8531/5/3/44#

Li, B., Hou, B., Yu, W., Lu, X., & Yang, C. (2017). Applications of artificial intelligence in intelligent manufacturing: a review. *Frontiers of Information Technology & Electronic Engineering*, *18*(1), 86–96. https://doi.org/10.1631/fitee.1601885

Lu, Y., & Xu, X. (2018). Cloud-based manufacturing equipment and big data analytics to enable on-demand manufacturing services. *Robotics and Computer-Integrated Manufacturing*, *57*, 92–102. http://dx.doi.org/10.1016/j.rcim.2018.11.006

Makarius, E. E., Mukherjee, D., Fox, J. D., & Fox, A. K. (2020). Rising with the machines: A socio-otechnical framework for bringing artificial intelligence into the organization. *Journal of Business Research*, *120*, 262–273. https://doi.org/10.1016/j.jbusres.2020.07.045

Makri, C., & Neely, A. (2021). Grounded Theory: A Guide for Exploratory Studies in Management Research. *International Journal of Qualitative Methods*, *20*(1). https://doi.org/10.1177/16094069211013654

Merhi, M. I., & Harfouche, A. (2023). Enablers of artificial intelligence adoption and implementation in production systems. *International Journal of Production Research*, 62(15), 5457-5471 http://dx.doi.org/10.1080/00207543.2023.2167014

Mikalef, P., & Gupta, M. (2021). Artificial intelligence capability: Conceptualization, measurement calibration, and empirical study on its impact on organizational creativity and firm performance. *Information & Management*, *58*(3), 103434. https://doi.org/10.1016/j.im.2021.103434

Moderno, O., Nascimento, P., & Gomes, L. (2021). Robotic Process Automation through Resource-Based View theory perspective: IS Resources and AI Capabilities creating Competitive Advantages and leveraging AI Strategy. Association ALTEC, 1-17 https://repositorio.altecasociacion.org/handle/20.500.13048/1932

Naeem, M., Ozuem, W., Howell, K. E., & Ranfagni, S. (2023). A step-by-step process of thematic analysis to develop a conceptual model in qualitative research. *International Journal of Qualitative Methods*, *22*(1). https://doi.org/10.1177/16094069231205789

Nalgozhina, N., Razaque, A., Raissa, U., & Yoo, J. (2023). Developing Robotic Process Automation to Efficiently Integrate Long-Term Business Process Management. *Technologies (Basel)*, *11*(6), 164. https://doi.org/10.3390/technologies11060164

Özkan, B., Koops, M., Türetken, O., & Reijers, H. A. (2023). The Influence of Business Process Management System Implementation on an Organization's Process Orientation: A Case Study of a Financial Service Provider. *Information Systems Management*, 41(4), 377-398. https://doi.org/10.1080/10580530.2023.2286980

Peretz-Andersson, E., Tabares, S., Mikalef, P., & Parida, V. (2024). Artificial intelligence implementation in manufacturing SMEs: A resource orchestration approach. *International Journal of Information Management*, *77*, 102781. https://doi.org/10.1016/j.ijinfomgt.2024.102781

Reim, W., Åström, J., & Eriksson, O. (2020). Implementation of Artificial Intelligence (AI): A Roadmap for Business Model Innovation. *AI*, *1*(2), 180–191. https://doi.org/10.3390/ai1020011

Ristyawan, M. R. (2020). An Integrated Artificial Intelligence and Resource Base View Model for Creating Competitive Advantage. *GATR Journal of Business and Economics Review (JBER)*, *5*(1), 28–37. http://dx.doi.org/10.35609/jber.2020.5.1(4)

Ruslin, I., Mashuri, S., Rasak, M. S. A., Alhabsyi, F., Syam, H., (2022) Semi-structured Interview: A Methodological Reflection on the Development of a Qualitative Research Instrument in Educational Studies. IOSR Journal of Research & Method in Education, 12 (1), 22-29 https://www.researchgate.net/publication/358906376_Semi-structured_Interview_A_Methodological_Reflection_on_the_Development_of_a_Qualitative_Research_Instrument_in_Educational_Studies_Ruslin

Schwaeke, J., Peters, A., Kanbach, D. K., Kraus, S., & Jones, P. (2024). The new normal: The status quo of AI adoption in SMEs. *Journal of Small Business Management*, 1–35. https://doi.org/10.1080/00472778.2024.2379999

Sharma, M., Luthra, S., Joshi, S., & Kumar, A. (2021). Implementing challenges of artificial intelligence: Evidence from public manufacturing sector of an emerging economy. *Government Information Quarterly*, *39*(4), 101624. https://doi.org/10.1016/j.giq.2021.101624

Sinha, S. & Y, M. L., (2024) Challenges with developing and deploying AI models and applications in industrial systems. Discover Artificial Intelligence 4 (1), 55. https://doi.org/10.1007/s44163-024-00151-2

Sotamaa, T., Reiman, A., & Kauppila, O. (2024). Manufacturing SME risk management in the era of digitalization and artificial intelligence: a systematic literature review. *Continuity & Resilience Review*, 1-28. https://doi.org/10.1108/crr-12-2023-0022

Stryker, C. & Kavlakoglu, I. (2024). What is AI? IBM, (1). Available 12.01.2025. https://www.ibm.com/think/topics/artificial-intelligence#:~:text=Artificial%20intelligence%20(AI)%20is%20technology,and%20respond%20to%20human%20language.

Surmi, A. A., Bashiri, M., & Koliousis, I. (2021). AI based decision making: combining strategies to improve operational performance. *International Journal of Production Research*, *60*(14), 4464-4486. https://doi.org/10.1080/00207543.2021.1966540

Sutton, J., & Austin, Z. (2015). Qualitative research: Data collection, analysis, and management. *The Canadian Journal of Hospital Pharmacy*, *68*(3), 226–231. https://doi.org/10.4212/cjhp.v68i3.1456

Ubaid, A. M., & Dweiri, F. T. (2020). Business process management (BPM): terminologies and methodologies unified. *International Journal of System Assurance Engineering and Management*, 11(1), 1046-1064. http://dx.doi.org/10.1007/s13198-020-00959-y

University of Gothenburg, Alm. E & Chiu Falck. J (2024). Exploring the process of AI integration seen through a resource and capability perspective: A qualitative study of international SMEs in the manufacturing industry. School of Business, Economics and Law, 1-100. https://gupea.ub.gu.se/handle/2077/82017

Van der Aalst, W. M. P. (2013). Business Process Management: A Comprehensive Survey. *ISRN Software Engineering*, 1-37. https://doi.org/10.1155/2013/507984

Zhong, R. Y., Xu, X., Klotz, E., & Newman, S. T. (2019). Intelligent Manufacturing in the Context of Industry 4.0: A Review. *Engineering*, *3*(5), 616–630. https://doi.org/10.1016/j.eng.2017.05.015

The following tools have been used to do thesis:

ChatGPT (2025). OpenAI. GPT-4o, February 2025. Used for generating ideas. https://chatgpt.com/

DeepL (2025). DeepL Write. Used for language check and academic writing. https://www.deepl.com/en/write

List of Tables

Thematic Analysis and Coding

Comment scope	Codes	
Our initial plan was to automate the equipment	Motivation for AI Integration: Automation of equipment	Motives & Scope of Integration
drive operatinal efficiency factors foreward	Motivation for AI Integration: Operational efficiency improvement	
energy reduction	Motivation for AI Integration: Energy reduction	
automated quality control	Motivation for AI Integration: Automated quality control	
reduced human error factor	Motivation for AI Integration: Reduced human error	
minimized waste	Motivation for AI Integration: Waste minimization	
faster production cycles	Motivation for AI Integration: Faster production cycles	
Company 3 aim is to produce goods faster with less efforts and in greater quantities.	Motivation for AI Integration: Increased production output	
It is clear that AI technologies are advancing rapidly in Russia	Motivation for AI Integration: Rapid technological advancement	
and their role in manufacturing will continue to grow.	Motivation for AI Integration: Industry growth potential	
This makess AI an essential investment for companies that want to stay competitive.	Motivation for AI Integration: Competitive necessity	
Well, in my opinion, recent progress of the development of AI in Russia	Motivation for AI Integration: Rapid technological advancement	
Specifically, it referes to cloud based technologies as they do not require high amount of finacial investement to be effective in our processes.	Motivation for AI Integration: Cost-effective cloud technologies	
Company 1 recongise integration of AI technologies as a competitive advantage in the market	Motivation for AI Integration: Competitive advantage	
and a possibility to provide our customers with a high-quality and personalized products which also drives our progress foreword.	Motivation for AI Integration: Enhanced product quality and personalization	
In recent years, Company 3 has invested significant resources in automating its equipment.	Scope of Integration: Investment in equipment automation	
The company has prioritised the integration of CNC machines with AI software	Scope of Integration: CNC and AI software integration	
aiming to streamline and expedite manufacturing processes	Scope of Integration: Process streamlining and expediting	
Our manufacturing processes incorporate CNC machines supplemented by predictive maintena	Scope of Integration: Equipment automation and maintenance integratio	
We utilise demand forecasting to analyse historical sales, market trends and customer behaviou	Scope of Integration:Data analytics and demand forecasting	
As a mass producer, Company 2 requires an AI-based tracking system to optimise inventory and	Scope of Integration: AI-based tracking for inventory and supply chain	
with the aim of improving decision-making processes to make them quicker and accurate	Scope of Integration: Enhanced decision-making processes	
and to improve customer engagement.	Scope of Integration: Improved customer engagement	
In terms of our machinery equipment, we are combining traditional woodworking machines with AI-driven automated machines	Scope of Integration: Integration AI-driven machinery	
with predictive maintanace.	Scope of Integration: Predictive maintenance implementation	

Figure 3: Motives & Scope of Integration

enhancing efficiency and reducing costs.	Impact on Manufacturing Processes: Enhanced efficiency and cost red	Enhanced Manufacturing Processes
The precision of CNC machinery has been demonstrated to contribute to waste reduction and improved our product quality	Impact on Manufacturing Processes: Waste reduction and energy effici	
Positive feedback from customers indicates ... quality of the order has significantly increased.	Impact on Manufacturing Processes: Increased product quality	
The quality control systems ensure the absence of defects that would otherwise go undetecte		
Worker safety is enhanced by offloading dangerous or repetitive jobs (heavy lifting, cutting, sar	Impact on Manufacturing Processes: Enhanced worker safety	
The need for regular workers in processes where AI driven machines are used has decreased markedly		
We do not require a large number of workers to do all the job manually, just a few observers w	Impact on Manufacturing Processes: Workforce reduction	
I have to say that the amount of regular workers significantly reduced after we integrated AI m		
Company 2utilises AI-driven machines to automate manufacturing processes, including cuttin	Impact on Manufacturing Processes: Process automation	
They leverage AI to optimize cutting paths, speeds, and tool usage on the fly	Impact on Manufacturing Processes: Process optimization	
Previously, workers had to stop and adjust settings between different cutting tasks; now the AI		
Smart CNC machines and automated tools operate faster		
For example, if we're cutting components for a chair and then switch to a table, the machine		
This has cut down setup times dramatically – I'd estimate our overall throughput (pieces produced per day) has gone up by about 25%.	Impact on Manufacturing Processes: Increased production speed	
AI-driven equipment significantly increases production speed by taking over repetitive tasks		
reducing human error and optimising workflows.	Impact on Manufacturing Processes: Workflow optimization	
Integrated systems ensure streamlined processes from raw materials to finished products, mi	Impact on Manufacturing Processes: End-to-end process streamlining	
Automation is the key to efficiency.	Impact on Manufacturing Processes: Automation as efficiency driver	
and with greater precision than purely manual methods.	Impact on Manufacturing Processes: Precision	
which reduces idle time and maximizes output.	Impact on Manufacturing Processes: Idle time reduction	
Waste reduction initiatives driven by AI have made production processes notably more sustainable a	Impact on Manufacturing Processes: Sustainability	
AI equipment significantly reduced human error factors	Impact on Manufacturing Processes: Reduced human error	
ensuring consistent results for customers with less human intervention.	Impact on Manufacturing Processes: Consistent outcomes	
Sensors are utilised to assess various machine components, such as balance of platforms, bearing d		Continuous Production
We utilise AI-powered systems to monitor the health of our equipment.	Predictive Maintenance Usage: AI-powered monitoring	
With this software we can always check the condition of the machine		
AI software generates information about the current condition of the machine by comparing it with standard parameters and identifies the likelihood of failure.		
By interpreting the data transmitted by these sensors, AI can assess the machine's operational conditions in real time.	Predictive Maintenance Usage: Condition assessment and failure prediction	
and if the main components are not in standart condition we are able identify it in advance, before the machine breaks down.		
It is a very effective AI tool which allow us to avoid production stoppages.	Predictive Maintenance Usage: Prevention of production stoppages	
This greatly reduces unexpected breakdowns that cause downtime.		
In practice, this means furniture components can be cut or shaped continuously with fewer interrup	Predictive Maintenance Usage: Mitigation of unexpected downtime	
No surprise breakdowns on a busy production day, no scrambling to subcontract work while w		
This predictive maintenance approach has prevented at least a couple of major breakdowns s	Predictive Maintenance Usage: Prevention of major breakdowns	
The software enables us to identify when the machine is in poor condition and initiate appropriate a	Predictive Maintenance Usage: Timely maintenance scheduling	
So, instead of waiting for a machine to break down, factories perform predictive maintenanc		
We have found that such AI-based maintenance strategies can extend equipment lifetime by :	Predictive Maintenance Usage: Extended equipment lifetime	
In a furniture manufacturing context, that means the critical machines (saws, CNCs, finishing	Predictive Maintenance Usage: Increased availability of critical equipm	

Figure 4: Enhanced Manufacturing Processes, Continuous Production

Ve utilise AI capabilities to analyse customer data	AI Benefits in Datasets: Customer data analysis	Ehanced Decision-Making
as enabled us to successfully integrate an AI system that produces a vast amount of historic	AI Benefits in Datasets: Historical data generation and pattern recogni	
enerates patterns and makes predictions about customer demand.	AI Benefits in Datasets:Demand prediction	
maximizes revenue by aligning stock with customer needs.		
ave a significant impact on our operations, improving inventory turnover by allowing us to dentify which products are more or less popular with customers.	AI Benefits in Datasets: Inventory turnover improvement	
foreover, such company as we are must balance having enough stock to fulfill orders quickly ersus not tying up too much capital in warehouse inventory.		
I technologies are proving invaluable in this area by providing real-time visibility into stock	AI Benefits in Datasets: Real-time inventory visibility	
nd predictive restocking recommendations.	AI Benefits in Datasets: Predictive restocking recommendations	
fodern inventory systems with AI can integrate our data from sales (orders, forecasts), suppl	AI Benefits in Datasets: Multi-source data integration	
his live picture of inventory, combined with AI algorithms, helps us immediately detect nomalies or needs – for example, flagging that a popular dining set is selling faster than xpected in the past week and will stock out in a few days unless replenished.	AI Benefits in Datasets: Anomaly detection and rapid alerts	
s an example of how AI reduces costs, I can tell you that our inventory level has been reduce	AI Benefits in Datasets: Inventory optimization	
nd we were able to eliminate one rented warehouse, saving about $15,000 per month in ope		
long with demand forecasting and inventory tracking systems, we can guarantee a rapid resp	AI Benefits in Datasets: Rapid market response	
the current business environment, it is crucial to stay abreast of market trends in order to offer custo	AI Benefits in Datasets: Market trend awareness	
he aim of the demand forecasting technology in the dataset is to identify which products will be popu	AI Benefits in Datasets: Demand forecasting	
lachine learning can sift through sales transaction data and even online search or social media ends to flag which furniture styles or features are rising in popularity.	AI Benefits in Datasets: Data mining and trend detection	
y tracking e-commerce sales and web analytics, we can see which products are gaining traction with w		
fterwards we can provide this information to supply chain, inventory managers and other teams who	AI Benefits in Datasets: Decision support integration	
he implementation of AI-powered chatbots is instrumental in enhancing customer engagement, thro	Utilisation of Chatbot: Enhanced customer engagement via chatbots	Enhanced Customer Service
Ve can deploy chatbots to interact with visitors of the website answering questions and guiding shopp	Utilisation Of Chatbot: 24/7 Customer support	
his round-the-clock availability means potential customers get answers even outside of business ho	Utilisation Of Chatbot: Extended customer service	
I chatbots can also act as virtual sales assistants.	Utilisation Of Chatbot: Virtual sales assistant	
hey can ask customers about their style preferences or needs and then recommend products.	Utilisation Of Chatbot: Personalized recommendations	
y leveraging machine learning on customer data, a chatbot can personalize product suggestions (e.g		
his creates a more engaging, tailored shopping experience similar to an in-store associate's help.	Utilisation Of Chatbot: Enhanced shopping experience	

Figure 5: Enhanced Decision-Making, Enhanced Customer Service

Unfortunately, we couldn't find partners in Russia that meet our aims		Lack Of Tecnhical Expertise
The lack of expertise in Russia to adress the issue of adapting current systems to facilitate	Availability of AI Specialists in Russia: Insufficient local expertise	
Due to the lack of technical AI-related expertese in Russia, the whole process of Integration took us a very lon		
Recruitment of a highly skilled expert to assess infrastructure readiness and oversee the tr	Availability of AI Specialists in Russia: Recruitment challenges	
To be honest, I would not say that Russia is fully ready for AI integration	Availability of AI Specialists in Russia: Readiness limitations	
DialMebel managed to find appropriate partners in China where AI in manufacturing is mor	Availability of AI Specialists in Russia: International sourcing of exper	
They provided us with cloud based storage for data, and the experts we can cooperate wit		
It required significant amount of investments in this partnership	Availability of AI Specialists in Russia: High investment in iternational	
As a small company, we were able to source the necessary specialists quickly to assess the feasibility of in	Availability of AI Specialists in Russia: Easier to find experts for small company	
At the end, we were able to come to an agreement with available partners and our in-house specialists to exp	Availability of AI Specialists in Russia: Successful collaboration with external and i	
Integrating AI often means collecting and connecting data (machine data, product data, cu	Security Challenges: Expanded attack surface	Data Leakage Risks
The main risks are associated with cloud based data storage, the misconfigurations in clou	Security Challenges: Cloud storage risks and misconfigurations	
Also, there is always a risk of unauthorized access to sensitive data.	Security Challenges: Risk of unauthorized access	
Despite all these security factors, the unreliable employees who have access to sensitive data can steal ita		
If some external parties or unauthorized employees will access our dataset, they can steal s	Security Challenges: Risk Sensitive data theft risk	
Without any doubts, such risk as data leakege can result in a fatal consequences		
We have already experienced such issue as data leakege	Security Challenges: Previous data leakage incident	
due to the unconsciousness of our cloud storage partners, but luckly the consiquences were not damaging.	Security Challenges: Partner negligence	
people and information is strictly classified between them.		
and by Identifying and labeling sensitive data so that employees know what needs to be protected.	Risk Mitigation: Data classification	
To adress such risks we ensure that data in classified.		
by implementing multi factor authentification		
Moreover, we monitor and control the access by using multi-factor authentification.	Risk Mitigation: Multi-factor authentication	
Regarding communication with our partners, we ensure that all communication channels a	Risk Mitigation: Secure communication channels	
We implemented security awareness training to employees that have access to data.	Risk Mitigation: Security awareness training	
We always keep our software up to date to prevent vulnerabilities that could be exploited to access sensetive	Risk Mitigation: Software update and vulnerability management	
After we implementation of automated machines the need for manual labor was reduced,		Job Loss Anxiety
since they were becoming uncertain wether their role will remain relevant in the future or n	Employee Resistance: Job insecurity concerns	
Yes, there are employees operating with AI equipment who feel insecure with AI technologies.		
Due to automation AI provides, employee's assurance of job security reduces.		
Some workers even express the fear of skill redundacy if they do not adapt to AI technolog	Employee Resistance: Fear of skill redundancy	
We presume that with the flow of time the amount of negative attitude will reduce.	Employee Resistance: Expecting reduction in resistance	
At the beginning of integration, there were cases when long-time employees expressed resi	mployee Resistance: Expression of negative attitude/resistance to wo	
But still there are those who do not accept the changes and express negative attitude.		
Our attitude towards that is strict, we explain the reason of shifting towards AI and empha	Employee Resistance: Strict organizational response and explanation	
It can even effect the production efficiency since employees become negligent in their work and start to quit	Employee Resistance: Negative impact on productivity and workforce turnover	
We take some measures by politely explaining the reasons of changes and let employees understand our direction and automation plans. However, such approach does not really change the situation.	Employee Resistance: Limited effectiveness of mitigation strategies	
Well, manufacturing is heading towards new technologies and automation, we can't deny that employees h	Employee Resistance: Inevitable acceptance of change	
We cannot afford to start the process of integration if we are not 100% sure that the inves		Additional Challenges
The high upfront costs, especially for the AI equipment were challenging to comprehend even though we do n	Additional Challenges: High Investment and financial risk	
Well, high financial costs are always associated with AI integration.		
AI integration process requires the parthership with platforms, experts ans so on.	Additional Challenges: Dependency on external partnerships	
It took a lot of time to train employees to work with AI-driven systems – whether it's teachi	Additional Challenges: Employee training challenges	
There is often a steep learning curve for staff to master new tools.		

Figure 6: Challenges of Integration

Cloud based platform we are working with brings huge impact to success.		
Cloud based servers helped us a lot with predictive maintanace tool.	Financial Cost Management: Cloud-based platfroms utilization	
The platform provided us with cloud data storage to store and analyse data regarding our e		
Cloud based technologies significantly lower initial costs for integration.		
They provided us with technicians who helped us to do the necessary job connecting the r	Financial Cost Management: Technical support provided	
and develop AI quality control algorythems to detect product defects.		
Basically, cloud based partners minimized the expanses for us.		
It is cost effective	Financial Cost Management: Cost minimization via cloud partnerships	
Very effective partnership I would say.		Cloud-Based Solutions
it doesn't require us to have a tonn of AI experts in our team	Financial Cost Management: Reduced in-house expertise requiremen	
it doesnt require us to update and maintain data systems, cloud based platforms can help	Financial Cost Management: Outsourced system maintenance	
Cloud based servers can analyse large amount of information instantly and accuratly.	Financial Cost Management: Data analysis efficiency	
With our partners from China we can experement with algorythems, adjust them to suit ou	Financial Cost Management: Customization	
We can feel safe about the security of our data as our partners provide built-in features su	Financial Cost Management: Built-in security and maintenance feautu	
Basically, without cloud based platforms we wouldn't even think of integration because otherwise we would have to invest in expensive on site servers and computing power to handle AI algorithms for demand forecasting, chatbots and predective maintanace tools., We definitly cant afford that.	Financial Cost Management: Avoidance of expensive on-site infrastructure	
Also, cloud based platforms offer some pre-built models that can be adjusted for company's needs, it elimin	Financial Cost Management: Pre-built model utlization	
We provide them apropriate guidance on operating with AI equipment		
We provide the employees and technicians with apropriate guidance on how to operate wi	Employee Engagement in Integration: Training and guidance provisio	
We provide necessary training sessions to our regular employees on how to operate with A		
Our employees are empowered to be part of the process, express their ideas or speak up r	Employee Engagement in Integration: Employee empowerment and p	
We contribute to an enhancment in collaboration between our employees and AI.		
Such practises drives the progress foreword.	Employee Engagement in Integration: Positive impact on integration	
I would like to point out that a significant proportion of our workforce have been with us for many years, long time before the integration of AI.Unfortunately, due to the nature of their roles and their age, they are not eligible for retraining or re-qualification.	Employee Engagement in Integration: Retraining limitations	Employee Training & Empowerment
Without any doughts, regular employees are a crucial part of successful AI integration.	Employee Engagement in Integration: Employee value acknowledgement	
It is important to make employees understand that it is not about replacing humans, but it is about ehancing	Employee Engagement in Integration: Augmentation vs replacement	
hold regular meetings to address employee queries	Employee Engagement in Integration: Regular communication for query resolution	
and employ a phased integration approach to ensure employees have sufficient time to familiarise themselv	Employee Engagement in Integration: Phased integration approach	
Find apropriate long-term partners	Strategic Integration Considerations: Partnership identification	
secure the partnership by aligning your objectives with theirs.	Strategic Integration Considerations: Aligning mutual objectives	
It is important to clearly define your objectives and vision at the outset.	Strategic Integration Considerations: Clear objectives and vision defi	
Identify the readiness for AI integration.	Strategic Integration Considerations: Infrastructure Readiness assessment	Additional Strategic Considerations
Evaluate the current infrastructure to determine its readiness for AI integration, do the nec		
I would also mention that the process of integration should be gradual, so that employees	Strategic Integration Considerations: Gradual integration and employ	
Our company is small, so it was probably even easier for us to adopt AI because we didn't have to make as m	Strategic Integration Considerations: Small company advantage	
Stay in touch with integration partners (cloud based platform) and consult with them on all AI-related issues.	Strategic Integration Considerations: Ongoing partnership engagement	
I presume in 8 years or less there will be enough partners to choose from	Future Outlook on AI Evolution: Partner availability expansion	
to find the one who will be perfectly suitable and affordable for us to work with.		
Actually, Russian market of AI solutions is evolving very fast at the moment, I can see that		
I think it will become more popular specifically in Russia.	Future Outlook on AI Evolution: Rapid evolution of AI in Russia	Future Outlook
I can see that Russia is becoming more aware about capabilities that AI can provide with.		
In my opinion, it will evolve rapidly.		
It is just a matter of time when it will become popular and affordable enough in our indust	Future Outlook on AI Evolution: Market maturation and affordability	
increase because cloud based services become more affordable and their popularity increases in Russia.		
If right now we are one of the least small manufacturing company who adopted AI, in 5 years the amount of su	Future Outlook on AI Evolution: Increased adoption among small manufacturers	

Figure 7: Strategies, Future Outlook

Link to Thematic Analysis and Coding Excel File

https://edukainuu-my.sharepoint.com/:x:/g/personal/vladimirkorotkov_kamk_fi/EQEu-HmU2XlINlQeK2JvM1RUB78ILYE0ipr6qsmKnsu-t1Q?e=LcemWr

Cover Letter For Interviews in English

Cover Letter For Interviews

Dear [Name],

I hope this email finds you well. I am Vladimir Korotkov, introduced to you by [Name] – the founder of [Company 3]. First and foremost, I would like to express my gratitude for accepting my interview proposal, despite your busy schedule. it was very kind of you!

Following our conversation in WhatsApp, I will send you a list of questions regarding your experience on position of AI integration specialist in [Company Name]. As I mentioned, I am writing my thesis for Kajaani Univeristy of Applied Sciences located in Finland, Kajaani. The main idea of thesis is to explore how furniture manufacturing companies in Russia integrate AI technologies in their Business Process Management (BPM), to identify benefits that AI brought to your company, specifically to efficiency of operations, decision-making, and automation. Additionally, the interview's purpose is to gain insights regarding the challenges you encountered during integration of AI and strategies you used.

The questions will be sent to your personal email address which you mentioned in our WhatsApp conversation during 5-10 of March. All the answers that you provide will be strictly used only for academic purposes and no more.

Your participation is crucial to the success of my research, and I believe your insights will help to unlock the potential of AI in furniture manufacturing sector!

Best regards,

Vladimir Korotkov

List of Interview Questions

Interview Questions

1. Please provide me with further information regarding your professional background and what is your job in the company.
2. Please provide details about your company.
3. Please provide details regarding number of employees working in your company, annual turnover, and/or annual balance sheet.
4. What motivated your company to integrate AI?
5. Can you describe your company's experience with AI adoption?
6. How did integration of AI-driven equipment effect your manufacturing processes?
7. Do you use AI systems to monitor the health of your equipment?
8. How else do you use AI in your datasets? Please elaborate on benefits it provides.
9. Are there enough experts/specialists in Russia to carry out the AI integration process?
10. Have you encountered security challenges related to AI integration? What factors could compromise data protection, and how can these risks be mitigated?
11. Have you experienced the resistance or negative attitude of employees due to AI integration?
12. Are there any other challenges that you have experienced during AI integration process?
13. How did you manage to leverage the financial cost of integration?
14. Do you encourage employees to facilitate the successful integration?
15. What other factors need to be considered in the strategy during the integration process?
16. How do you see AI evolving in your industry over the next five years?