Aalto-yliopisto
Aalto-universitetet
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Bachelor's Programme in Information and Service Management

Transformative impacts of artificial intelligence on labor markets

Analysis on the positive effects of AI on the financial sector's labor markets, restructuring job dynamics, and securing the future through regulation and skill development.

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Bachelor's thesis
2023

Aalto-yliopisto
Aalto-universitetet
Aalto University

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Title of thesis: Transformative impacts of artificial intelligence on labor markets.

Program: Bachelor's degree in business

Major: Information and Service Management

Thesis supervisors: Esko Penttinen & Hadi Ghanbari

Year: 2023 **Number of pages:** 32 **Language:** English

Abstract

Artificial intelligence (AI) is a current topic today and in the future. It will impact the labor markets throughout different industries, and this thesis focuses on analyzing the positive effects on the financial sector's labor markets. The relevance and research on this topic make for a purposeful literature review.

AI will affect the labor markets of the financial sector in various ways. It will give companies the opportunity to upskill and reskill existing workers to better adapt to the change of nature of their job positions. This can be considered a competitive strategy for companies because it furthers not only the businesses competitiveness with highly skilled workers, but also its employees personal career development.

AI will also create jobs and work opportunities in the future. These jobs include the increased need for already existing positions in various business areas, such as development, operations, and applications. Additionally, AI will create completely new and distinctly human job categories, which are defined as technical, operational, business, sustainer, explainer, and maintainer positions.

The key takeaway of this thesis is that the application of AI in the future of the financial sector will be a positive transformation, if it is properly regulated and managed to maintain its safety.

Keywords: Artificial Intelligence (AI), financial sector, job creation, upskilling, reskilling, regulation.

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1 Introduction

“We are on the cusp of a major transformation in business, comparable to the industrial revolution in scope and impact” says Raisch and Krakowski (2021, p. 193) in their recent research. The world as we know it is changing in front of our eyes, and we are heading towards an AI driven economy.

The motivation for choosing this topic is the desire to learn and assess this topic that will impact our future society. The main objective of this research is to evaluate how AI positively affects labor markets of the future, with a focus on the financial sector. Other objectives of this research are to raise awareness and positive association with AI. It is especially important for young people to know what the future entails when it comes to the growing presence of artificial intelligence. It is crucial to understand how AI will affect future labor markets. It is essential to prepare for the AI driven economy of the future and be ready for changes in what is expected of workers and society in general.

From a managerial perspective, it is important that business leaders learn, recognize and plan for the changes AI will bring in the future, as it could have detrimental effects on a company if they are unable to adapt. Issues like resource allocation and talent acquisition are going to change drastically and if companies want to gain a competitive advantage, they must be informed and prepared.

The problem that led me to this research topic is fear surrounding the capabilities of AI. Recently there has been lots of speculation and panic regarding AI’s potential and how this will affect employment and cause unemployment. Questions like “Will we be equipped with skill sets suitable for future job markets?” and “Will there still be work for me?” are common. Even though further automation and AI will be the cause of a major shift in our economy, there are changes that are expected to be beneficial to society. Research by Badet (2021) predicts that automation will create more jobs than it will displace. Therefore, this thesis will focus on the beneficial sides of AI and automation, which are not as commonly discussed.

The research problem leads to the research question of this thesis, which is “What are the positive impacts of AI on the labor markets of the financial sector?” The scope of the research for this thesis will cover the positive effect of AI on labor markets of the future, and more specifically, in the financial sector. Automation and AI will make changes regarding employment and what jobs will be available. This thesis will cover the positive effects AI has on the financial sector, including new job opportunities and upskilling and reskilling opportunities. Along with these comes information on how AI should be regulated to receive these beneficial effects.

Before diving into this topic, it is crucial to recite some important terms. Artificial Intelligence (AI) is not officially defined, as it lacks a universally accepted clarification (Buiten 2019). It can be defined as “a system’s ability to interpret external data correctly, to learn from such data, and to use those learnings to achieve specific goals and tasks through flexible adaptation” (Haenlein & Kaplan 2019, p. 5). This research also states that AI can be classified into several different categories based on the types of intelligence it displays: cognitive, emotional, or social intelligence. These categories are analytical, human-inspired, and humanized AI. AI can also be classified into another set of categories called Artificial Narrow, General, and Super Intelligence based on how advanced it is (Haenlein & Kaplan 2019).

Machine Learning (ML) on the other hand is defined as “one of the AI spectra” in research by Golić (2019, p. 68). Similarly, research by Bini (2018) states that ML is best thought of as a subset of AI. Machine learning learns from experience and improves its performance as it learns more.

In summary, AI is an umbrella term referring to machines or software that exhibit human intelligence. ML is under the umbrella of AI and involves the development of algorithms that allow computers to learn from and make decisions based on data (Bini 2018). In this thesis AI is the focus, but the term” Machine Learning” is important to understand, as it will be mentioned several times.

In this thesis after the introduction will come methodology, where research methods and the techniques used will be covered. After methodology is the background section. In this section information about the topic, that is imperative to know before getting into the literature review, will be covered. Then comes the literature review, where an analysis of earlier research in this area will be conducted. After the literature review, there will be an analysis, discussion, and key takeaways in the results section. After discussing the results comes the conclusion section, where implications and limitations of the research and suggestions for future research will be covered.

2 Methodology

This thesis's goal is to supply relevant analysis on the positive effect of AI on job opportunities in the financial sector. This analysis is conducted by a systematic literature review. The motivation for choosing to conduct a literature review for this thesis is based on the relevance of AI in media and literature. There are an increasing number of analyses, studies, and the amount of research surrounding AI and its effect on labor markets. Most of what is seen surrounding the topic is portrayed in a negative way that may even spark fear concerning unemployment in the future. This thesis aims to portray it in a more positive light and focus on what we can gain from this new phenomenon.

Relevant research, data, and information were found mostly using the search engine Google Scholar. In addition to Google Scholar, Scopus and Mendeley were also utilized in this research. The main keywords and phrases used in searches were "AI effect on labor markets" and "AI new jobs" while pursuing suitable papers and research that could be utilized. When specifying the search and looking for sources that were focused on more niche subjects, the most used supporting keywords were "financial sector."

When coming across a promising article with the help of main keywords, its credibility was checked. The Publication Forum was used to check the credibility and reputation of the sources. Sources and publishers with positive ratings were utilized in this thesis. After verifying trustworthy sources, they were reviewed and analyzed. This was done by reading and highlighting important information in each report. In more extensive research, like books, analysis was performed with the help of the table of contents and reviewing topics of the research that were relevant for this thesis.

It should be noted that predicting the future is impossible. The prediction of the future impact of AI is especially challenging, because of the erratic pace of progress in AI research (Arslanian & Fischer 2019). Thus, it is important to note that the progression and innovation of AI can be advanced greatly in the near future, prompting further research.

3 Background

Research by the European Economic and Social Committee (2018) states that automation is not a novel phenomenon, and it has been a protracted process. The development of AI can be considered a continuation of a lengthy process in which employment has shifted up the value chain, thus becoming more productive and better compensated (European Economic and Social Committee 2018). In this section we will discuss the background of AI itself and set groundwork and proper preparation for the literature review.

3.1 The history of artificial intelligence

The start of the phenomenon of AI is difficult to distinguish. According to research by Haenlein and Kaplan (2019), AI's roots can be traced back to the 1940s, but it was only in the 1950s, when it was established as an academic discipline. They state that although it was established early, it remained concealed and lacked public attention for over half a century. They also believe that AI only started sparking public conversation when computing and Big Data were on the rise and not only improving technologically, but also gaining popularity. These two factors, computing, and Big Data, started to incorporate AI into business environments (Haenlein & Kaplan 2019).

As demonstrated in research by Haenlein and Kaplan (2019), the history of AI has seen periods of significant success, but also periods of criticism and reduced funding, known as 'AI winters'. According to Haenlein and Kaplan, in the 1970s after AI's initial boom of success stories, government bodies began to criticize such high spending on AI research, which resulted in an AI winter. Funding started again in the 1980s (Haenlein & Kaplan 2019).

According to research by Roser (2022), after the 1980s AI development took big steps forwards extremely quickly and the first version of modern-day vision systems was introduced, which was able to recognize even complex languages, like Japanese characters. According to Roser, shortly after in 1987, AI learned to speak and pronounce the English language and continued to develop quickly. Subsequently deep learning systems were introduced in the 21st century, and these systems could recognize familiar items and things from pictures at a near-human level (Roser 2022). Since then, the development of AI has picked up even more speed, during the beginning of the 21st century AI has become extremely intelligent and became the champion of several different games like chess, Go and shogi (Japanese chess) (Roser 2022). Additionally, this research notes that the utilization of AI in medicine and social media also started in the early 21st century.

3.2 The present and future of artificial intelligence

The continual interaction and integration of data and AI algorithms has fueled a fresh phase of AI research in recent years and research (He, Guo, Zhou & Guo 2018) states AI is no longer confined to only mirroring human behavior, as it is now capable of rapid processing and self-learning. AI has made significant strides forward in recent years. According to research by He et al. (2018), one of the biggest breakthroughs in AI so far has been vision and speech recognition. These abilities provide cognitive abilities to AI, which allows it to be used in real-world situations and applications (He, Guo, Zhou & Guo 2018). The most recent innovations of AI include applications like ChatGPT and Minerva (Roser 2022).

AI has quickly become a part of everyday life. AI systems and humans will need to coexist and work together in collaboration, which is known as augmented intelligence. Research by Raisch and Krakowski (2021) suggests that society should prepare for augmentation instead of full automation.

AI will revolutionize all aspects of civilization in the future (He et al. 2018). However, the future of AI is likely to present problems in ethical, legal, and philosophical issues. To be able to address this issue, the regulation of technology, and specifically the training and testing of AI algorithms, is constantly evolving (Haenlein & Kaplan 2019).

AI will also alter job markets of the future. It will cause job displacement, but it will also be responsible for creating new job opportunities (Badet 2021). This ideology is widely supported. According to Acemoglu and Restrepo (2018) automation will reduce labor demand while simultaneously creating new jobs and tasks. In other research (Atkinson & Wu 2017) they also agree on the effect of automation: As technology advances, certain professions and jobs may become obsolete, making way for more productive occupations. In the next section, we will talk about the present situation of AI, specifically in the financial sector, to lay proper groundwork for the literature review.

3.3 Artificial intelligence in the financial sector today

The financial sector is considered one of the earliest adopters of AI, and they utilize AI in numerous ways. One of the most common ways of utilization is for personalized banking, where AI models can generate personalized financial advice and provide immediate customer service. Golić discovers in her research (2019) that leading banks of the world such as the Bank of America, UBS, CitiBank, Morgan Stanley, HSBC, JPMorgan Chase, and Wells Fargo have all embraced the use of AI to enhance customer service, interaction, and experience.

According to research by Georgiev (2018), AI is an extremely useful tool in the financial sector, as it can manage massive volumes of data and produce predictable and reliable outcomes. His research also finds, that in the financial sector, AI is currently used for customer interactions, analytics, and decision support. In terms of customer communication, AI is implemented through chatbots and personal assistants, natural language processing and generation, and voice and facial recognition (Georgiev 2018).

In terms of process streamlining, research by Georgiev (2018) states that AI is utilized for documentation, decision support, image recognition, machine learning, document digitization and various kinds of decision making. Additionally in terms of pattern recognition, his research states that AI works with fraud prevention, analytics, machine learning, voice recognition and spotting anomalies and patterns. AI can detect fraud and prevent money laundering by observing and recognizing behavior patterns (Georgiev 2018).

Most financial institutions are said to be focused on implementing existing AI applications instead of using resources to lead the development of new ones (Arslanian & Fischer 2019). This means that rival financial institutions will be using similar tool sets, AI models and applications. For companies to stand out and be more successful, they need to focus on how they train their AI models. The way they are trained has a significant effect on their output and effectiveness. Typical areas of these AI technologies' deployment are strategic problem solving and other areas with competitive opportunities (Arslanian & Fischer 2019).

Research by Georgiev (2018) states that under data privacy standards and protection laws, using AI in customer profiling and decision support procedures can sometimes be problematic. According to Georgiev, it can be problematic because these standards and laws control the collection, processing, and storage of personal data.

This research also states that to work accurately, AI systems require access to vast amounts of personal data, and there may be concerns about privacy, consent, and the security of the data being used. Furthermore, he states that if the underlying data or algorithms are defective, AI-driven conclusions may be biased. Companies face a significant challenge in ensuring compliance with data protection requirements while implementing AI in business practices concerning customer information. Nonetheless, Georgiev's research (2018) finds that AI is used for customer profiling itself, sorting, risk analysis and targeting. The use of AI in customer profiling also includes machine learning, language analysis and decision automation (Georgiev 2018).

4 Transformative impacts of AI on labor markets

A factor behind the ongoing growing popularity of AI is its increase in accessibility. Research by Arslanian and Fischer (2019) finds that AI is no longer behind companies' internal research and development barriers and no longer does it require technological specialization to be used. Implementing AI in business practices for an average worker is going to become easier and more common in the future (Arslanian & Fischer 2019).

Along with AI and its accessibility to the public comes meaningful change. Research (He et al. 2018) shows that there will be three business aspects affected by AI, which will be: 1) increasing automation, 2) assisting intelligent analysis and decision-making, and 3) developing new business models and industries. Next, each aspect will be taken a closer look at.

The first aspect of change led by AI is increasing automation. AI will increase automation in a variety of ways. Research (He et al. 2018) finds that machine vision, speech recognition and natural language processing (NLP) technologies will be employed to gather and collect data for utilization. Chatbots are a good example of this, and they can be used for customer support automation as they can grasp consumer intentions, learn, and improve service over time (He et al. 2018). As stated in their research, in addition to chatbots, AI can also be used for identification and authentication, as it can replace the need for security questions, passwords with voice or facial recognition, which is faster and can improve customer experience.

The second aspect of change led by AI is intelligent analysis and decision-making. Research (He et al. 2018) states, when compared to traditional methods, AI improves intelligent analysis and decision-making by delivering a much broader and deeper analysis. Their research states that AI can learn continuously, which allows for more relevant recommendations and personalized analysis, also including trend analysis, root cause analysis predictions and data mining. AI can be used for other business functions like risk management, for example, AI can utilize NLP for generating analysis to detect fraudulent activity in complex real-time transactions (He et al. 2018).

The third aspect of change led by AI is contributing to the development of new business models and industries. AI allows smart technology to enter the financial industry and be taken advantage of, driving new products, business models and transforming industry structure (He et al. 2018).

Each of these aspects contributes to future changes in the labor markets, regardless of the industry or sector. In the next subsections of this chapter, we will cover the restructuring of the financial labor markets and what exactly that will entail, keeping the research question and objectives in mind.

4.1 The restructuring of the financial sector's labor markets

Recent research by Tiwari (2023) states that AI and its applications can create profound change in various industries, including the financial sector. His research finds that it will lead to increased efficiency, reduced costs, and the creation of completely new job opportunities. These changes may also indicate the displacement of low-skilled and routine jobs (Tiwari 2023).

Similarly, other research (He et al. 2018) suggests that there are three types of impact on the financial sector's labor markets by AI – 1) job cuts, 2) increased efficiency, and 3) job creation. As stated already, this thesis will focus on the benefits of AI, such as job creation and upskilling opportunities.

Although AI technologies and applications are taking big strides forward at a fast pace, AI will not be rebelling against humanity anytime soon. Literature states "The AI models being developed today are not the broad AI of science fiction" (Arslanian & Fischer 2019, p. 176). On the contrary, research by Arslanian and Fischer (2019) finds that they are limited systems that need extensive training to handle highly particular issues based on vast data sets, but to which they are still capable of applying tremendous computational power to. They discover in their research that when it comes to consuming a wide range of datasets and applying an equally wide range of analytical techniques and methods, the human brain is superior. However, they also find that it is expanding the boundaries of our ability to apply that tremendous computational power to new datasets. Thus, the real potential of AI lies in combining the complementary strengths of humans and machines to increase our joined capacity to address issues concerning business and society in general (Arslanian & Fischer 2019).

This idea is widely supported. In other research by Raisch and Krakowski (2021) they express their belief that society should be prepared for augmentation instead of full automation. They believe this will trigger a positive spiral of skill development, mitigating the negative effects of digital transitioning on not only the labor market, but also employees. Augmentation has been seen in real life scenarios, for example in UBS ‘s investment banking division, where automation was used to handle fund transfers, consequently leaving investment bankers more time to develop trading strategies (Raisch & Krakowski 2021).

Lavrinenko and Shmatko (2019) are also in agreement. In their research, they state that because of the lack of cognitive abilities of AI, the full substitution of human labor with AI and machine labor is next to impossible. People tend to overestimate the power and capabilities of AI and its growth is severely hindered and slowed down by, for example, regulatory, economic, and ethical barriers (Lavrinenko & Shmatko 2019).

AI and the development of technology will modernize jobs, instead of completely replacing them (Kapeliushnikov 2017, as cited in Lavrinenko & Shmatko 2019). Similarly, other research (OECD 2017, as cited in Lavrinenko & Shmatko 2019) believes that the development of technology and AI will increase efficiency in particular job responsibilities, rather than fully eliminating employees. Their research also states that it can be anticipated that employees in the future will no longer have jobs that revolve around routine physical and cognitive tasks.

Standardized tasks may be susceptible to automation, but non-standard tasks will need human guidance even in the future. Research by Lavrinenko and Shmatko (2019) finds that jobs that are the least susceptible to automation are, for example, strategy analysts and business analysts. They state that these types of jobs entail responsibilities that require high-level activity and systematic thinking and problem solving. AI models and applications could potentially take care of some responsibilities related to implementing company strategies and optimizing business processes, but humans would still oversee creating development initiatives (Lavrinenko & Shmatko 2019).

4.1.1 New job opportunities

Research shows, while AI technology is replacing some jobs, its development and application is also reviving the financial job market (He & al. 2018). This research also states that job creation represents the progressive influence of AI on labor markets. They suggest that AI will generate many jobs in development, operations, and applications. In addition to the increased need for these positions, AI will also create completely new positions within the financial sector, which are said to be technical, operational, and business jobs (He & al. 2018).

Data scientists, system architects, development engineers, algorithms and system testers are examples of technical jobs, as stated in research by He et al. (2018). Their research also states that operating and maintaining systems related to big data and AI products to ensure consistency in product quality, legal and business compliance are all responsibilities of operational jobs. Furthermore, their research states that business jobs are positions that combine technology and business activities, where employees can act as interpreters of business requirements and technical algorithms between tech, service, and business departments. Examples of this type of position are an algorithmic analyst and a business development specialist (He & al. 2018).

Furthermore, from a more general perspective, other research suggests that there will be three brand new uniquely human job categories created by AI, labelled as trainers, explainers, and sustainers (Wilson, Daugherty & Morini-Bianzino 2017). In their research individuals who teach AI systems how to perform tasks effectively are referred to as "trainers." They help natural language processors and translators make fewer mistakes and teach AI models and systems how to respond and mimic human behavior, for example empathy and compassion (Wilson et al. 2017). An example of a position in this category is a customer-language tone and meaning trainer, who teaches AI systems to look beyond the literal meaning of conversation by detecting sarcasm (Wilson et al. 2017).

"Explainers" are individuals whose responsibility is to act as the bridge between technologists and business leaders and other nontechnical professionals (Wilson et al. 2017). They can be thought of as translators who provide clarity about AI systems and of these sometimes-complex issues. In their research, Wilson et al. (2017) state that explainers will also be responsible for conducting an analysis in the event of a wrongdoing of an AI system, allowing the causes of the incorrect behavior to be understood and corrected. An example of a position in this category is an AI usefulness strategist, whose responsibilities include determining whether to use AI for specific applications (Wilson et al. 2017).

Lastly, research by Wilson et al. (2017) explains that "sustainers" are individuals who ensure that AI systems are functioning as intended. They make sure any unplanned ramifications are addressed and taken care of and they play a vital role in maintaining trust in the fairness, auditability, and safety of the AI systems (Wilson et al. 2017). An example of a position in this category is an automation economist, who calculates and evaluate the cost of poorly functioning AI systems (Wilson et al. 2017).

4.1.2 Upskilling and reskilling

Not only will AI lead to the creation of new jobs and work opportunities, but it will also lead to the change of nature for various jobs. Research by Tiwari (2023) shows that the use of AI and its applications, for instance ML, will lead to jobs becoming more complex and requiring higher-level skills. This will indicate a change to what is available on the job market and what kind of employees' companies will be looking for (Tiwari 2023).

As AI technology makes leaps forward, the skill set demand for employees is changing. Research by He et al. (2018) demonstrates that AI advancements will open opportunities for upskilling, particularly in AI technologies, data mining, data storage, data analysis and database architecture. It also emphasizes the importance of technical skills and soft skills, for example, the ability to understand business logic and collaborate across disciplines (He et al. 2018).

Upskilling is described as the process of improving or learning new skills to sharpen employee's abilities to comprehend and use AI-based technologies (Jaiswal, Arun & Varma 2022). Research by Morandini et al. (2023) clarifies that employee upskilling usually takes place within the same job or industry and can assist organizations in fostering a culture of ongoing learning and development. A culture like this keeps employees engaged and motivated and can even assist organizations in recruiting and retaining top talent (Morandini et al. 2023).

Reskilling on the other hand, is defined as the process of learning entirely new skills outside of the current field of occupation, for example with the aim of switching to a different industry (Morandini et al. 2023). Reskilling can assist employees in adapting to changes brought by AI and technology, and how to work with them in a new role, which makes it a crucial procedure for organizations that implement AI systems (Makarius, Mukherjee, Fox & Fox 2020). Reskilling can help with driving innovation and creating value in a company, which increases their competitiveness (Li 2022). Additionally, research by Tenakwah (2021) shows that reskilling can also help organizations retain top talent. This research finds that if employees feel they are not given opportunities for career advancement, they may seek employment elsewhere. Furthermore, reskilling helps narrow the skill gap that frequently occurs between different generations (Tenakwah 2021).

Empirical research by Lavrinenko and Shmatko (2019) reveals skills and qualities employers are especially searching for when considering the future. According to this research, the most important competencies for future employees were, for example, digital skills, experience with banking software, search optimization skills, and sales skills. In addition to these hard skills, soft skills were also highlighted, for example communication skills, stress resistance and persistence (Lavrinenko & Shmatko 2019).

Similarly, other research (He et al. 2018) finds that along with AI advancements will come an increase in demand for expertise in higher-level technology, such as robot training, supervision, and design. Additionally, AI will magnify the soft skills of talented people, increasing the demand for creativity, emotional communication, and complex problem-solving abilities (He et al. 2018).

According to survey research conducted by McKinsey & Company (2018) the topic of upskilling is increasingly interesting business executives. The research revealed that executives are starting to understand that employee upskilling is a pressing priority for businesses to focus on in the upcoming years. According to the research, they also have begun to understand that this is an issue for primarily business leaders instead of governments. Nevertheless, their survey reveals that only 16% of those business executives feel prepared for the changes and skill gaps that are expected to occur in the future, while twice as many stated that they feel unprepared. Nevertheless, most respondents placed themselves in between these categories as "somewhat prepared ". Being prepared and able to manage the upcoming restructuring of businesses and its personnel is a competitive requirement (Illanes, Lund, Mourshed, Rutherford & Tyreman 2018).

4.2 Regulation of AI

Research by the Financial Stability Board (2017), which is an international coordination authority for financial industry regulators, suggests that the effect of AI and its applications on the financial sector and its practices will be promising and positive if it is properly regulated and managed. Risk management in this specific area is vital, as AI is encountering sensitive personal information. There must be protocols in place for data privacy and cyber security (Financial Stability Board 2017).

As the use of AI and its applications become more prominent in the financial sector, the need for regulations will also grow. Research (Arslanian & Fischer 2019) shows that regulators' interest in this topic is spiking as they are keen on ensuring that consumer interests are protected. According to this research, regulators also want to ensure that the implementation of AI technology does not jeopardize the financial system's safety. Already, government bodies and regulators around the world are working to gain a better understanding of how AI is utilized today and how they should develop standards and regulations for future technological deployment (Arslanian & Fischer 2019).

As an example, the Financial Stability Board has released the findings of multiple reports on their thorough study of this topic (Financial Stability Board 2017). As another example, the Monetary Authority of Singapore has issued an established set of fairness, ethics, accountability, and transparency (FEAT) principles for using AI in financial services (Monetary Authority of Singapore 2018). Additionally, research by Roberts et al. (2021) reveals that China is ambitious when it comes to AI and that their approach to AI regulation concentrates on the socio-political context and policies that shape China's AI strategy. Their research discloses that China's State council created the "New Generation Artificial Intelligence Development Plan" in 2017. This plan has a goal of being the global AI leader by 2030, and also defines ethical principles and standards set for AI (Roberts et al. 2021).

Other research by Buiten (2019) suggests that AI is difficult to regulate at the moment, one reason being it does not have a universally accepted definition. Another reason that the research suggests is the rapid evolution of AI. Buiten's research demonstrates that these reasons make it an unstable target for regulations that will stick. Her research finds that AI applications are behind complicated algorithms, which could result in biases and errors that humans could find hard to understand and control. Additionally, Buiten's research finds that AI transparency, which is often recommended as a regulatory tool, is also difficult to define and apply. Her research highlights that it is essential to evaluate the need for clear explanations of AI's mechanisms against technical feasibility and potential accuracy loss. As a result, any legislation must assess the individual legal settings as well as the value of transparency in relation to its costs (Buiten 2019).

Research by Clarke (2019) suggests that the most efficient way to regulate AI would be co-regulating, which works in combination of some natural restrictions and infrastructure elements, as well as some formal law. Additionally, his research suggests that entities participating in the research, creation, innovation, adoption, and application of AI technology should also be subject to regulatory requirements.

Research (Arslanian & Fischer 2019) states that not all AI applications of financial services will need to be under continuous examination or rigorous scrutiny. Some AI applications will require regulatory frameworks to be updated and even new policies to be developed, but most applications of AI will call for little to no changes to existing regulatory frameworks (Arslanian & Fischer 2019).

5 Discussion

In this chapter key results will be presented, and discussion based on this thesis' research findings will be conducted with the help of existing literature. Based on the literature review we can draw many conclusions and answer the research question: "What are the positive impacts of AI on the labor markets of the financial sector?" For a clearer representation of the results, tables will be utilized.

In terms of upskilling and reskilling, research concludes that these two actions can help alleviate AI's negative impact on the workforce, which is thought to be job replacement (see e.g., Li 2022). AI is changing the nature of many jobs, causing the skill set needed for many jobs to shift. This indicates that the need for existing employees to be retrained to perform either the same task, or a completely new one is inevitable. Upskilling and reskilling can be considered strategies to not only develop an individual's career, but also better the company's competitiveness with highly skilled employees. These two actions may also help improve employee satisfaction, as they feel the company is giving them an opportunity for career advancement. Thus, upskilling and reskilling can be considered competitive strategies (see e.g., Morandini et al. 2023).

This thesis agrees with existing literature in terms of upskilling and reskilling, but it is also important to identify cases where it may not be considered an opportunity for employees and rather a burden. This could be the ramification of resource limitations, systemic barriers, or other personal circumstances. It is imperative for companies to recognize challenges like these so they can act as a supportive and inclusive environment, making sure that upskilling and reskilling are seen as opportunities for personal professional progress instead of burdens for certain parts of the workforce. For example, the older generation may have concerns and negative preconceptions about technology driven upskilling and reskilling efforts. This reluctance or hesitation may be the cause of lack of experience with technology, a preference of "traditional" working methods, or the fear of job displacement. By taking a proactive approach, companies can alleviate experiences like this by harboring a workplace culture that appreciates not only technical advancements, but also the wisdom of experience.

Table 1: Summary; Upskilling and reskilling.

Positive effects of upskilling and reskilling	
Competitive strategy: company	1. Retain top talent. 2. No need to hire new employees.
Competitive strategy: employees	1. Career advancement. 2. Employee satisfaction.
Alleviates negative impact of AI on the workforce	1. Retraining for new/modified jobs and skillsets. 2. Prevents job loss.

So, what exactly will companies be looking for in employees in the future? In the future, companies will be looking for well-rounded people who possess not only technical skills, but also the soft skills required in a business environment (He et al. 2018). The growing presence of AI will cause automation to some extent, but AI is no match to humans when it comes to soft skills. This thesis demonstrates that customer interactions that involve anything more than a standard procedure will require human assistance, even in the future.

The need for well-rounded people and soft skills in general are important findings. Often the capabilities of AI are overexaggerated. In hindsight, AI is quite a limited system and needs extensive training to perform specific tasks (see e.g., Arslanian & Fischer 2019). These are meaningful findings in this field of research, as it may bring people the sense of security. Not everyone is interested in developing their skillsets to meet the so-called criteria of the future, which could include hard skills like coding. It is imperative for people to know that they can still have a promising career, even if they are seeking and are interested in positions in which soft skills are the main focus.

In terms of job opportunities created by AI, this research can conclude that AI will have a positive effect on the financial sector's labor market. AI is set to generate jobs in development, operations, and applications, which will introduce technical, operational, and business roles within the financial sector (He et al. 2018).

Additionally, AI will create three distinctly human job categories. These are not exclusive to the financial industry and will be implemented throughout other industries. These categories are trainers, explainers, and sustainers (Wilson & al. 2017). These three categories of roles can take place anywhere that AI is utilized in the future.

Based on this research it is justified to assume, that these are roles that will likely require specific and relevant education or training. This is why governments, corporations and education systems should work together in creating relevant preparation opportunities for future changes like this. Employees would have the chance to prepare for the changes to come and it would also help businesses to adjust more seamlessly. This way, the shift to an AI-driven economy will be smoother and cause less ramifications for both the workforce and businesses themselves.

Table 2: Summary; Job creation.

Job creation	
New positions within the financial sector	1. Operational jobs 2. Business jobs 3. Technical jobs
Increased need for already existing positions in the financial sector	1. Operations jobs 2. Applications jobs 3. Development jobs
New positions (not industry specific)	1. Trainer 2. Sustainer 3. Explainer

Also, AI and automation will likely change the structure of labor markets in several other ways, but they are impossible to predict. Time will tell how the financial industry will react to the advancements of AI. As AI becomes more integrated into the financial sector, it will likely cause changes and repercussions that were not predicted. It may streamline certain processes, which will cause the need for even more specialized roles and consequently leave others outdated and not needed. The effect of AI might also completely change course of what is anticipated and cause mass job displacement, raising difficulties that policymakers, corporations, and employees must address together. Anticipating and responding to these changes, either good or bad, is critical for avoiding any negative consequences and enhancing the benefits of technology advancements.

Although AI is set to increase the need for certain jobs and create completely new ones, there is some controversy. Like mentioned in the literature review, AI will reduce the workload of future employees, for example investment bankers. Because of this partial automation of the job, it will reduce labor costs. Reducing labor costs is beneficial for companies as it increases profits and shareholder returns, but in terms of society and employment, not so much. The best option for society would be to have as many people employed as possible to guarantee enough taxes and minimize the amount of unemployed people that will seek the government's help.

The topic of AI on employment is a double-sided problem and it has the potential to deepen social inequalities. The ethical consequences of widespread AI adoption should be taken into consideration. Thus, proactive measures and policies are necessary. Balancing the economic benefits of AI with societal well-being makes the need for policies imminent, such as retraining initiatives and social safety nets. Like already mentioned, collaboration between governments, businesses, and educational institutions is critical for ensuring equal benefits and preparing society for the revolutionary effects of evolving AI technology.

After all things considered, as of right now and based on current research, AI can be considered a positive reinforcement in the financial sector and its practices, if it is appropriately regulated, supervised, and managed. On one hand, research shows that regulating AI presents challenges. AI does not have an official definition and is evolving quickly. Additionally, the underlying technology and algorithms are complex and make regulation even more difficult for decision makers to advance with.

On the other hand, there have already been proactive regulations set in place by the Financial Stability Board as well as government bodies around the world. This will help keep the development of AI and its applications humane. Given the circumstances, it can be said with confidence that AI will have a positive effect on the financial sector, especially with regulations in place.

Table 3: Summary of findings.

Summary: AI's positive effect on the labor markets of the financial sector	
Job creation	1. Increased need for already existing positions in the financial sector. - Operations jobs - Applications jobs - Development jobs 2. New positions within the financial sector - Operational jobs - Business jobs - Technical jobs 3. New positions (not industry specific). - Trainers - Sustainers - Explainers
Upskilling and reskilling	1. Competitive strategy for businesses. 2. Furthers employees career advancement and satisfaction. 3. Alleviates negative impact of AI on the workforce.
Regulation	1. Keeps the use of AI under control and safe. 2. Proactivity is key.

6 Conclusion

This thesis covered the transformative impacts of AI on labor markets. More specifically, this thesis analyzed the positive effects of AI on the financial sector's labor markets, which are determined to be job creation and the opportunities of upskilling and reskilling of existing workers. This thesis also discusses the restructuring of labor markets and job dynamics and touches base with a key method of ensuring AI stays under control and safe, which is through regulation and proactive management.

The main discoveries of this thesis revolve around the restructuring of the labor market in the financial sector thanks to AI and its application. AI will not only increase the need for certain jobs in development, operations, and applications, but also create completely new jobs in the financial sector. These include technical, operational, and business jobs. Also, AI will generate distinctly human jobs across various industries, including the financial sector. These job categories are trainers, sustainers, and explainers. Additionally, this thesis acknowledges that to keep the use and implementation of AI safe it must be regulated and managed.

The restructuring of the labor market of the financial sector calls for upskilling and reskilling current and existing employees. AI will change the nature of various jobs and retraining employees is imminent for them to adapt to their modified or completely new tasks. Reskilling and upskilling will strategically alleviate the potential negative impact of AI on the workforce. Additionally, in the age of AI, companies will require different skill sets than before. Companies will be looking for well-rounded people with both hard and soft skills to be able to excel in the business environment of the future.

The research question on this thesis is the following: "What are the positive impacts of AI on the labor markets of the financial sector?" After researching and thoroughly analyzing this topic, we can conclude the answer to this question. This thesis concludes that there will be plenty of positive implications of AI on the financial sector's labor market, if it is properly regulated. AI will change the structure of the financial sector's labor markets, but it will create plenty of job opportunities while doing so. AI and its applications will not only increase the need for certain already existing occupations, but also create brand new ones that revolve around managing AI applications itself. AI will also give businesses the opportunity to reskill and upskill their employees, which will further the individuals' personal career path and the company's competitiveness. Thus, this thesis asserts that reskilling and upskilling is not only an organizational imperative but can be considered a competitive strategy for businesses in the age of AI.

6.1 Reliability

The sources used in this thesis can be considered reliable. As mentioned before, most of the sources worked with were found from Google Scholar and have also been peer reviewed. The credibility and reputation of publishers were considered. Also, all sources used in this research are recent and up to date. Diverse types of sources were gathered to conduct this research, such as books, web pages, reports, and journal articles.

Another factor that strengthens the reliability of this research is the consistency and support from various sources. As seen in the literature review, sources used have been cross verified to back up research results and different perspectives. This reduces the likeliness of biased data and viewpoints.

6.2 Limitations of the study

In this thesis, limitations are inevitable. The use of artificial intelligence and its applications, specifically in the financial sector, is not broadly reported yet. It is in a rapidly evolving state, and data on its usage can be difficult to come across. Sources with exactly this information are widely unavailable.

As this is a bachelor's thesis, the topic had to be scaled down significantly. Only the positive effect of AI on the financial sector can be difficult to distinguish. Only observing the positive effects was challenging at times, since the topic is based on estimations of the future, and there is always risk and uncertainty linked to estimations.

Additionally, as already mentioned in the methodology chapter of this thesis, predicting the future is impossible. Also, the funding and development of artificial intelligence can be irregular. This thesis is written and based on information and analysis that is currently available.

6.3 Implications to research

The research in this thesis can be utilized in several diverse ways. From a personal perspective, this thesis can provide individuals with information regarding their future work life and employment. These topics are pressing and can be a stress factor for people studying or already working, regardless of age. It is of great importance to know that AI has good implications as well (see e.g., Badet 2021).

From a managerial perspective, it is imperative for business leaders to learn, recognize, and plan for the changes AI will bring in the future, as it could have detrimental effects on a company if they are not able to adapt. Issues like resource allocation and talent acquisition are going to change drastically and if companies want to gain a competitive advantage, they must be informed and prepared. Upskilling existing employees is an issue that businesses need to be proactive about, and it should be treated as a priority (see e.g., Illanes et al. 2018).

Furthermore, this thesis focuses on the positive effects of AI on the financial sector's labor market, which is uncommon. Most prior studies and analysis that were found while conducting research focused on the ramifications of AI and automation. Additionally, they had a more general approach and did not specify their analysis on positive or negative consequences. Therefore, this thesis brings value in this field of study, as it takes a different viewpoint and approach on a current and increasingly popular topic, which will benefit readers.

6.4 Suggestions for future research

Future research on this topic is needed to be able to better understand the effect of the mass implementation of AI in the financial sector. The true benefits and risks of its adoption are not yet known (Zhang & Blake 2020). Since we are at the beginning of the age of mass implementation, future research could focus on concrete ideas and plans for employees to ready themselves for future requirements. This thesis already gives an idea about this, but as AI research evolves, more data will allow more detailed findings.

Future research could also focus on different sectors within the financial sector for a more detailed approach, for example the insurance industry. In this case the reader could dive significantly deeper into the topic. However, in this situation there would have to be more extensive research to be able to carry out this plan.

Furthermore, future research could focus on the overall effect of AI, automation, and digitalization on the financial sector, instead of just the positive ones. This could give the reader a more well-rounded experience and a wider picture of the topic.

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