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Perceptions of AI Adoption: Insights into Productivity, Organizational Benefits, and Future Readiness from Employees' Perspective

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October, 2024

BUSINESS
SCHOOL

Department of Marketing, Strategy and Operations

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To my friends and family, for their unwavering support and encouragement

Acknowledgements

First, I would like to thank my advisors, Professors Renato Costa and Rui Gonçalves, for their invaluable guidance, patience, and support throughout the research process. Their insights and advices were fundamental in shaping this research.

Secondly, I would like to thank my family, who have been a constant source of encouragement and support. They have opened doors of opportunity for me, for which I am deeply grateful.

Lastly, I extend my heartfelt thanks to all my friends, who inspire me daily with their achievements and motivate me to strive for my best.

I'm truly grateful and thankful for you all.

Resumo

Com a crescente integração da Inteligência Artificial (IA) nas empresas, surgem oportunidades e desafios para os trabalhadores, transformando funções, aumentando a produtividade e reformulando estratégias organizacionais. Embora muitos vejam a IA como um catalisador para inovação, persistem preocupações sobre a perda de empregos e questões éticas. Apesar da relevância da IA, há escassez de dados empíricos sobre as perceções dos trabalhadores relativamente à sua adoção. Este estudo aborda esta lacuna através de uma abordagem quantitativa, analisando opiniões de trabalhadores de diferentes setores, com diferentes níveis de formação académica e rendimento mensal.

Os resultados mostram que os trabalhadores tendem a percecionar a IA como uma ferramenta para aumentar a produtividade, promover a inovação e criar oportunidades de negócios. Contudo, a falta de transparência nas estratégias de IA das organizações é uma preocupação evidente. Muitos trabalhadores mostram vontade em aprender novas competências, demonstrando abertura para se adaptarem às mudanças impulsionadas pela IA. Verificou-se também que níveis mais elevados de educação e rendimento, assim como trabalhadores mais novos, relacionam-se positivamente com uma visão mais favorável da IA.

Esta investigação contribui quer para o debate no mundo profissional, quer para o debate académico ao fornecer informações sobre as perceções dos trabalhadores, sublinhando a necessidade de estratégias de IA transparentes e de uma abordagem equilibrada que valorize o avanço tecnológico e o desenvolvimento humano. Adicionalmente, são recomendados estudos futuros com amostras mais diversas para aprofundar a compreensão em diferentes contextos e setores.

Palavras-Chave: Inteligência Artificial; Perceções dos Trabalhadores; Adoção de Inteligência Artificial; Transformação Digital

Classificações JEL: O33 - Alterações Tecnológicas: Escolhas e Consequências; Processos de Difusão, M15 - Gestão de TI

Abstract

As Artificial Intelligence (AI) becomes increasingly integrated into business environments, its potential to reshape job roles, influence productivity, and transform organizational strategies has sparked both optimism and concern among employees. While some view AI as a catalyst for innovation and efficiency, others are apprehensive about issues like job displacement and ethical implications.
This study employs a quantitative approach, utilizing a structured survey to collect data on employee perceptions of AI adoption in the workplace, gathering insights across diverse sectors, income levels, and educational backgrounds.

This research explores employee perceptions of AI adoption, focusing on its impact on productivity, organizational benefits, and employee preparedness to AI integration in their work. Findings indicate that employees view AI as a powerful tool to enhance productivity, foster innovation, and open new business opportunities. However, there are significant concerns regarding transparency and governance, as many employees feel their organizations lack openness in sharing AI-related strategies. A significant number of employees demonstrate a strong willingness to acquire new skills, indicating an openness to adapt to AI-driven changes. The study also identifies a trend where higher levels of education, income, and youth have a positive relation with a more positive view of AI.

This work contributes both to professional and academic discussions by providing empirical insights into these perceptions and offers practical implications for businesses, emphasizing the importance of transparent strategies, employee upskilling, and a balanced approach that supports both technological and human capital development. Further research is recommended to deepen understanding across different contexts and demographics.

Keywords: Artificial Intelligence; Employee Perceptions; Artificial Intelligence Adoption; Digital Transformation.

JEL Classifications: O33 - Technological Change: Choices and Consequences; Diffusion Processes, M15 - IT Management.

Table of Contents

Table of Figures

List of Abbreviations

4IR - Fourth Industrial Revolution

AI – Artificial Intelligence

AGI – Artificial General Intelligence

ANI – Artificial Narrow Intelligence

ASI – Artificial Superintelligence

ESG – Environmental, Social and Governance

EU – European Union

OECD - Organisation for Economic Co-operation and Development

R&D – Research and Development

SME – Small and Medium-sized Enterprise

Introduction

A few decades ago, companies faced the challenge of digitalization, known as the process of converting data into a digital format that can be easily read and processed by a computer. The digitalization wave brought the transition from traditional paper-based record-keeping to digital databases, enabling companies to store and retrieve information more quickly and accurately. This digital transformation fundamentally altered the way businesses operated, as it allowed them to streamline processes, improve data management, and enhance their ability to adapt to the changing technological landscape, promoting the automation of various tasks and making operations more efficient and cost-effective.

More recently, the challenge of Artificial Intelligence (AI) has emerged taking digitalization to the next level, not only by making data accessible but also by allowing computers to analyse and learn from this data. AI is a technology that enables computers and machines to simulate human learning, comprehension, problem solving, decision making, creativity and autonomy (Stryker & Kavlakoglu, 2024). Industry practitioners and academicians have argued that AI is gaining momentum through big data analysis, machine learning, social media analysis, algorithm decision-making, simulation modelling, and other techniques that transform big data into reliable information and knowledge (Paschen et al., 2019).

Further, the impact of AI is transversal to the company, helping in the decision-making process regarding financial decisions, legal and strategic planning, supply chain and human resources management, marketing planning, and in-store support (Parveen, 2018). Klaus (2022) argues that AI integration is essential for company's competitiveness and long-term sustainability, requiring companies to embrace these new opportunities offered by AI, to get sustainable differentiation and competitive advantage over competitors.

The integration of AI into business and marketing strategies has proven transformative, enabling organizations to create, organize, and apply knowledge to effectively promote and sell brands on a global scale (Davenport & Ronanki, 2018). Rautrão (2020) argues that AI's incorporation into corporate management has the potential to initiate a paradigm shift in business operations, significantly enhancing company performance by redefining industries, fostering new opportunities, and challenging established norms and practices.

The value of the AI market continues to grow, with generative AI use cases delivering varied impacts across industries. For instance, the high-tech sector is experiencing substantial gains, with an estimated impact in return on investment of 4.8% to 9.3%, while industries such as banking, 2.8% to 4.7%, and education, 2.2% to 4.0%, are also seeing notable benefits (Chui et al., 2023).

In this way, business leaders understand that their company's ability to keep pace with market demands, manage competitive pressures, innovate effectively, and operate efficiently is increasingly dependent on digital transformation (McAuley, 2021). In fact, as Siebel (2019) asserts, digital transformation has become an essential driver of organizational success, with AI playing a pivotal role in shaping the future of industries and unlocking new value across diverse sectors. Furthermore, the rapid evolution of AI, in conjunction with computer technologies, is expected to accelerate with each successive advancement in our understanding of cognitive processes, potentially leading to the creation of machines capable of matching or exceeding the capabilities and speeds of the human brain (Kurzweil, 2013).

However, technology, whether it's being created, developed, or adopted, has never generated value on its own, and this holds true for AI as well. Whether technology forms the core of a business strategy or supports other strategic initiatives, its deployment must be linked to clear value creation opportunities and measurable outcomes (Relyea et al., 2024). Additionally, the adoption of AI systems is not straightforward, as it comes with various challenges and concerns. One of the most significant obstacles is public perception of AI, and the willingness of individuals to integrate this technology into both their professional and personal lives. While many acknowledge the potential benefits of AI, such as increased efficiency and innovation, there are still significant concerns that may hinder its widespread (Carmichael, 2024).

Given this context, this master’s dissertation will explore Perceptions of AI Adoption, Insights into Productivity, Organizational Benefits, and Future Readiness from Employees' Perspective. To address the research problem and deepen the understanding of AI adoption in organizational contexts, three core research questions have been formulated. This framework enables an exploration of the effects of AI on employee performance, organizational impact, and the preparedness of the workforce to adapt to these emerging technologies.

The first question seeks to understand how employees perceive AI's influence on their personal productivity and job performance, addressing gaps in current knowledge about the real impact of AI on workplace efficiency and satisfaction (Relyea et al., 2024). The second question delves into employees' perspectives on the organizational benefits and possible drawbacks of AI adoption. Although AI is widely recognized for its potential to enhance efficiency and drive innovation, significant concerns remain that could impede its broader acceptance, such as fears related to job displacement, privacy, and ethical considerations (Carmichael, 2024).

Finally, the third question explores employees' readiness and willingness to adopt AI within their roles, alongside their confidence in acquiring new skills necessary for effective integration, highlighting the importance of upskilling and reskilling as essential for successful AI adoption (Chui et al., 2023).

This master's dissertation is structured into six chapters. Chapter 1, Introduction, offers an overview of the dissertation, including its significance, objectives, and relevance to the broader context of AI adoption in organizations. Chapter 2, Literature Review, synthesizes key theories and findings related to AI adoption, employee perceptions, productivity implications, and organizational readiness, establishing a theoretical foundation for this study. Chapter 3, Theoretical Approach, examines the investigation problem, framing core questions and concepts and discussing theoretical underpinnings that guide the research questions, connecting the literature to the study's objectives. Chapter 4, Methodology, details the research design, including data collection methods, and analysis techniques, ensuring alignment with study objectives. Chapter 5, Results Analysis and Discussion, presents and interprets the study's findings, examining the data collected to provide insights into key patterns and trends. This chapter connects the results with the theoretical framework established earlier, offering a comprehensive look at the study's outcomes and their broader implications. Chapter 6, Conclusion, summarizes key insights, discussing contributions to academic knowledge and organizational practices, while highlighting limitations and suggesting future research directions. The References section lists the bibliographic sources cited in this research, while the Appendices provide supplementary materials, including the questionnaire model used to gather data.

CHAPTER 2

Literature Review

Throughout history, new technologies have consistently reshaped societies. Beginning with the Industrial Revolution, machines empowered workers by providing tools and equipment that allowed them to perform physical tasks beyond their natural capabilities. In more recent times, computers have enabled knowledge workers to accomplish tasks that would have previously taken years to complete manually. Today, AI technologies are anticipated to deliver substantial economic and societal benefits across a wide range of sectors, including the environment, health, public services, finance, mobility, home affairs, and agriculture, and at a conceptual level, AI appears poised to follow a similar transformative trajectory in the modern workplace and society (Chui et al., 2023; Madiega, 2024).

Bristol et al. (2024) assert that the transformative potential of AI within the Fourth Industrial Revolution (4IR) is fundamentally rooted in its strategic positioning at the apex of a hierarchy of 4IR technologies. At the base of this technological pyramid lie digital-worker productivity tools, which operate at the operator or process level, including augmented and virtual reality, wearables, and exoskeletons. Ascending this hierarchy are machine intelligence systems, designed to optimize, augment, or automate decision-making processes, encompassing heuristic models, applied AI, and generative AI. In this context, AI assumes the role of a conductor, orchestrating the various technologies and driving the revolution forward.

2.1 History

The origins of AI can be traced back to the 1950s, when English polymath Alan Turing initiated the exploration of machine intelligence with his development of the Turing Test, designed to determine whether a machine could successfully imitate human cognitive functions (Batra et al., 2018). In 1955, Allen Newell and Herbert Simon developed what is considered the first artificial intelligence program named “Logic Theorist”. In the same year, the concept Artificial Intelligence was first introduced and defined as “making a machine behave in ways that would be called intelligent if a human were so behaving” (McCarthy et al., 1955, p.11).

The official coining of the term *artificial intelligence* occurred in 1956 during the Dartmouth Summer Research Project on Artificial Intelligence, a workshop that is widely regarded as the formal birth of AI. This event brought together leading computer scientists of the time to deliberate on the potential of creating machines capable of simulating human intelligence (Marinaccio & Shuldman, 2023). In 1980, the first national conference of the American Association for Artificial Intelligence was convened at Stanford University.

During the same decade, AI began to be integrated into the business sector, particularly through the advent of expert systems designed to emulate the decision-making capabilities of human experts. Despite the initial enthusiasm surrounding these systems, their development was hindered by several challenges, including high costs, insufficient computational power, and a general lack of knowledge. These limitations culminated in a period of stagnation known as the *AI Winter*, which lasted until the early 2000s. It was only with the rapid advancements in computational power, the expansion of the internet, and significant progress in mathematical foundations that AI began to emerge from this dormant phase (Siebel, 2019). Since then, AI has experienced exponential growth, driven by breakthroughs in large language models, machine learning, deep learning, and neural networks. The increasing availability of large datasets, combined with enhanced computational capabilities, has fuelled AI's resurgence, allowing it to solve complex problems across various industries. In recent years, AI has expanded beyond research labs to companies, and later to everyday applications (Singla et al.,2024).

2.2 Definition of AI

AI is fundamentally about enabling computers to perform tasks that typically require human intelligence, such as understanding language, reasoning, and navigating the physical world (Hosanagar, 2020). Russell and Norvig (2016) further refine this definition by describing AI as “the study of agents that receive percepts from the environment and perform actions. Each such agent implements a function that maps percept sequences to actions, and we cover different ways to represent these functions, such as reactive agents, real-time planners, and decision-theoretic systems” (p. viii). AI encompasses algorithm-based systems designed to learn from data, facilitating advanced predictions and enhanced performance through technologies such as artificial neural networks, machine learning, robotic process automation, and text mining (Huang & Rust, 2018).

In legal and regulatory contexts, the AI Act enshrines a definition of AI systems within European Union (EU) law that aligns with the revised definition established by the Organization for Economic Co-operation and Development (OECD). According to the OECD (2023), AI systems are defined as “machine-based systems designed to operate with varying levels of autonomy and that may exhibit adaptiveness after deployment, and that, for explicit or implicit objectives, infer from the input they receive how to generate outputs such as predictions, content, recommendations, or decisions that can influence physical or virtual environments” (p. 7).

2.3 Types of AI

Since AI seeks to enable machines to emulate human-like functions, the degree to which an AI system can replicate human capabilities serves as the basis for categorizing different types of AI. Consequently, AI can be defined across two broad categories: AI capabilities and AI functionalities. AI According to Sanchez (2023), AI capabilities are typically classified into three types: Artificial Narrow Intelligence (ANI), Artificial General Intelligence (AGI), and Artificial Superintelligence (ASI)

ANI, often referred to as weak AI, is the only type of AI currently in existence. ANI is designed to execute specific commands or tasks, operating strictly within the confines of its programming. It targets a single subset of cognitive abilities, advancing within that narrow spectrum (Sanchez, 2023). However, ANI's limitations include a lack of flexibility, incomplete comprehension of context, an inability to adapt or learn autonomously, and a reliance on pre-existing data. Despite these shortcomings, ANI remains integral to numerous daily applications, providing practical solutions to routine problems (Bender et al., 2021).

AGI, also known as strong AI, remains a theoretical concept, with its achievement requiring advancements in both software and hardware. AGI would represent a significant leap in AI capabilities, enabling machines to learn, think, and perform a wide array of tasks on par with human abilities. AGI could apply knowledge from previous experiences to new tasks in different contexts without requiring retraining by humans (Ackermann, 2018). The realization of AGI would involve understanding task context, enabling self-evaluation, learning, error correction, and unsupervised performance improvement.

ASI is also a theoretical concept, and if realized, would surpass human cognitive abilities, possessing the capacity for self-awareness, reasoning, learning, and making judgments far beyond human capabilities (Bostrom, 1998). ASI would not only understand human emotions and experiences but could potentially experience emotions, have needs, and develop beliefs and desires of its own (Sanchez, 2023).

AI Functionalities are categorized into four types: Reactive Machine, Limited Memory, Theory of Mind, and Self-Aware. While the first two are considered ANI, the third one is considered AGI, and the last one ASI.

Reactive Machines are AI systems designed to perform specific tasks without memory. These systems cannot recall previous outcomes or decisions, relying solely on currently available data to produce outputs. Based on statistical analysis, reactive machines can process large datasets to generate seemingly intelligent responses (Sanchez, 2023).

Limited Memory AI systems can recall past events and outcomes, monitoring specific objects or situations over time. These systems use both past and present data to make decisions likely to achieve desired outcomes. However, their ability to retain data is limited to a specific timeframe, preventing long-term learning from past experiences. Examples include generative AI tools, virtual assistants, and chatbots (Ackerman, 2018).

Theory of Mind AI, though still unrealized, proposes that AI could understand the thoughts and emotions of other entities. This understanding would theoretically enable AI to simulate human-like relationships, personalizing interactions based on individuals' emotional needs and intentions (Ackerman, 2018). Self-Aware AI remains a theoretical model. If developed, Self-Aware AI would possess an understanding of its own internal conditions and traits, alongside human emotions and thoughts. Such systems could have their own emotions, needs, and beliefs, potentially acting independently and pursuing their own goals. This would necessitate the assumption of responsibility for their actions (Rehak, 2021).

In contemporary applications, most AI systems are categorized as weak AI, which mechanizes limited human thought and behaviour patterns. While the prospect of wielding such powerful technologies is enticing, it is also fraught with unintended and unknown consequences. The potential impact on human life remains speculative, prompting significant concern among experts. These experts caution against possible dangers, urging careful consideration of AI's potential repercussions to maximize benefits while minimizing harm (Sanchez, 2023).

2.4 Regulation and Ethics

The urgency of a regulation is underscored by the growing prominence of AI in public discourse and legislative agendas worldwide. Since the public release of OpenAI’s ChatGPT, AI has become a pervasive and dominant topic, raising important questions regarding its applications, regulation, benefits and risks (Marinaccio & Shuldman, 2023).

The implications of AI systems for fundamental rights protected under the EU Charter of Fundamental Rights, as well as the safety risks for users when AI technologies are embedded in products and services, have become increasingly concerning. AI systems may jeopardize fundamental rights such as the right to non-discrimination, freedom of expression, human dignity, personal data protection and privacy (Madiega, 2024).

Addressing these concerns on a global scale has proven challenging, as there is no unified approach to regulating AI ethics. Each country has implemented its own measures. For instance, in the United States, the initial approach to AI regulation was relatively lenient, but recent years have seen increasing calls for stricter regulations. This shift is reflected in the White House's "Blueprint for an AI Bill of Rights" and President Joe Biden's 2023 executive order on AI (Madiega, 2024).

In contrast, China's Cyberspace Administration has issued guidelines for generative AI services, while the United Kingdom has adopted a pro-innovation approach, relying largely on existing laws. At the international level, the OECD adopted non-binding Principles on AI in 2019, the United Nations Educational, Scientific and Cultural Organization endorsed a set of Recommendations on the Ethics of AI in 2021, and the G7 countries agreed on International Guiding Principles on Artificial Intelligence in 2023 (Madiega, 2024).

In the EU, significant strides have been made with lawmakers reaching a political agreement on the draft AI Act in December 2023. Proposed by the European Commission in April 2021, this draft of AI Act is poised to become the first binding worldwide horizontal regulation on AI, establishing a common framework for the use and supply of AI systems in the EU. The regulation classifies AI systems based on a 'risk-based approach,' with different regulatory requirements and obligations depending on the identified risk levels. The EU has identified specific AI practices as posing an "unacceptable risk" and aims to prohibit them, considering them a clear threat to people's safety, livelihoods, and rights. These include the deployment of AI systems that use harmful manipulative subliminal techniques; systems that exploit vulnerable groups, especially those with physical or mental disabilities; the use of AI for social scoring by public authorities or on their behalf; and the operation of 'real-time' remote biometric identification systems in publicly accessible spaces for law enforcement purposes, with only limited exceptions allowed (AI Act, 2023).

High risk AI systems, which could potentially harm individuals' safety or fundamental rights, are subject to stringent regulatory oversight. While a broad range of these high-risk AI systems are expected to be permitted, they must comply with a comprehensive set of requirements and obligations. AI systems that present a limited risk, such as chatbots, emotion recognition systems, biometric categorization systems, and technologies that generate or manipulate image, audio, or video content, such as deepfakes, must meet specific transparency obligations. Finally, AI systems that are considered to pose only low or minimal risk can be developed and utilized without adhering to any additional legal obligations. This tiered approach helps balance innovation with the need to protect public safety and rights (Madiega, 2024).

The AI Act primarily applies to providers and deployers of AI systems that will be put into service or placed on the EU market, regardless of whether they are based in the EU or a third country, as long as the output of their systems is used within the EU. Member States are required to designate one or more competent authorities, including a national supervisory authority and market surveillance authorities, responsible for assessing compliance with obligations and requirements for high-risk AI systems (Madiega, 2024).

Despite these regulatory advancements, concerns have been raised by various stakeholders. The American Chamber of Commerce in the EU, for instance, advocates for a more narrowly defined scope of AI systems subject to regulation, focusing on high-risk applications while excluding lower-risk technologies and general software. Smuha et al. (2021) have criticized the proposal for failing to accurately identify the wrongs and harms associated with different AI systems and for inadequately allocating responsibility among various actors in the AI value chain, such as developers, providers, and users. This issue is particularly relevant for companies that provide general-purpose application programming interfaces or open-source AI models, which may not be designed for high-risk applications but could be used in ways that pose significant risks.

Ebers et al. (2021) emphasized that individuals affected by AI systems and civil rights organizations lack the right to complain to market surveillance authorities or sue providers or users for non-compliance with the regulations. Additionally, there are concerns about the absence of proper coordination mechanisms between authorities, especially regarding cross-border infringements. Kaack et al. (2021) also urged for the inclusion of climate change mitigation and adaptation considerations in the classification of AI systems and the imposition of environmental protection requirements.

Since there is no consensus about AI regulation, it is important to recognize that the challenges posed by AI extend beyond mere compliance. As regulatory landscape continues to evolve, the limitations and gaps within current regulatory frameworks underscore the necessity for a more comprehensive approach that integrates ethical considerations into the development and deployment of AI systems. This transition from regulation to ethics is not only logical but essential, as it addresses the broader implications of AI on human rights, societal well-being, and the environment. Moreover, considering the rapidly evolving regulatory landscape there are tangible benefits for organizations that proactively adopt no-regret strategies today to prepare for potential upcoming legal changes (Kremmer et al., 2023). These strategies are foundational and extend existing protocols in data privacy, protection, and cybersecurity. Key areas for pre-emptive action include ensuring transparency in AI operations, establishing robust governance structures to oversee AI development and deployment, managing data and AI models with high standards of integrity and quality, and enhancing cybersecurity measures while respecting individual rights. These measures not only prepare organizations for future regulations but also build trust and reliability in their AI application (Chui et al., 2023).

2.5 Benefits

The potential impact of generative AI can be assessed through two primary perspectives: total economic potential and labour productivity potential. The total economic potential refers to the broad scale improvements in economic output and efficiency that AI systems can facilitate across industries. This includes enhancing revenues, reducing costs, and transforming business models through automation and innovation. As AI streamlines operations and introduces new capabilities, it can substantially increase the value produced by businesses, thereby contributing to overall economic growth.

In terms of value in potential by function, while AI can influence a broad range of business functions, certain areas exhibit notably higher impact relative to their operational costs. Chui et al. (2023) highlighted that customer operations, marketing and sales, software engineering, and research and development, together could represent about 75% of the total annual value derived from AI applications. Notably, in supply chain planning and management, companies have reported a 10-20% reduction in inventory levels and a corresponding 10-20% improvement in supplier service levels, underscoring AI's role in optimizing logistics and inventory control. In production scheduling, AI has contributed to a 10-20% increase in on-time delivery rates, demonstrating its capacity to streamline operations and meet deadlines.

Furthermore, AI-driven process optimization has led to an impressive 40-140% increase in throughput, highlighting its ability to enhance efficiency in manufacturing processes. In addition to these operational improvements, AI has significantly impacted asset management, with companies experiencing a 10-30% increase in overall equipment effectiveness. Quality control and testing processes have also seen considerable advancements, evidenced by a 30-40% improvement in first-pass yield, which reflects higher quality standards and reduced rework. Moreover, in assembly operations, AI has facilitated a 30-40% increase in labour productivity, emphasizing its role in enhancing workforce efficiency. Within delivery processes, AI has driven a 30-40% reduction in lead times, further demonstrating its capacity to expedite business operations (Bristol et al., 2024).

Beyond these operational domains, the potential of AI in R&D is gradually being recognized. Chui et al. (2023) suggest that generative AI could deliver productivity enhancements valued at 10-15% of overall R&D costs, indicating its transformative potential in driving innovation and reducing development timelines. In the manufacturing industry, the implementation of AI technologies has not only doubled productivity improvements but has also led to significant environmental benefits, including up to a 70% reduction in waste and a 10-25% decrease in energy consumption. These outcomes illustrate the dual benefits of AI in enhancing both economic and environmental sustainability (Bristol et al., 2024).

In addition to the potential value AI can deliver in function-specific use cases, the technology could drive value across an entire organization by revolutionizing internal knowledge management systems. Furthermore, as Prentice and Nguyen (2020) claim, AI tools not only enhance operational efficiency but also improve customer experience and engagement.

Patrick Baginski, as cited by McCauley (2021), stated that the value of AI extends beyond simple return on investment or other financial metrics. This observation becomes even more pertinent when considering immediate benefits, particularly given that the time to market for AI solutions can often be extensive (Singla et al., 2024). In this context, the immediate value of AI lies in its capacity to enhance individual performance within their respective roles. Acting as "copilots," generative AI tools collaborate with employees to streamline work processes by reducing the time required to complete tasks, fostering creativity, generating new ideas, and automating routine activities (Chowdhury et al., 2024; Brown et al.,2024).

This automation of routine activities enables employees to redirect their efforts toward more strategic and value-driven activities. Beyond efficiency gains, the potential of AI lies in its ability to enhance decision-making processes through the rapid analysis of vast datasets, providing insights in a more reliable and faster way (Hazan et al., 2024). This data-driven approach enables organizations to make more informed decisions, reduce risks, and identify new opportunities for growth. Furthermore, AI's capacity for innovation is demonstrated by its ability to detect novel patterns, generate creative solutions, and propose strategic approaches.

As Lamarre et al. (2024) emphasize, organizations should prioritize the integration of copilot technologies in areas where they can most effectively contribute to key strategic objectives. Similarly, Korteling et al. (2021) suggest that the development of AI systems designed to support human decision-making may ultimately prove to be the most effective approach, leading to better choices and more effective solutions for complex issues. Chowdhury et al. (2024) underline that employees are a central pillar in generating value, and AI systems should be leveraged to create an environment where their contributions are recognized as essential to the overall success of the business.

Richey et al. (2023) noted that AI integration should strike a harmonious balance between productivity, value creation, and sustainable and responsible innovation. This balanced approach not only helps achieve business objectives but also plays a crucial role in fostering a more cohesive and thriving organizational ecosystem. It supports the development of business models where employee engagement, creativity, commitment, satisfaction, and innovation are viewed not as separate or competing interests, but as interconnected elements that contribute to the overall well-being and success of the organization.

Under this paradigm, AI serves as more than just a technological upgrade, it becomes a means to augment productivity, embed responsibility, and foster ethical innovation as fundamental values within the organization. This approach ensures the organization's resilience, regardless of technological advances, and leads to a thriving organizational environment that is innovative, prosperous, risk-taking, and forward-thinking (Chowdhury et al.,2024).

From an economic perspective, the impact of generative AI on productivity could add trillions of dollars to the global economy. Despite AI's broad cross-sectoral influence, it is estimated that 75% of the value generated by generative AI will be concentrated in four key areas: customer operations, marketing and sales, software engineering, and R&D. In line with these projections, Chui et al. (2023) estimate that generative AI could contribute between $2.6 trillion and $4.4 trillion USD annually. To put this in context, the United Kingdom’s entire Gross Domestic Product in 2022 was $3.1 trillion (The World Bank, 2023). Furthermore, Struta (2024) noted that venture capital funding for generative AI startups in 2024 is set to surpass the impressive records of 2023, indicating strong investor confidence in the continued growth and potential of this technology.

Thelle et al. (2024) highlighted that AI could potentially contribute up to 8% of Portuguese GDP, primarily through productivity boosts, task automation, and increased focus on value-added activities. While Portugal shows strong performance in foundational AI adoption drivers and operating environment, it lags behind other countries in strategy and infrastructure. This gap puts Portugal at risk of a five-year delay in generative AI adoption, which could reduce its annual GDP potential from 8%, estimated at €18-22 billion, to just 2%, €3-5 billion. To bridge this gap, key actions include retraining and upskilling the workforce, fostering R&D through local innovation, and accelerating AI's commercial adoption.

2.6 Challenges

While AI is currently augmenting the capabilities of individual workers through task automation, with technologies like generative AI automating up to 70 percent of employees' work activities, it also raises significant concerns (Chui et al., 2023). Mentzas et al. (2024) stated that a significant portion of the population believes the benefits of AI do not outweigh the associated risks and even expect regulatory measures to be implemented to govern its use.

A primary concern regarding AI is its potential to fully automate certain professions, effectively replacing human labour with machines. However, in the present time, current AI systems primarily focus on automating specific tasks within occupations rather than entire professions. Hazan et al. (2024) predict that by 2030, in a scenario of moderate AI adoption, up to 30% of current work hours could be automated.

According to Siebel (2019), while many jobs will be lost due to automation and AI adoption, it is essential to support workers in acquiring new skills, with some needing to transition to entirely different occupations. According to Thelle et al. (2024), this transition might affect 12 million workers across Europe.

At the same time, the authors note that considering recent challenges in Europe, namely the COVID-19 pandemic, Europe is well-positioned to manage these future job transitions effectively. Moreover, authors also consider that jobs considered highly exposed to automation and AI-driven changes account for less than 15% of the historical job turnover rates in Portugal.

This challenge underscores the boarder reality that AI transformation will impact every part of an organization. AI is expected to significantly transform the work of higher-wage knowledge workers, as advances in technical automation are increasingly targeting tasks that were previously considered relatively immune to automation. On the other hand, the impact on lower-level jobs has been more immediate, with routine or repetitive tasks in sectors such as manufacturing, logistics, and customer service increasingly being automated (Siebel, 2019; Chui et al., 2023). The same author notes that although significant workforce displacement is expected across industries, this does not imply the end of human labour, as new roles will emerge while traditional jobs disappear, and advanced technologies are likely to create more jobs than they eliminate.

Hazan et al. (2024) emphasize that leaders must embark on their own learning journey regarding automation technologies to actively support their companies' transformation. Beyond technical skills, leaders need a deep understanding of AI and automation’s broader implications to effectively inspire and guide others.

Madiega (2024) highlights several concerns arising from the inherent characteristics of AI, including opacity, which refers to the limited ability of the human mind to fully understand the operational mechanisms of AI systems; complexity, which encompasses the intricate and often interconnected nature of AI technologies; continuous adaptation and unpredictability, highlighting the dynamic and often unforeseeable behaviours of AI; autonomous behaviour, denoting the self-governing capabilities of AI systems; and functional dependence on data, underscoring the critical reliance of AI on the quality and integrity of the data it processes.

Additionally, concerns arise regarding issues such as intellectual property infringements, the data used to train the systems, issues of bias and fairness, privacy violations, third-party risk, as well as security concerns. Furthermore, Kremmer et al. (2023) highlight the threat of disinformation posed by AI, including the risks of erroneous or manipulated outputs as well as harmful or malicious content.

Transparency and explainability are paramount concerns, ensuring that AI outputs are both traceable and clear, enabling users to be well-informed when interacting with these systems.

This involves providing essential information about users' rights, as well as the capabilities and limitations of AI. Additionally, the lack of transparency regarding the origins of generated content and the traceability of root data poses significant challenges. Accountability is another significant focus, with regulators seeking mechanisms that enhance awareness of responsibilities and facilitate accountability and potential redress related to AI applications (Hosanagar, 2020).

Additionally, AI technologies can sometimes "hallucinate," generating responses that are clearly incorrect or inappropriate for the context. To mitigate these risks, human agency and oversight are crucial, and companies need to implement new quality checks on processes transitioning from human to AI control. In terms of technical robustness and safety, the aim is to minimize unintended and unexpected harm by ensuring that AI systems are reliable and perform as expected, remain stable under different conditions, and can rectify user errors (Parveen, 2018).

Privacy considerations are also paramount, as the deployment of AI systems often involves handling sensitive data that requires stringent protection. Ensuring robust privacy and data governance is therefore essential. Privacy and data governance are similarly critical, with a push for the development and usage of AI systems that adhere to existing privacy and data protection laws (Ebers et al., 2021).

Many researchers claim that the digital divide and limited access to technology between developing and developed economies could potentially hinder the success of developing nations, reducing their opportunities for growth. However, the opposite could also occur, with AI serving as a societal equalizer and acting as a catalyst for social and national advancement. In this way, AI has the potential to reduce inequalities and lead to a reconfiguration of economic structures and workforce dynamics (Chowdhury et al., 2024).

Many organizations and employees are underprepared for these unprecedented changes brought by AI, which will result in a profound shift in work, employment and careers, leaving this technology vulnerable to misuse or lack of exploitation (Brown et al., 2024; Budhwar et al., 2023). Additionally, a key challenge in AI adoption is the scarcity of individuals with expertise in AI and performance evaluation (Osoba & Welser, 2017), compounded by the complexity of acquiring the necessary skills to effectively leverage and develop AI technology (Alhosani & Alhashmi, 2024). Hazan et al. (2024) noted that occupations with lower wages are likely to see reductions in demand, and workers will need to acquire new skills to transition to better-paying work. If that doesn’t happen, there is a risk of a more polarized labour market, with more higher-wage jobs than workers and too many workers for existing lower-wage jobs.

On the organizational level, one of the main obstacles is the difficulty in identifying the most effective ways to implement these technologies, which could result in prolonged integration timelines, with increased expenditure, and delaying benefits. Additionally, the potential for disruption in computing power hardware, and shortage of energy resources or supply could further hinder AI adoption. Beyond these operational and economic factors, the broader social and political landscape, including customer acceptance and regulatory developments, presents an additional layer of complexity. Social attitudes towards AI and regulatory changes could dramatically impact the pace and success of AI adoption (Hazan et al., 2024).

Organizations must have a strategic focus on continuous learning, workforce development, and the creation of adaptive organizational structures. By prioritizing these areas, organizations can effectively manage the risks associated with technological evolution, ensuring a smooth transition toward a more advanced, inclusive, and sustainable operational model (Chowdhury et al., 2024). In addition to this, companies must possess not only the necessary financial and human resources but also a mindset that embraces change. Strong leadership, with a clear vision and the ability to communicate it effectively to employees, is essential for guiding the organization through transformation and embracing the innovations and shifts that come with AI integration.

Relyea et al. (2024) highlighted the importance of establishing the right governance for generative AI and addressing employee mindsets and behaviours across the organization, highlighting that for every €1 spent on technology, €5 should be spent on people. Early adopters of AI in their companies focus on four key pillars: role modelling, where leaders visibly adopt this technology in their work; building capabilities of the employees; reinforcing new ways of working; and fostering understanding and conviction (Relyea et al., 2024).

2.7 Implementation Process

To successfully implement AI, organizations must recognize that a digital transformation strategy should be focused on creating and capturing economic value (Siebel, 2019). Lamarre et al. (2024) emphasize that competitive advantage stems from building organizational and technological capabilities that enable broad innovation, deployment, and scaling of solutions.

As AI technology continues to evolve, more companies are exploring ways to integrate this transformative tool into their operations. McCauley (2021) highlights that 45% of enterprises prioritize top-line growth, while 42% focus on improving innovation and reducing time-to-market for new or enhanced products. However, successful AI integration requires careful planning, strategic alignment, and a deep understanding of the technology's capabilities and limitations (Cockburn et al., 2018).

One of the primary challenges companies face is converting the productivity gains from AI into tangible revenue streams. Lamarre et al. (2024) provide the example of companies incorporating generative AI into their customer service capabilities. While this may enhance productivity, it does not necessarily create a competitive advantage, as customer service is often viewed as a commodity rather than a core business function. Another challenge is that while initiating pilot projects may be relatively straightforward, scaling them to generate meaningful value is challenging, as it necessitates significant changes and adaptations in work processes.

As companies move beyond the initial excitement of AI adoption, many are experiencing second thoughts and recalibrations, recognizing that capturing AI's potential is more difficult than anticipated (Lamarre et al., 2024). While successful AI deployment can generate substantial value, failures in this endeavour may result in numerous complications, such as the creation of false or illogical information, intellectual property infringement, lack of transparency in system functions, issues of bias and fairness, and security concerns (Buehler et al., 2024).

Cazzaniga et al. (2024) emphasize that AI complementarity between workers and technology is key to driving adoption. Moreover, it is essential to assess how technologies can support workers in their tasks, enhancing human labour rather than replacing it.

To create a competitive advantage, companies must distinguish between being a *taker*, a user of available tools, often via subscription services, a *shaper*, an integrator of available models with proprietary data, and a *maker*, a builder of large language models. Currently, the *maker* approach is too costly for most companies, making the *taker* model more viable for productivity improvements, while *shaper* applications can be developed for competitive advantage (Lamarre et al., 2024).

The process of implementing AI technologies within companies is complex, labour-intensive, and potentially expensive. There is no standardized procedure for AI adoption, which necessitates careful planning and consideration of various factors to ensure successful integration. The adoption process typically begins with evaluating the technical feasibility of desired solutions, followed by solution development aimed at addressing specific organizational needs. Economic feasibility is a crucial phase that assesses whether the developed solutions are financially viable. The final phase involves adoption and deployment, where solutions are implemented within the organization (Chui et al., 2023). The strategy a company adopts, whether developing AI solutions in-house or outsourcing to specialized firms, significantly affects the implementation process. Usually, larger companies, with more substantial financial resources, often prefer to develop solutions internally, centralizing AI talent to maximize organizational benefits.

Additionally, the timeline for AI integration varies depending on factors such as the type of solution, the implementing company, and external influences like regulatory requirements and consumer preferences. Integrating various technologies can be challenging, and incorporating new capabilities into existing platforms requires time. Moreover, internal barriers, such as talent shortages and structural bottlenecks, can also slow the process.

Additionally, while technology adoption does not happen overnight, the combined capabilities of generative AI and previous technologies could accelerate the potential for technical automation and augment workforce capabilities, impacting knowledge workers sooner than expected. However, the potential of technological capabilities demonstrated in a theoretical setting does not guarantee their immediate applicability in automating specific work activities.

Moreover, even after a solution is developed, its economic viability may be questioned if the associated costs surpass those of human labour. This development could also impact knowledge workers, whose roles were previously considered resistant to such technological shifts, potentially bringing about changes sooner than anticipated.

According to Relyea et al. (2024), the seamless integration of AI into existing systems is one of the most critical factors for successful and future AI adoption. For these changes to be sustainable in the long term, organizations must develop the appropriate infrastructure to support continuous evolution while fostering a culture of adaptability and acceptance.

Establishing robust governance, maintaining open communication, and clearly explaining the AI implementation process are essential steps. Additionally, organizations must address employee concerns and questions while aligning their mindsets and behaviours with the changes. If organizations can effectively manage challenges such as worker transitions and other associated risks, AI has the potential to significantly contribute to economic growth and foster a more sustainable and inclusive work environment (Kremmer et al., 2023).

From a geographic standpoint, external private investment in generative AI, predominantly from tech giants and venture capital firms, is heavily concentrated in North America, reflecting the continent's dominance in the global AI investment landscape (Chui et al., 2023).

Adoption of AI technologies is also expected to progress more rapidly in developed countries, where higher wage levels make automation economically feasible earlier. In contrast, in countries with lower wage rates, such as China, and southeast Asia, India, and Mexico, the adoption of automation is projected to occur at a slower pace, given the economic comparison between the costs of automation and the lower cost of human labour.

CHAPTER 3

Theoretical Approach

In accordance with Woody (1927), research includes identifying research problem, developing investigation questions, collecting, analysing, and assessing data and making inference with the ultimate objective of the pursuit of knowledge through a methodical approach of problem-solving.

AI adoption has been a topic of growing interest due to its potential to bring both significant benefits and challenges. According to Bristol et al. (2024), AI is rapidly advancing, with the pace of development continuously accelerating. Its influence extends beyond just technological sectors, with the potential to reshape not only individual lives but society. However, the scope of AI and its broader implications are still evolving, and the full extent of its impact on industries, employees, and society is still being explored.

At the business level, the adoption of AI systems has surged from 55% in 2023 to 72% in 2024, reflecting a substantial increase in the number of organizations incorporating AI into at least one business function (Maslej et al., 2024). The same authors stated that the use of generative AI has also shown remarkable growth, rising from 33% in 2023 to 65% in 2024, indicating that this area of AI technology is becoming more widely adopted and accepted across various industries. Furthermore, the same survey reports that all organizations already using AI have expanded the number of functions in which they deploy it over the past year, highlighting the growing integration of AI across multiple areas within organizations (Singla et al.,2024). The same authors also highlighted that people are increasingly likely to use AI at work and are even more inclined to integrate AI into both their professional and personal lives.

As AI technologies continue to advance, public opinion will play a pivotal role in shaping its broader adoption and determining how its transformative effects are accepted across various sectors. However, the pace of this transformation can be accelerated or hindered by employee behaviour. Employees may adopt a positive and constructive attitude, enhancing their productivity and contributing to the overall efficiency of the company. Conversely, they may feel apprehensive about AI, resulting in delays or even resistance to its adoption, which can cause negative disruptions to the company's activities.

Expanding upon this perspective, this research aims to explore, identify, and describe individuals' perceptions and opinions regarding the implementation of AI systems by companies, striving to bridge the gap between existing literature and real-world dynamics in an environment characterized by continuous and rapid change.

By focusing on this evolving reality, the study emphasises AI's potential to significantly impact organizations. If properly understood and managed, these technological shifts can be harnessed to create a smoother transition for companies, benefiting not only the organization itself but also its employees and, ultimately, all stakeholders involved.

Given these considerations, this research sets out with the primary objective to explore and benchmark employees' perceptions of AI adoption, particularly its impact on their productivity, organizational benefits, and their preparedness for future integration.

This study addresses both academic and organizational perspectives. In the academic context, AI adoption in the workplace is an evolving field with limited research on individuals' perceptions, especially regarding how AI impacts job performance, sector-specific expectations, and readiness for change. By exploring whether employees view AI as beneficial or potentially challenging, this study seeks to fill existing gaps in the literature on AI integration's perceived impacts on both personal productivity and broader organizational outcomes. Additionally, it assesses the extent to which employees feel prepared to acquire the skills necessary for this technological shift.

From an organizational standpoint, this research provides insights that help companies understand and manage AI adoption more effectively. Through a comprehensive analysis of employee perspectives across diverse sectors, age groups, and educational backgrounds, this study provides organizations with a nuanced view of AI's perceived advantages, risks, and sector-specific expectations. These insights will allow companies to align their AI strategies with employee needs and expectations, facilitating a smoother integration process. Furthermore, by considering how public opinion shapes organizational strategies, this research aim to support companies in optimizing their AI initiatives at all stages, from initial adoption to continuous management and future planning.

To address the research problem and deepen the understanding of this topic, three research questions have been formulated. These questions capture both individual and organizational perspectives on AI adoption, as well as employee readiness for AI integration. This framework not only allows for an exploration of the effects of AI on employee performance but also considers broader organizational implications, ensuring a balanced view that encompasses both personal and company-wide impacts.

Question 1) How do employees perceive the impact of AI on their personal productivity and their ability to perform their job?

Brown et al. (2024) emphasize that despite extensive discussion surrounding AI applications, there is still insufficient information about their effectiveness, or the specific demands AI creates in the workplace. This highlights a gap in understanding how AI tools are genuinely influencing employees' productivity and job satisfaction, which this research aims to address.

Relyea et al. (2024) provide key insights, noting that employees who frequently use generative AI report significant productivity improvements. Most respondents in their study were enthusiastic about generative AI, with 91% using these tools for work and believing that they can positively impact their experience. Moreover, employees feel that AI tools will enhance a range of critical skills, from creativity to critical thinking, showing a positive link between AI adoption and increased work efficiency.

AI is perceived as a transformative tool that can accelerate automation, decrease time spent on tasks, enhance productivity and innovation, and improve the overall quality of work and employee experience (Relyea et al., 2024). By automating routine tasks, AI enables employees to focus on high-value activities, such as problem-solving and managing customer interactions, fostering more strategic thinking and meaningful engagement with both customers and colleagues. Additionally, this shift has the potential to reshape team and performance management, as managers spend less time on administrative duties and more on team development and skill enhancement, promoting better team dynamics and leadership growth within organizations.

Question 2) How do employees perceive the organizational benefits and drawbacks of AI adoption by the company?

Effective AI adoption requires a thorough understanding of AI's broad capabilities, enabling planners to identify opportunities for transformative changes within an organization (Batty, 2022). Moreover, investing in AI can position companies for competitive advantage in both the short and long term, while a lack of adoption may put companies at a significant disadvantage.

Relyea et al. (2024) argue that the full potential of generative AI, such as accelerated innovation, improved productivity, and enhanced customer and employee experiences, can only be realized when organizations pursue transformative changes. This suggests that industries with substantial customer interaction, such as sales and marketing, may experience more immediate and tangible benefits from AI, potentially influencing positive employee perceptions within these sectors. Additionally, the ability of AI to enhance engagement and streamline content creation may particularly benefit customer-focused industries, thus shaping sector-specific views on AI's advantages. Additionally, AI's role in promoting environmental sustainability can contribute to a more positive perception across sectors that prioritize sustainable practices (Bristol et al., 2024).

However, the risks associated with AI, such as legal, reputational, and organizational challenges, underscore the need for strong governance, transparency, and data management to mitigate potential damages (Kremmer et al., 2023). This could mean that employees in highly regulated sectors, such as healthcare or finance, may hold more cautious perspectives on AI adoption due to the heightened compliance and governance concerns. Furthermore, Chui et al. (2023) suggest that AI can foster a more equitable workforce by promoting skills-based development, benefiting industries that rely on a wide range of skill levels, which may influence perceptions positively in these sectors.

Murray (2024) highlights AI's potential to reduce inequality by yielding the most substantial productivity gains among less-skilled employees, promoting a more inclusive work environment across sectors. Aligning with this perspective, Siebel (2019) advocates that companies should remain focused on creating both economic and social benefits. He emphasizes that AI adoption should generate value not only for customers, shareholders, and stakeholders but for society as whole, underscoring the broader responsibility organizations have in harnessing AI for collective progress.

Question 3) To what extent are employees willing and prepared to adopt AI tools and systems within their company, and how confident are they in acquiring new skills for this integration?

The acceleration of AI development, particularly generative AI, has profound implications for the future of work. Chui et al. (2023) project that up to half of today's work activities could be automated between 2030 and 2060, advancing previous expectations by an entire decade. This rapid transformation places considerable pressure on organizations to understand and anticipate their talent needs, as the shift towards automation will reshape roles and require new skill sets.

Siebel (2019) emphasizes that a successful transformation requires a clear vision from leadership, which must be effectively communicated to employees at all levels, creating an environment conducive to successful AI adoption. Relyea et al. (2024) further highlight that the real success of AI adoption depends on a comprehensive, integrated approach, where infrastructure not only supports technological changes but also fosters a culture that embraces these changes.

Employees are experimenting with generative AI through publicly available and embedded tools, fostering curiosity and encouraging greater openness to innovation. This experimentation promotes the integration of AI into daily tasks but also suggests that employees are becoming more comfortable with AI, increasingly recognizing its potential to enhance work processes (Relyea et al., 2024).

To leverage and capitalize the enthusiasm of employees towards AI, organizations need a holistic approach, investing in both the technology and the skills necessary for effective adoption (Relyea et al., 2024). Since AI has profound implications for talent and skill requirements, it is suggested that companies will face difficulties in just hiring to meet these needs. Chui et al. (2023) stated that early adopters of AI place a strong emphasis on the human aspect of integration by prioritizing upskilling and reskilling in their talent strategies. They recognize that relying solely on hiring and outsourcing is insufficient to meet strategic skill needs and may even hinder the development of essential in-house capabilities (Hazan et al., 2024). Given that skill-building is an ongoing process aligned with operating model transformations, generative AI and automation are reshaping roles, prompting the need for employees to develop strong cognitive, strategic thinking, and social-emotional skills to effectively handle the increasingly complex tasks that complement AI.

CHAPTER 4

Methodology

This dissertation employs a quantitative research approach, selected for its capacity to provide objective, data-driven insights across a wide range of characteristics and dimensions. Quantitative research, as defined by Creswell (2014), involves collecting and analysing numerical data to identify patterns and relationships, enabling the measurement of trends and the generalization of findings beyond the immediate sample. As Aliaga and Gunderson (2002) explain, this approach seeks to explain phenomena through the collection of numerical data, which are then analysed using mathematical and statistical techniques. The ability to generalize research findings to broader populations is one of the primary benefits of adopting this method (Mistry et al., 2016).

In this empirical analysis, descriptive statistics will be applied to uncover significant relationships between variables, integrating data from structured questionnaire responses. The conclusions derived from this analysis will later be compared with findings from the literature review to assess alignment or divergence. In alignment with the study's objectives, an inductive approach was initially used in data analysis, allowing patterns, themes, and concepts to emerge from the data without predefined categories or theories, as suggested by Weber (1990). This inductive process involved examining specific data points to establish broader themes. Subsequently, a deductive approach was employed to assess whether these themes aligned with the study's main objectives, enhancing the rigor and comprehensiveness of the analysis.

4.1 Data Collection

According to Malhotra (2007), there are two main types of data, the primary and the secondary. The primary data is all information collected by the researcher with the purpose of responding to a particular problem, while the secondary data was previously collected for other purposes. Given the scope of this dissertation and to achieve the proposed objectives, both secondary and primary data were used.

4.1.1 Primary

The primary data of this study was collected through survey research, defined as "the collection of information from a sample of individuals through their responses to questions" (Check & Schutt, 2012, p. 160).

Ghanad (2023) claims this method is especially beneficial when a researcher wants to describe the characteristics, attitudes, behaviours, and opinions of a large population. Survey research may use a variety of data collection methods with the most common being questionnaires, that may be self-administered and can be delivered in an electronic format via an Internet-based program (Ponto, 2015; Ponto et al., 2010).

The survey (Appendix A) was administered via Google Forms, a platform designed for the development and distribution of online forms, facilitating data collection. The survey was developed in both English and Portuguese to accommodate participants' language preferences and maximize the response rate. The survey targeted both national and international participants, with the primary inclusion criterion set as current employment or recent employment experience in Portugal.

A semi-random sampling strategy was used, as the questionnaire link was initially shared through social networks, personal contacts, and emails, and further distributed by respondents. This approach introduced a level of randomness, with responses coming from individuals both within and beyond the immediate network, thus justifying its semi-random nature.

The questionnaire was expected to characterize people’s perception and motivation to adoption of AI in the company’s activities. For that, the questionaries were developed based on the existing literature from various academic studies and scientific literature and comprised four distinct sections.

At the beginning of the questionnaire, respondents were informed about the estimated duration, as well as the research topic and primary objectives. The first section focused on the Demographic and Social Profile, aiming to characterize the participants in terms such as age, gender, educational background, income level, and employment status. The second section addressed the Self-Perception of AI Knowledge, where participants were asked to assess their knowledge and preparedness for AI, as well as the perceived benefits and challenges associated with its use. The third section explored the Usage and Impact of AI, evaluating the participants' interactions with AI systems in their daily lives and the effects these systems have had on both personal and professional aspects. Lastly, the fourth section, Perceptions of AI Adoption in Organizations, gauged participants' expectations and perceptions regarding the implementation of AI in their respective companies.

For the first section were given multiple-choice answers possibility, and for the other sections, were employed a 5-point Likert scale, ranging from 1 (strongly disagree) to 5 (strongly agree), to quantify participants' responses to various items. The use of a Likert scale is justified by its ability to transform subjective attitudes, perceptions, and opinions into quantifiable data, allowing for the objective measurement of complex human traits (Joshi et al., 2015).

Before the launch of the questionnaire, it was tested by the researcher and the orientator from ISCTE to verify the clarity of the questionnaire. Depending on the participants' preference, the questionnaire could be answered both in English and Portuguese, with the last one' s responses being translated into English later.

In quantitative research, the sample size was defined based on the responses gathered from the questionnaire. Therefore, the sample size was determined by the number of participants who completed the questionnaire, providing a sufficient data set for analysis and ensuring the robustness of findings.

4.1.2 Secondary

Snyder (2019) emphasized that building your research on and relating it to existing knowledge forms the foundation of all academic research activities. This is essential to portraying and understanding the complexity of the subject addressed, helping to map out the possibilities for future research or interventions by identifying gaps and opportunities within the existing body of knowledge.

Currently, despite the large number of studies exploring AI applications in companies, including the possible benefits, drawbacks, and the potential replacement of employees, there is no clear consensus on the topic. Opinions vary depending on factors such as the industry, the nature of the work, and demographic variables like age, among others.

The secondary data for this study were gathered through a comprehensive literature review, focusing on academic journals, peer-reviewed articles, and databases such as Scopus, ProQuest Business, Web of Science, and EBSCO, while also considering other relevant sources. Keywords like "Artificial Intelligence," "people's perception," "Artificial Intelligence adoption," "Artificial Intelligence in the workplace," and "Organizational Strategy for Artificial Intelligence" guided the search process.

To ensure data relevance and quality, specific criteria were applied, such as materials needed to be in English or Portuguese and, published within the last five years. However, certain older articles were included due to their unique contributions in explaining specific topics or offering broader perspectives. Additionally, insights were enriched by reports, case studies, and interviews from McKinsey's research platform. Finally, the principle of data saturation was adopted for secondary data collection, ensuring the completeness of information as no new insights emerged beyond a certain point of the research.

4.2 Data Analysis

This research follows a descriptive quantitative approach, chosen for its capacity to objectively analyse data through numerical values and statistical methods, allowing for the measurement of variables without manipulating data (Siedlecki, 2020; Price & Lovell, 2018). Descriptive statistics were employed to organize, summarize, and interpret the collected data, presenting findings in a logical and meaningful way through text, tables, and graphical representations (Vetter, 2017).

Microsoft Excel was used as the primary tool for data analysis, leveraging its built-in and add-in features to conduct descriptive statistical analysis efficiently. This software, widely utilized for data handling in research, facilitated the creation of pivot tables and summary statistics, enabling straightforward analysis of key trends and patterns in the responses (Kumar, 2023).

After data collection via Google Forms between October 9, 2024, and October 15, 2024, a total of 180 valid responses were gathered. Although there were two versions of the questionnaire, one in English and the other in Portuguese, the data analysis will be conducted jointly. The difference in language was primarily intended to increase the number of responses and not to represent distinct realities, as all respondents are either currently working or recent ex-workers in Portugal. These responses were compiled in an Excel file and then coded on a scale of 1 to 5 to align with the Likert scale used in the questionnaire. Data preparation included translating responses from Portuguese to English to ensure consistency. Additionally, some activity sectors with low response counts were consolidated based on similarity to create more robust categories, and responses categorized as "other" were reassigned to the closest relevant sector.

In the data analysis process, each item from the questionnaire was carefully considered for its potential contribution to the overarching investigation questions. Multiple metrics were evaluated applied to assess responses, integrating with socio-demographic data as variables to identify potential patterns or insights. In cases where certain response categories had low representation, they were omitted of the calculations, to maintain the data's accuracy and representativeness, thereby removing outlier responses that could have biased the results.

After analysing the data, the findings will be compared to the information gathered in the literature review to assess whether they align, contradict, or expand upon existing research. This approach contributes to answering the investigation questions and fulfilling the main objective of this work, providing a comprehensive understanding of the topic.

CHAPTER 5

Results Analysis and Discussion

This chapter presents the research findings and discusses their practical implications, derived from an in-depth analysis of individuals' perceptions regarding AI and its integration within companies. The questions examine essential themes, including AI's influence on productivity, decision-making, and innovation, alongside concerns related to privacy, job displacement, and ethical challenges. Later, a discussion will be conducted to compare the data obtained with the findings from the literature review.

5.1 Sample Characterization

This section provides a detailed breakdown of the respondents' age, gender, educational background, income level, and industry of employment, offering valuable insights into the diverse profiles that shape perceptions of AI adoption in both personal and professional contexts.

The sample for this study includes participants from a broad spectrum of age groups, allowing a comprehensive understanding of AI perceptions across various life stages. The largest group of respondents falls between the ages of 25 and 34, with a total of 68 individuals. This is followed by those under 25 years of age, who account for 43 participants, and the 35 to 44 age group, contributing 38 respondents. Additionally, there are 29 participants in the 45 to 64 age range, while 2 individuals are aged 65 and above. The sample comprises a balanced distribution of genders, with 87 male participants and 93 female participants, providing a nearly even representation across genders.

The income levels of respondents are distributed across various brackets, highlighting the economic diversity within the sample. A total of 60 participants fall within the income bracket of €16,501 to €27,400, making it the most represented category. This is followed by 46 individuals in the €27,401 to €43,000 range. Lower income brackets, such as less than €7,700, account for 17 responses, while the €7,701 to €16,500 range has 32 participants. Higher income brackets are less represented, with 17 respondents in the €43,001 to €80,000 range and only 8 individuals earning above €80,000.

The majority of the sample hold or is currently pursuing a master’s degree, with a total of 77 respondents. This is followed by those within bachelor’s degree category, accounting for 50 respondents. In the Postgraduate diploma category, there are 35 respondents. High school graduates make up 14 respondents, while Doctorate category is constituted by 4 respondents.

Most respondents are employed, totalling 147 individuals. Working students account for 15 respondents, while students alone make up 12. Additionally, there are 3 freelancers, 2 self-employed individuals, and 1 unemployed respondent.

The sample spans a diverse range of industries, with significant representation in Healthcare and Pharmaceuticals, totalling 49 respondents. Manufacturing follows with 23 respondents, while the Finance and Banking sector includes 26 participants. The Technology (Telecommunications, Software, IT) industry is represented by 21 respondents, and Transportation and Logistics by 15. Marketing, Advertising, and Media account for 14 individuals, whereas Retail and E-commerce engage 11 respondents. The Education sector has 3 respondents, as does Hospitality and Tourism, Aerospace and Defence, and Research, while Public Administration includes 4 participants. Other industries with smaller representations include Legal Services with 2 respondents, Agriculture and Primary Sectors with 1, and Security Forces with 1. Additionally, one respondent did not specify their sector of activity.

5.2 Result Analysis and Discussion

For analytical clarity and given the response distribution, certain sectors were consolidated to form more substantial, representative groups. Retail and E-commerce were combined with Hospitality and Tourism, resulting in the 'Retail and Consumer Services' category; Education was joined with Research; Public Administration merged with Legal Services; and Security and Armed Forces was integrated into the Aerospace and Defence category.

5.2.1 Perceptions of AI Knowledge

The average response for the statement ‘I understand the basics of how AI works’ was 4, reflecting general agreement among respondents. A slight decline in perceived knowledge is noted with age, as younger populations feel more knowledgeable about AI. Higher income levels and higher education levels are also positively related with greater perceived knowledge.

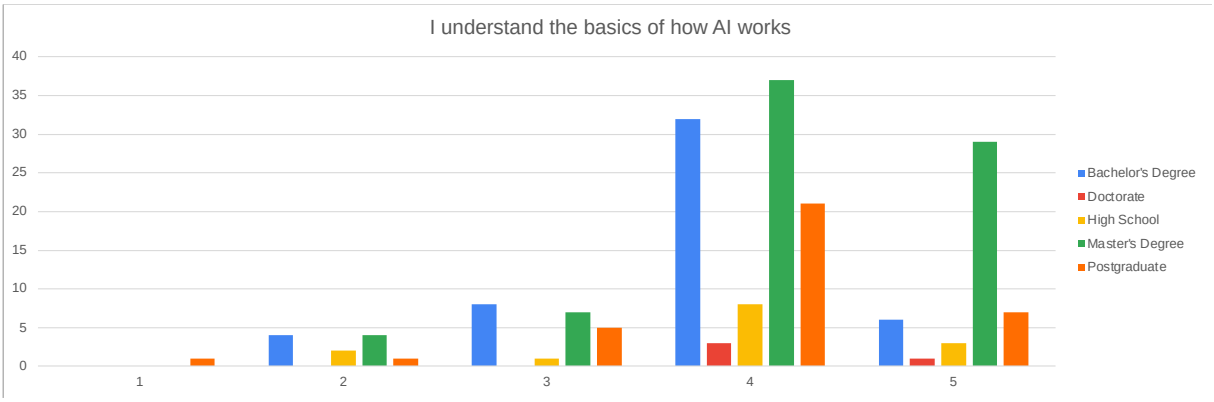

Figure 5.1 – Responses to the statement “I understand the basics of how AI works” according to education level

The sectors reporting the highest understanding of AI are Aerospace and Defence, Marketing, Advertising and Media, and Technology, each with an average above 4.2. In contrast, Education, Healthcare and Pharmaceuticals, Public Administration and Legal Services, and Retail and Consumer Services show the lowest perceived understanding, all scoring below 3.85.

Regarding the understanding of how AI is applied across different industries, the overall average response was 3.5, with a notable exception in the Technology sector, where the average was significantly higher at 4.3. Higher education levels are related to greater understanding of AI applications, while annual income did not show a significant impact. Younger respondents tended to report a stronger understanding.

The analysis of perceptions regarding AI's impact on daily life in past 3 to 5 years reveals a balanced view, with an average response score of 3. This score reflects a diverse range of opinions: 35% of respondents disagree that AI has significantly affected their lives, 29% hold a neutral stance, and 36% agree. Notably, older respondents tend to show a stronger disagreement with the idea that AI has had a substantial influence on their lives recently.

Looking ahead, 64% believe AI will profoundly change their lives in the next 3 to 5 years, with an average response of 3.7. Younger respondents, particularly those in under 25 and 25-34 age groups, demonstrate a stronger belief in AI's future impact compared to older respondents. Additionally, academic level plays a role, with respondents with higher education levels having a stronger perception of future change, except for those with doctorates.

Examining respondents' frequency of AI tool usage, focusing on those who use these tools daily or several times a week, reveals that translation services are among the most frequently used, with 60% of participants using them at this frequency. Recommendation systems, 48%, and facial recognition, 41%, also rank high in regular usage. Generative AI tools are somewhat less prevalent but still significant, with 38% of respondents integrating them into their routines frequently. In the specific case of generative AI applications, industries such as Information Technology, Public Administration and Legal Services, Marketing, Advertising and Media, and Manufacturing exhibit the highest levels of engagement, with 50% of respondents in these sectors reporting daily or several times a week usage.

Conversely, the Healthcare and Pharmaceuticals sector shows significantly lower adoption, with 70% of healthcare respondents indicating they use generative AI tools only a few times a month or not at all. This could represent a missed opportunity given its perceived importance in driving digital transformation. Generative AI models are recognized for their robust capabilities, ease of use without requiring prior technical knowledge, accessibility through plain language, and availability online free of charge, making them foundational tools for digital advancements (Thelle et al., 2024).

When evaluating respondents' interest in the evolution of AI, the average response is 4.2. Interest is highest among respondents aged 25-34 and 45-64, with agreement rates of 97% and 90%, respectively. Additionally, interest in AI development correlates with educational attainment, with agreement levels rising from 71% among high school graduates to 76% for bachelor's holders, 91% for those with a master's degree, and reaching 100% among Doctorate holders. There is no significant variation in agreement across different sectors. Analysing responses by income, agreement increases with higher income levels: 65% in the <€16,500 range, 83% in the €16,501-€27,400 range, 94% in the €27,401-€43,000 range, 88% in the €43,001-€80,000 range, and 100% for those earning >€80,000.

For the statement 'AI makes me excited,' the average agreement level is 3,5, with no significant differences across age groups. By income, agreement rates remain similar across ranges, approximately 50% agreement rate, up to €43,000–€80,000, where it reaches 71%, and then rises to 88% for those earning over €80,000. Regarding education levels, respondents with a master's degree show the highest agreement at 65%, compared to the lowest rate of 29% among those with a high school education. In terms of industry, 100% of respondents in Aerospace and Defence express excitement about AI. Conversely, for the statement 'AI makes me feel nervous,' the average response is 2.7. The highest agreement rate by age is among respondents aged 35-44, with 40%, while those earning between €7,000 and €16,500 report a 35% agreement rate. Furthermore, a trend is evident in education, with lower educational levels corresponding with higher agreement on feeling nervous about AI.

For the statement *"AI can help reduce social inequalities,"* the average response is 3.1, suggesting a balanced view with some optimism. Younger respondents exhibit higher agreement levels, while older participants are more inclined to disagree. A positive relation between income and agreement is evident, with higher-income individuals showing greater optimism about AI's potential to reduce inequalities. Additionally, respondents with higher education levels demonstrate increased agreement on AI's potential for positive social impact.

For the statement *"AI can increase the gap between social groups,"* the average response is 3.2. Agreement rates fluctuate across income brackets: 65% of respondents earning under €7,700 agree, followed by 31% in the €7,701 – €16,500 range, 40% in the €16,501 – €27,400 range, 52% in the €27,401 – €43,000 range, and 59% in the €43,001– €80,000 range. Among those earning above €80,000, agreement decreases significantly to 12.5%, while disagreement rates rise, reaching 22% in the €27,401 – €43,000 range, 30% in the €43,001 – €80,000 range, and 38% for those earning over €80,000. There is no notable variation in responses across education levels or industry sectors.

These findings contradict the conclusions of Kremmer et al. (2023), Siebel (2019), and Relyea et al. (2024), who argued that AI serves as a tool to bridge social gaps and expand opportunities for a more inclusive workforce.

5.2.2 Question 1) How do employees perceive the impact of AI on their personal productivity and their ability to perform their job?

When analysing perceptions regarding the statement "Products and services using AI have more benefits than drawbacks," the average is 3,5 and distinct trends emerge across demographics. In the youngest age group, 66% of respondents under 25 agree that AI offers more benefits than drawbacks. This agreement drops to 50% among those aged 25-34 and further declines to 36% for respondents aged 35-44. In terms of income, no income bracket stands out significantly, with 50% in all ranges consistently expressing agreement. Education level shows a slight variance: at the high school level, respondents are evenly split between agreeing and disagreeing, while among those with bachelor's and master's degrees, approximately half believe AI has more benefits. Interestingly, across all education levels, about 10% of respondents disagree with the idea that AI's benefits outweigh its drawbacks, revealing a consistent pattern of some scepticism. Furthermore, the Technology sector stands out, with 75% of respondents agreeing that AI products and services offer more benefits than drawbacks, while other sectors display a more balanced view.

For the statement, "I believe that AI will increasingly become a part of my daily life in the future," the average response is 4,2, indicating strong agreement overall. Across all age groups, over 80% of respondents express agreement with this sentiment, reflecting a widespread belief in the growing influence of AI. When looking at education levels, agreement with the statement tends to increase as education level rises, except for respondents with a PhD.

Regarding the statement *"I am comfortable relying on AI for personal decisions"* the average response was 2.8, indicating a general tendency toward disagreement. When analysed by age, 47% of respondents under 25 and in the 35-44 age group expressed the highest levels of disagreement. Only 20% of respondents under 25 agreed with the statement, the lowest level of agreement across age groups, against the highest agreement rate of 33% among respondents aged 25-34. Considering income levels, respondents in the income ranges from €16,501 to €43,000 showed a disagreement rate above 40%. Among those who agreed with the statement, 33% were in the €27,401 to €43,000 range, while the highest agreement rate of 53% was observed in the €43,001 to €80,000 range. This suggests that individuals in higher income brackets may feel more comfortable relying on AI compared to those in lower income groups. Regarding education level, 58% of respondents with only a high school education expressed disagreement, followed by 42% of those with a bachelor's or postgraduate degree, and 38% with a master's degree. In terms of industry sectors, Public Administration and Legal Services, as well as Transportation and Logistics, showed the highest disagreement rates, both exceeding 65%. In contrast, the Healthcare sector had an agreement rate of 39%, and the Technology sector reported the highest agreement at 52%.

For the statement *'AI tools help me make better decisions in my personal life'*, the average response was 3, indicating a neutral tendency. Among respondents under 25, 40% disagreed with the statement, while the 25-34 age group had a lower disagreement rate at 23.5%. Agreement rates were highest at 30% for both the under-25 and 25-34 groups, decreasing steadily with age. In terms of income, the lowest income bracket, <€7,700, had a 35% disagreement rate, while the €7,700-€16,500 bracket showed the highest disagreement at 44%. Conversely, agreement increased with income, peaking at 40% in the €43,001-€80,000 range. Looking at education level, there was a positive relation between higher education and agreement with the statement. Master's degree holders had the highest agreement rate at 52%, while high school graduates showed the highest level of disagreement at 33%. By sector, Healthcare and Pharmaceuticals had a 50% agreement rate, while Technology showed the highest agreement at 67%. In contrast, other sectors had a neutral response rate exceeding 50%

For the statement *'I use AI-based tools or systems at work'*, the average response was 3.2, suggesting a moderate level of engagement. Across all age groups, agreement rates were above 60%. In terms of income, there is a positive relation with respondents with higher incomes showing a higher agreement. A positive trend was observed with education level, as the higher the education level, the greater the use of AI systems, with agreement reaching 58% among master's degree holders. In contrast, those with only high school or bachelor's degrees had disagreement rates of 22% and 36%, respectively. By sector, Education and Research, Finance and Banking, Manufacturing, and Technology showed high engagement with AI, all having over 60% agreement. On the other hand, Healthcare and Pharmaceuticals, as well as Retail and Commerce, had disagreement rates exceeding 35%, the highest among sectors.

The statement "AI tools may reduce the amount of time it takes me to complete tasks" received an average response of 4.1, indicating a generally high level of agreement. Younger respondents showed the highest agreement, with 93% of those under 25 in support. Even the age group with the lowest agreement, 45-64, reported a notable 73% agreement rate. In terms of education, high school and bachelor's degree holders reported 70% agreement, while those with a master's degree showed 95% agreement. By sector, the highest disagreement rates were in Education and Research, Healthcare and Pharmaceuticals, and Public Administration, each with 17%. Sectors with the highest agreement, above 90%, included Finance and Banking, Manufacturing, Marketing, and Technology.

For the statement "I believe AI will improve my productivity" the average response was 3.8, indicating a generally positive outlook. Younger respondents showed the highest agreement, with 70% or more of those under 25 and aged 25-34 expressing agreement. Agreement rates decreased with age, dropping to 62% among those aged 35-44 and to 50% in the 45-64 age group.

Higher income levels were associated with greater agreement, starting at 65% for those earning under €7,000 and reaching 88% for individuals earning above €80,000. In terms of education, respondents with only a high school education had a 36% disagreement rate, while agreement ranged between 50% and 57% across other educational levels, except for master's degree holders, who showed a high agreement rate of 90%. By sector, Finance and Banking, Manufacturing, and Technology displayed strong agreement rates above 80%, while Public Administration and Healthcare and Pharmaceuticals reported lower agreement rates, at 50% and 55%, respectively.

Figure 5.2 - Responses to the statement "I believe AI will improve my productivity" according to age

For the question "AI will help me focus on more strategic and value-added tasks," the average response was 3.6. Agreement was highest among younger respondents, with 72% of those under 25 and 75% of those aged 25-34 agreeing. This agreement gradually decreased among older groups, reaching 65% for ages 35-44 and 62% for ages 45-64, both of which also had a disagreement rate of 21%. Income levels showed minimal variation, with agreement rates ranging between 63% and 76%. Middle-income ranges had the highest agreement, while extreme income ranges showed slightly lower rates. In terms of education, respondents with only a high school education had the highest disagreement rate at 36%, more than double the next highest rate of 14%, observed among those with a postgraduate degree. Agreement rates generally increased with educational attainment, ranging from 50% among high school graduates to 83% for those with a master's degree, while bachelor's and postgraduate respondents showed around 60% agreement. By sector, Healthcare and Pharmaceuticals, as well as Retail and Commerce, reported disagreement rates of 21% and 29%, respectively. In contrast, agreement was particularly high in the Education, 81%, Finance, 83%, and Manufacturing, 95%, sectors.

For the statement "I believe that AI can enhance creativity and innovation in my job role," the average response was 3.5. The 25-34 age group had the highest agreement rate at 59%, while disagreement was most pronounced among the 35-44 age group, 35%, and those under 25, 26%.

Income levels showed little variation in respondents' perspective variation. Agreement rates increased with higher education, reaching 69% among those with a master's degree, except for PhD holders, where 75% disagreed. Sector-wise, Education had the highest agreement at 66%, followed by Technology at 62%, while Retail and Commerce showed the highest disagreement rate at 35%.

Based on the insights gathered from the data analysis, we can further explore employees' perceptions of AI's impact on productivity and job performance, delving into how these perceptions align with existing research and expert perspectives. AI is widely perceived by employees as enhancing productivity, fostering innovation, and allowing them to focus on value-added tasks by automating routine processes. Despite these anticipated benefits, the real impact and workers' perceptions of AI's influence on productivity and job performance have not been comprehensively evaluated. Richey et al. (2023) emphasize the importance of balancing productivity gains with sustainable innovation and value creation, highlighting a nuanced perspective on AI's role in the workplace.

Contrary to Mentzas et al. (2024), who suggest that AI may present more challenges than advantages, employees in this study view AI as offering more benefits than drawbacks. Moreover, approximately 49% of respondents report actively using AI tools at work, reflecting the integration of these technologies in daily tasks, aligning with Korteling (2021) who argues that AI should be developed to support rather than replace humans, as employees primarily see AI as a supportive tool.

Cazzaniga et al. (2024) highlight that the effective integration of AI depends on its complementarity with human roles. This view is supported by the respondents' perception, as many identify clear benefits associated with using AI tools in their work, underscoring the synergy between AI systems and human capabilities, as also described by Hazan et al. (2024). However, most of the employees do not feel confident to rely in AI to personal decisions, maybe due to the fact that people process information differently when it involves their own experiences, especially when it involves risk to themselves (Horowitz et al., 2023).

The data gathered in this research allows for a comparison with Maslej et al. (2024). It reveals that respondents in this study exhibit a higher self-perception regarding their knowledge on AI, with 83% versus 67% in Maslej's research. The perception of AI's future impact and the balance of benefits versus drawbacks is similar between both studies. In terms of specific benefits, respondents recognize AI's potential to reduce time spent on tasks, foster creativity, generate new ideas, and automate repetitive activities, aligning with Chowdhury et al. (2024) and Brown et al. (2024). Additionally, higher levels of education and income, as well as younger age groups, are related with a more positive perception of AI's benefits. Sectors like manufacturing, marketing, advertising and media, and technology exhibit a particularly favourable outlook on AI adoption, whereas industries such as healthcare and pharmaceuticals and consumer services appear more cautious in their acceptance.

Regarding AI's perceived efficiency, productivity, and time savings, this study reports a more favorable view than Maslej's findings. Furthermore, in evaluating the use of generative AI tools, while this study covers a broader range, Maslej focuses on ChatGPT specifically. In Maslej's study, 53% of respondents reported using ChatGPT daily or multiple times a week, compared to 38% of generative AI tool users in this study. These findings indicate a missed opportunity in generative AI adoption that could significantly boost individual and organizational productivity. The gap highlights the potential for broader engagement with these accessible and user-friendly tools, which hold promise for enhancing productivity and fostering innovation across sectors.

5.2.3 Question 2) How do employees perceive the organizational benefits and drawbacks of AI adoption by the company?

For the statement "AI will drive economic development and create new business opportunities" the average response was 3.8. Agreement was especially high among respondents under 25 and those aged 25-34, both at 70%, with the 45-64 age group following closely at 73% and the 35-44 group at 60%. Disagreement rates were consistently low across all ages, ranging from 10% to 15%. In terms of income, a clear upward trend in agreement was observed, from 53% in the <€7,700 group to 88% agreement in the €43,001-€80,000 range, and 100% among those earning over €80,000. Higher education is related positively with agreement, starting at 57% among high school graduates and reaching 77% for those with a master's degree or PhD. Sector-wise, Education and Research and Transportation and Logistics showed the highest disagreement rates at 33%, while Manufacturing, Public Administration, and Technology sectors demonstrated strong agreement rates, all above 80%.

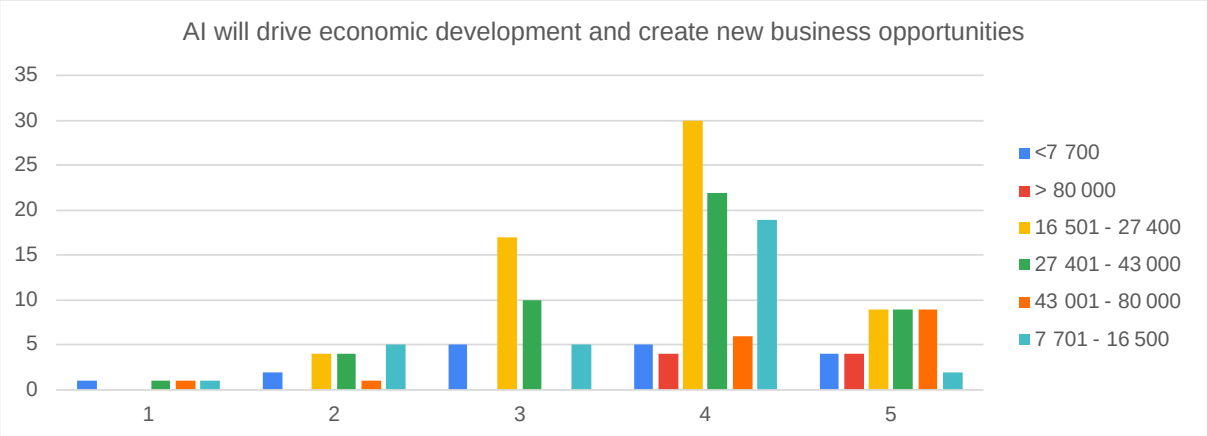

Figure 5.3 - Responses to the statement "AI will drive economic development and create new business opportunities" according to annual income

For the statement "I feel AI can enhance global competitiveness for companies and countries," the average response was 3.8. Among age groups, respondents under 25 had the highest agreement rate at 79%, while the 35-44 group showed the lowest at 58%, and had the highest disagreement at 19%. Regarding income, agreement was strongest in the <€7,700 range at 83%, then dropped to 72% in the €7,701-€16,500 range, 68% in the €16,501-€27,400 range, and 59% in the €27,401-€43,000 range, before rising again to 77% for the €43,001-€80,000 range and 88% for those earning above €80,000. Education levels showed a consistent agreement trend, ranging from 64% to 75%, with bachelor's degree holders slightly lower at 58%, highlighting a positive relation between higher education and agreement. Among sectors, Public Administration and Legal Services showed the highest agreement at 83%, followed by Retail and Consumer Services at 79%. The Education and Research sector, however, reported the highest disagreement rate, with 50% of respondents disagreeing with the statement.

For the statement, "AI will lead to more efficient and sustainable use of natural resources, improving environmental sustainability," the average response was 3.3. Agreement levels were relatively low, generally ranging between 45% and 50% across most age groups. The 45-64 age group showed particularly low agreement at 24%, with 35% disagreeing. In terms of income, higher earners, especially those with incomes above €43,000, had the highest rates of disagreement, exceeding 35%. By sector, Technology and Retail and Consumer Services demonstrated the highest agreement rates, with over 50% of respondents in each sector affirming the statement.

For the statement, "AI will lead to more diversity and inclusion in the workforce," the average response was 2.7, indicating a general trend toward disagreement. Disagreement rates are prominent across age groups: 42% for respondents under 25, 35% for those aged 25-34, 32% for the 35-44 group, and a peak of 52% for those aged 45-64. Among income brackets, respondents earning over €80,000 display a high disagreement rate of 63%. By sector, Education and Research and Public Administration and Legal Services report a disagreement rate of 66%.

The statement "AI will enable my company to better compete in the global market" received an average response of 3.7, suggesting a generally positive sentiment. Agreement rates positively relates with age: younger respondents show higher agreement at 68%, while only 50% of those over 65 agree. The 35-44 age group shows the highest disagreement at 19%. Income analysis reveals the lowest agreement level in the €27,000–€43,000 range at 61%, with agreement peaking at 88% among those earning over €80,000. Educational background also influences responses, with high school graduates showing 71% agreement, compared to 48% for bachelor's degree holders and 74% for those with a master's degree. Sector-wise, Technology, Education and Research, and Aerospace and Defence stand out with agreement rates of 75% or more, reflecting optimism in these industries about AI's role in enhancing global competitiveness.

The statement, "AI will play a key role in my company's long-term business strategy," received an average response of 3.6, showing general agreement. Agreement rates tend to increase with age, starting at 58% among younger respondents and reaching up to 66% in older groups. In terms of income, agreement is steady across the lower brackets, around 57-59% for those earning under €43,000. A significant increase occurs in the €43,001–€80,000 range, with agreement rising to 77%, and further to 88% for those earning above €80,000. Educational levels show minimal variation. Sector-wise, Finance and Banking, Manufacturing, Retail and Consumer Services, and Transportation and Logistics report particularly high agreement rates, each exceeding 80%.

For the statement, "I believe that AI provides benefits to the employees of companies that use it," the average response is 3.7. Agreement is highest among younger respondents, with 77% in the under 25 group, gradually decreasing to 55% for those aged 45–64. Disagreement rates are generally low, except in the 35–44 age group, where disagreement reaches 24%. Analysing responses by income, those earning up to €16,500 show a 71% agreement, dropping to 63% and 59% in the €16,501–€27,400 and €27,401–€43,000 brackets, respectively. Agreement increases to 83% and 75% among those earning between €43,001 and €80,000, and above €80,000, respectively. Regarding education, 22% of high school-level respondents disagree, while agreement surpasses 70% among those with master's and PhD degrees. In terms of industry, Finance and Banking, Manufacturing, Technology, and Public Administration and Legal Services sectors show strong agreement, each exceeding 80%.

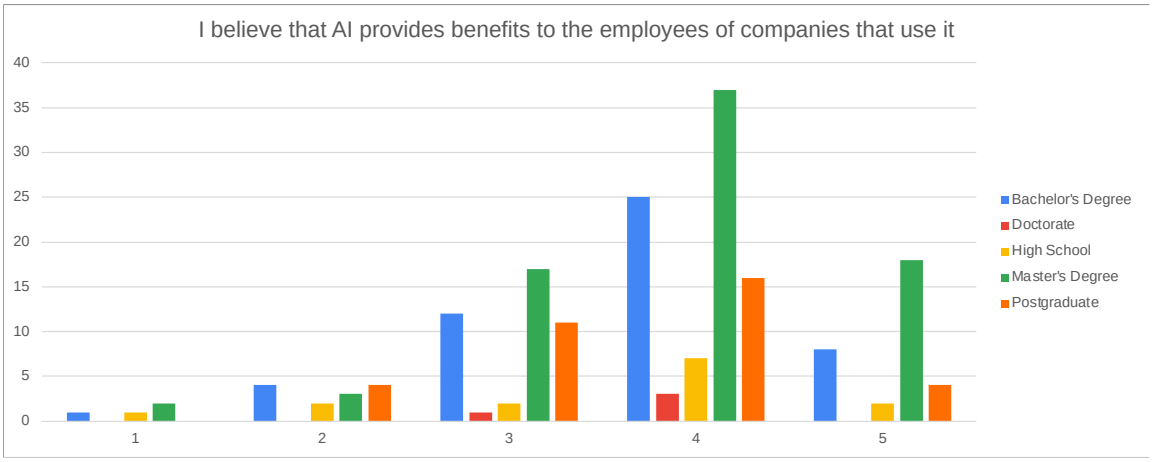

Figure 5.4 - Responses to the statement “I believe that AI provides benefits to the employees of companies that use it” according to education level

For the statement, "I believe that AI provides benefits to the customers of companies that use it," the average response is 3.8. Agreement rates across age groups range from 68% to 78%. By income, respondents earning less than €7,700 report a 77% agreement, while those in the €43,001–€80,000 range reach a higher agreement rate of 83%. In terms of education, those with master’s degrees report the highest agreement at 79%. Across sectors, Finance and Banking, Aerospace, and Public Administration and Legal Services show particularly strong agreement, each exceeding 83%.

For the statement, "I believe that AI will help my company remain competitive in the market," the average response is 3.9, indicating a positive outlook overall. Agreement rates increase with age, peaking at 79% for respondents aged 45-64, with the lowest agreement level at 67%. In terms of income, 77% of respondents earning less than €7,700 agree, with agreement dipping to 59% in the €7,701–€16,500 range, then rising across higher income brackets to reach 88% in the €43,001–€80,000 group, and 100% for those earning over €80,000. Education-wise, agreement levels range between 66% and 75%, with bachelor's degree holders showing the lowest agreement and those with master's and PhD degrees the highest.

By industry, Aerospace and Defence shows unanimous agreement at 100%, followed by Technology at 85%, Transportation and Logistics at 80%, and Manufacturing at 78%. In contrast, only 57% of respondents in healthcare agree, with 13% disagreeing and 30% neutral, while responses in Public Administration are evenly split, with 50% agreeing and 50% disagreeing.

For the statement, "I am concerned that AI in my company could lead to job displacement," the average response is 3.1, suggesting a moderate level of concern. Agreement with this concern declines as income increases, with 71% of respondents earning under €7,700 expressing concern, 44% in the €7,701–€16,500 range, 42% in the €16,501–€27,400 range, 30% in the €27,401–€43,000 range, and 24% in the €43,001–€80,000 range. Education level also plays a role, with higher concern among those with a high school education at 57% agreement, decreasing to 25% agreement among those with a doctorate. By sector, Public Administration and Legal Services show the highest disagreement rates at 66%, indicating less concern about job displacement. In contrast, concern is higher in sectors such as Finance and Marketing, with a 58% agreement, and Transportation and Logistics, 53% agreement rate.

For the statement, "AI will increase collaboration and teamwork within my company," responses were relatively balanced, with an average rating of 3. Approximately half of the respondents selected a neutral stance, while around 25% disagreed and 25% agreed. This distribution indicates a split in opinions on AI's potential to positively impact collaboration and teamwork.

For the statement, "AI may improve the quality of work by reducing human errors," the average response was 3.6. Agreement rates varied modestly across age groups, ranging from 58% to 66%, with the 25-34 age group showing the highest agreement at 66%. In terms of income, agreement rates remained consistent across groups, between 61% and 70%, except in the €7,701-€16,500 bracket, where the agreement rate was lower at 50%.

Education level showed a positive relation, with higher education associated with higher agreement, with 43% of high school respondents agreeing, compared to 69% of those with a master's degree. Industry-wise, respondents in Retail and Consumer Services reported the highest agreement at 79%.

For the statement, "AI will increase competitiveness in the market," the average response is 3.8, indicating a generally positive outlook. Agreement varies with age, beginning at 65% for respondents under 25, peaking at 74% in the 35-44 age range, and slightly decreasing to 62% in the 45-64 group.

By income, agreement is 83% for those earning under €7,700. This rate dips to 53% in the €7,701-€16,500 bracket, then rises progressively to 83% for those earning €43,001-€80,000, and reaches 100% among respondents earning over €80,000. Agreement also increases with education level, from 50% among high school respondents to 82% among those with a master's degree. Sector-wise, the highest disagreement is in Public Administration and Legal Services at 34%, while agreement is particularly strong in Manufacturing, Retail and Consumer Services at 79%, and Technology at 90%.

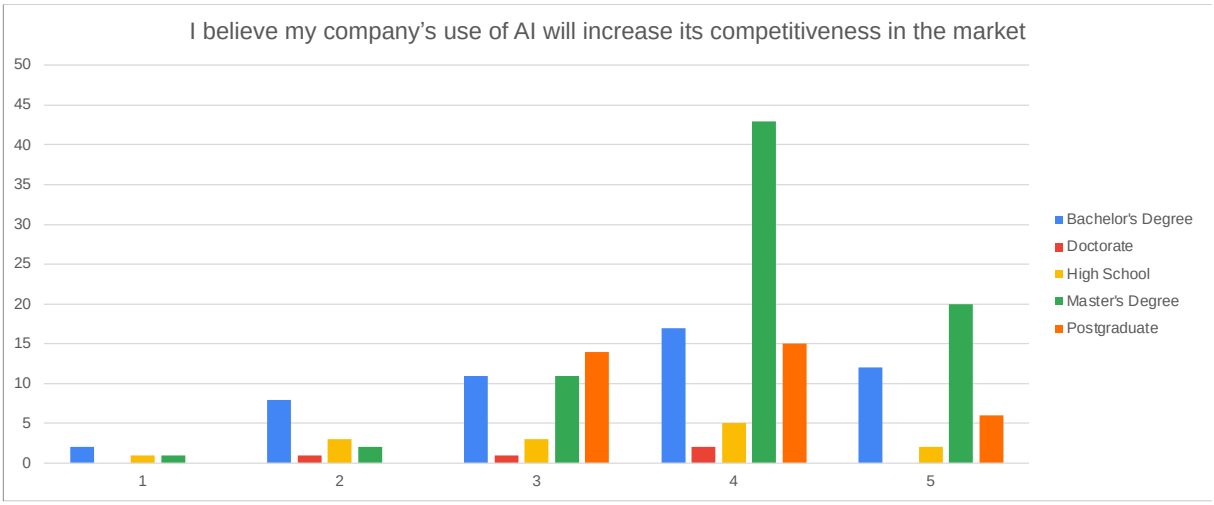

Figure 5.5 – Responses to the statement "I believe my company's use of AI will increase its competitiveness in the market" according to the education level

To analyse perceptions of agreement with the statement "AI will create new jobs and opportunities" the average response is 3.1, indicating a moderate outlook. By age, agreement rates are consistent across groups, around 34%, except for the 35-44 age group, which shows a higher agreement rate at 50%. Disagreement is most notable among respondents under 25, at 37%, and among those aged 35-44, at 34%. For annual income, a positive relation exists between higher income levels and agreement. Respondents earning under €7,700 show 29% agreement, while those in the €16,501-€27,400 bracket are at 30%, and those earning €43,001-€80,000 reach 83% agreement. Agreement is lowest in the €7,701-€16,500 bracket at 22%. By education level, agreement rates rise with education level with only 14% agree at the high school level, increasing to 28% for Bachelor's, 31% for Postgraduate, 47% for Master's, and 75% for Doctorate holders. Sector-wise, disagreement is notable in Finance and Banking, 40%, and Marketing, Advertising, and Media, 43%, while agreement is higher in Manufacturing, 60%, and Technology, 57%, highlighting sectoral differences in confidence regarding AI's potential to generate new job opportunities.

Generally, respondents believe that AI will drive the creation of new business opportunities, as suggested by Parveen (2018), and enhance competitiveness, echoing insights from Rautrão (2020). The findings support the idea that AI benefits can transcend specific sectors, aligning with Chui et al. (2023) in the belief that AI will allow organizations to better compete in the global market and improve long-term business strategies, ultimately benefiting both employees and customers.

However, views are more neutral regarding AI's impact on job displacement and job creation, contrasting with Siebel's (2019) claim of a potential for widespread job displacement. Additionally, while Relyea et al. (2024) emphasize bridging the gap between AI's perceived and actual impact on workers, this study contributes valuable insights into employee perspectives, enhancing the existing body of literature.

Interestingly, respondents do not widely perceive AI as a tool for promoting sustainability or diversity within the workforce, opposing the findings of Bristol et al. (2024), who suggested AI could decrease energy consumption and waste, as well as Kremmer et al. (2023) and Murray (2024), who highlighted AI's potential to create a more inclusive workforce.

Moreover, Relyea et al. (2024) highlight the importance of integrating AI technology with employee development through proactive governance, which aligns with respondents' positive views on AI's ability to improve work quality and reduce errors. This reflects a belief in AI's role in enhancing job performance rather than replacing jobs.

A more positive and constructive outlook on AI adoption is related with higher education, income levels, and younger age groups. Sectors like manufacturing, marketing, advertising, and media, and technology exhibit a more enthusiastic approach toward AI integration, whereas sectors such as healthcare, pharmaceuticals and consumer services appear more cautious about embracing AI.

5.2.4. Question 3) To what extent are employees willing and prepared to adopt AI tools and systems within their company, and how confident are they in acquiring new skills for this integration?

For the statement, "I feel I have the knowledge to understand AI," the average response is 3.2, indicating a moderate level of confidence. Among age groups, those under 25 feel the most capable, with 48% agreement, followed by the 25-34 group at 46%. Confidence declines in older groups, with only 32% agreement in the 35-44 group, accompanied by a 42% disagreement rate, and a full 100% disagreement in the over-65 group.

Income level shows a positive relation with confidence in AI knowledge. The €43,001-€80,000 income bracket reports the highest confidence at 83%, followed by those earning under €7,700 at 53%. Lower confidence is observed in the €7,701-€16,500 range, where only 28% feel knowledgeable, and in both the €16,501-€27,400 and €27,401-€43,000 ranges, where agreement rates are around 32%.

Education level also plays a role, with confidence increasing at higher levels: 75% of Doctorate holders and 57% of master's graduates feel knowledgeable, compared to 24% of bachelor's and 29% of high school graduates. By industry, 95% of respondents in Technology feel knowledgeable about AI, while Manufacturing follows at 47%, highlighting a significant gap in perceived AI understanding. In contrast, 67% of respondents in Public Administration and Legal Services disagree with the statement.

For the statement, "I am confident in my ability to learn how to use AI tools" the average response is 4, reflecting a high level of confidence overall. Confidence is strongest among younger respondents, with 88% agreement in the under-25 group, gradually declining to 72% for those aged 45-64, and further dropping to 50% among respondents over 65.

Income-wise, agreement remains high across different brackets, reaching 94% for those earning less than €7,700 and 100% for those in the over €80,000 range, though it slightly dips to 71% in the €43,001-€80,000 range. Education also is related positively with confidence in learning AI tools, with 79% agreement among high school graduates, 70% among bachelor's degree holders, 86% among those with a Master's, and a full 100% agreement among Doctorate holders. Sector-wise, Finance and Banking, Healthcare and Pharmaceuticals, and Technology report over 75% agreement in learning confidence, while Aerospace and Defence, Agriculture and Primary Sectors, and Marketing, Advertising, and Media show unanimous confidence, with 100% agreement.

Figure 5.6 - Responses to the statement "I am confident in my ability to learn how to use AI tools" according to age

For the statement assessing preparedness to use AI systems at work, the average agreement rate is 3.6, suggesting a moderate level of confidence overall. Younger respondents express higher readiness, with 67% of those under 25 agreeing, compared to 55% among the 45-64 age group. Notably, disagreement is more prevalent among respondents aged 35-44 and 45-64, at 32% and 24%, respectively, underscoring a potential need for further training. Preparedness appears positively related with income, peaking at 83% agreement among those earning €43,000-€80,000, though it slightly decreases to 63% for those earning above €80,000.

Education level also impacts perceived preparedness: those with high school, bachelor's, and postgraduate degrees report agreement rates between 50% and 54%, while 75% of master's degree holders feel prepared. Sector-wise, Education and Technology show high confidence, each reporting over 80% agreement. In contrast, Healthcare respondents show mixed feelings, with 45% agreeing and 26% disagreeing, while in Retail and Consumer Services, 43% agree and 29% disagree.

For the statement, "AI will change how I do my job in the next 5 years," the average agreement rate is 3.7, reflecting a moderate expectation of change. Agreement is consistent across age groups, ranging from 62% to 72%. By income, the highest agreement is among those earning less than €7,000 at 77%, with those earning between €16,000 and €80,000 around 70%. Respondents earning above €80,000 have a notably lower agreement at 50%. Among those in the €7,000 to €16,000 income bracket, 60% agree while 31% disagree. Education level influences perception, with 58% of high school and bachelor's degree holders in agreement, rising to 75% for those with a master's degree. Among high school graduates, 29% disagree. By industry sector, agreement rates are particularly high in Technology, Finance and Banking, Education, and Aerospace and Defence, each exceeding 75%, highlighting these fields as anticipating significant changes due to AI.

For the statement, "AI will replace my job" the average response level is low at 2.2, indicating a general sense of disagreement. Disagreement rises with age, from 61% among respondents under 25 to 83% for those aged 45-64, reaching 100% for those over 65. Income levels show no significant variation, with disagreement rates generally falling between 74% and 82% across most income brackets. An exception is noted among respondents earning less than €7,000, where 47% agree that their jobs might be at risk. Education level also influences perception, with higher education levels relating with greater disagreement, suggesting a stronger sense of job security among those with advanced degrees. By industry, 87% of respondents in Manufacturing disagree with the likelihood of AI replacing their jobs, while sectors such as Finance and Banking, Retail and Consumer Services, and Marketing show around 50% disagreement.

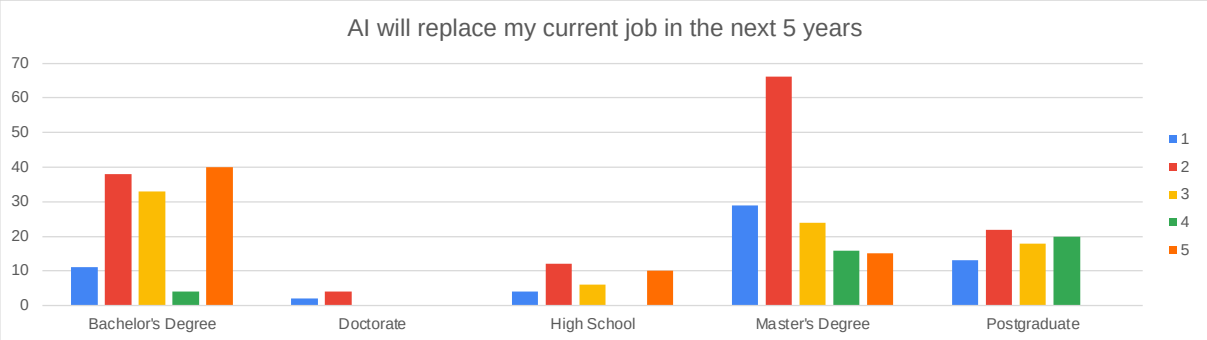

Figure 5.7 - Responses to the statement "AI will replace my current job in the next 5 years" according to highest education level.

For the statement, "My company is transparent regarding AI applications and systems," the average response was 3.2, indicating a generally neutral stance. Responses show no significant variation across demographic factors like age, income, or education level. However, sector-specific differences are evident. The Aerospace and Defence sector reports a low level of agreement at 25%, followed by Healthcare and Pharmaceuticals at 22% and Public Administration and Legal Services at 16%.

For the statement, "If my company adopts AI, I believe it will positively impact my work and productivity" the average response was 3.7, reflecting a generally positive outlook. Agreement rates varied minimally across age groups, with 66% to 73% agreement among respondents under 44, but agreement dropped to 51% among those aged 45-64, indicating somewhat lower optimism about AI's productivity benefits in older groups. In terms of income, agreement increased progressively with earnings: 65% among those earning less than €7,000, 53% in the €7,001-€16,500 range, 58% in the €16,501-€27,400 range, 70% for €27,401-€43,000, and reaching 83% for €43,001-€80,000. Educational attainment also showed a positive trend, with 50% agreement among high school graduates, rising to 56% for bachelor's degree holders and peaking at 79% for those with a master's degree. Sector-wise, confidence in AI's productivity impact was particularly high in Aerospace, with 100% agreement, followed by Manufacturing at 83% and Technology at 81%, underscoring strong confidence in these fields.

For the statement, *"I am willing to learn new skills to work with AI systems"* the average response is 4.2, reflecting a strong willingness across respondents. Agreement is high across all age groups, slightly decreasing from 90% among 25-34-year-olds to 80% in the 45-64 age group.

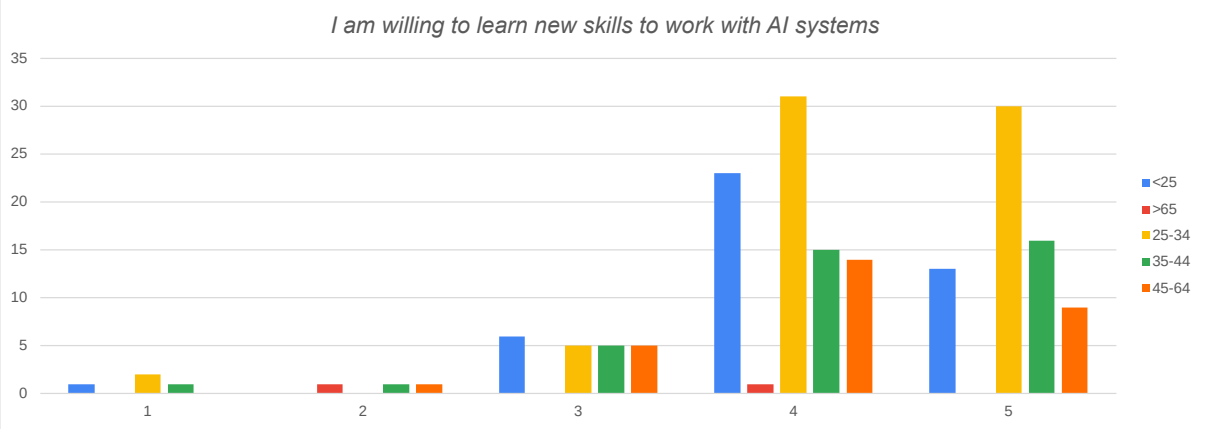

Figure 5.8 - Responses to the statement "I am willing to learn new skills to work with AI systems" according to age

Willingness to learn AI skills positively relates with income, beginning at 77% for those earning less than €7,000, rising to 96% in the €27,000–43,000 range, and peaking at 94% for the €43,000–80,000 group, before slightly decreasing to 88% for those earning over €80,000.

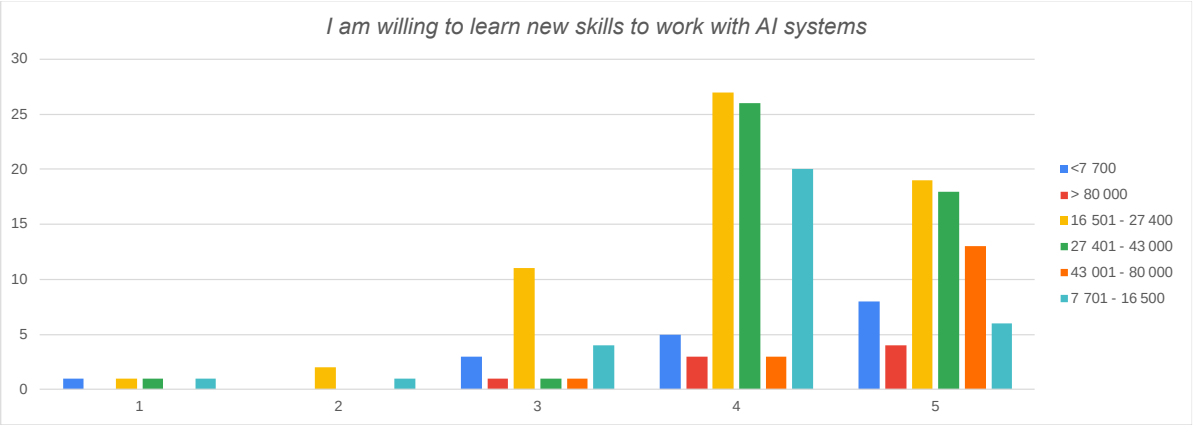

Figure 5.8 - Responses to the statement "I am willing to learn new skills to work with AI systems" according to annual income

Education level also shows a positive trend, with 71% agreement among high school graduates, increasing to 86% for bachelor's degree holders and reaching 94% for those with a master's degree. By sector, Aerospace, Agriculture, and Manufacturing each show 100% agreement, followed closely by Technology at 95% and Transportation at 87%. In contrast, willingness is somewhat lower in healthcare at 71% and Public Administration at 66%, with 17% in the latter expressing disagreement.

As McAuley (2021) emphasized, it is crucial to assess both a company's and its employees' capacity to keep pace with market demands, particularly regarding AI adoption. The findings in this study aligns with public opinion and Bristol et al. (2024), who observe that there is a widespread perception that AI will transform the way work is conducted. Employee development must go together with technology adoption, as highlighted by Relyea et al. (2024), who advocate for a proactive and strategic governance approach to effectively integrate AI into workplaces.

The study findings indicate that employees generally feel the need to develop their knowledge on AI, at the same time they are confident in their ability to learn how to work with AI systems and show a strong willingness to acquire new skills. This sentiment aligns with Chui et al. (2023), who emphasized that upskilling and reskilling are essential for effective AI adoption.

As Carmichael (2024) pointed out, one of the main obstacles to AI adoption is the individual willingness to embrace new technology. To overcome this, companies need an open and strategic plan to encourage acceptance. Interestingly, despite this enthusiasm for learning, many respondents feel their companies lack transparency about AI strategies. The majority express doubt about how openly their organizations share AI-related plans, which could potentially limit full engagement and confidence in AI integration.

Regarding job displacement and job creation, the findings contrast with public opinion and the observations of Chui et al. (2023) and Siebel (2019), who suggested that AI will likely lead to significant job displacement, as well the creation of new jobs and opportunities.

In this study, however, most respondents do not express a primary concern about job loss due to AI, indicating a generally positive outlook on AI's impact on job security, and do not expect the creation of new jobs.

However, a pattern emerges indicating that higher education levels are related with a greater sense of job security, while younger respondents express more apprehension about potential job replacement. This mirrors insights from Chui et al. (2023), Siebel (2019), and Hazan et al. (2024), who noted that fields prone to automation may experience more anxiety regarding AI's impact.

Conversely, sectors less susceptible to automation, such as technology, where job security is relatively stable, reflect the confidence projected by Osaba & Welser (2017). Interestingly, as Murray (2024) pointed out, this advanced technology often emphasizes inherently human skills, such as judgment, experience, and sector-specific knowledge, over technical skills. This observation is reinforced by respondents' perceptions, which highlight the enduring value of uniquely human qualities in AI's integration.

This study reports a 67% agreement with the statement "AI will change how I perform my job," compared to 57% in Maslej et al. (2024). Concerns over job replacement are notably lower in this research, at 13%, against Maslej et al.'s 36%. Both studies consistently show that respondents with higher income and education levels tend to feel more secure in their job roles amidst AI advancements.

Additionally, the analysis reveals some demographic trends. Higher levels of education, higher income brackets, and younger age groups are consistently associated with a more positive and proactive attitude toward AI adoption. Certain industry sectors, including manufacturing, media, marketing, and technology, exhibit a strong desire to leverage AI's benefits, while fields like healthcare and consumer services appear to approach AI adoption with more caution, potentially suggesting a slower rate of acceptance in these industries.

This analysis revealed an interesting pattern regarding a specific income group, and their attitudes toward AI. Respondents earning less than €7,700 displayed a more general positive outlook on AI than those in the €7,701 to €16,000 range. This trend contrasts with typical expectations where higher income is associated with more favorable AI perceptions. To understand this discrepancy, a closer examination of this income group showed that 83% are under 25 years old, a demographic generally more positive toward AI, without significant gender differences. Among them, 47% hold or currently frequent a bachelor's degree, 24% a master's and 24% a high school diploma. Additionally, 50% identify as working students. These respondents exhibit high interest in AI, limited knowledge of its applications, and a strong willingness to learn. Their primary AI usage includes generative AI, 65% weekly, image recognition, 59% weekly, and translation services, 75% weekly. This profile aligns with young university students with optimistic views on AI and frequent usage patterns, whose income largely comes from part-time or seasonal jobs.

Korteling et al. (2021) suggest that AI systems developed to support human decision-making are most effective, leading to better choices and more efficient solutions for complex issues. This research corroborates this view, as respondents reported AI's positive impact on creativity, time efficiency, and productivity, indicating alignment with AI's role in enhancing workplace effectiveness and strategic objectives. Additionally, while respondents expressed low concern about AI replacing their jobs, they agreed that AI would transform how they perform their roles, reflecting a preference for AI as a supportive "copilot." Lamarre et al. (2024) similarly emphasize the strategic importance of deploying copilot technologies to reinforce key organizational goals.

Conclusion

AI and the toolbox of advanced new technologies are evolving at a breathtaking pace. For companies and policy makers, these technologies are highly compelling because they promise a range of benefits, including higher productivity, which could lift growth and prosperity. Yet, making full use of the advantages on offer will also require paying attention to the critical element of human capital (Hazan et al, 2024).

This study successfully addresses the knowledge gap surrounding AI's impact on employees, as it is a necessity as highlighted by Relyea et al. (2024). By capturing employees' real insights, it provides a broader understanding of AI's perceived benefits and challenges, linking these perceptions to recent literature. The findings reveal a landscape of AI adoption marked by optimism and caution. Employees see AI as a tool to enhance productivity, foster innovation, and seek new business opportunities. This aligns with the potential of AI to reshape traditional value chains by embedding sustainable principles into organizational strategies. This opportunity is not confined to any single company, sector, or country; it is a universal prospect accessible to various contexts and skill levels, promising competitive advantages for those who embrace it.

As Siebel (2019) observed, organizations that understand the inevitability of an AI-driven future position themselves for both immediate and long-term gains, while those that fall behind risk significant disadvantages. However, the ambivalence found in some responses reflects a broader societal uncertainty about AI. This ambivalence highlights the complexity of AI adoption: many see its potential benefits, yet they also recognize the risks involved. Successful integration, therefore, will require a balanced approach that is both visionary and pragmatic. The complexity of AI demands careful management, as failure to navigate its intricacies could lead to missed opportunities, increased costs, regulatory hurdles, and heightened competitive risks (Sanchez, 2023). As public concern over AI's potential downsides grows (Kremmer et al., 2023), companies must prioritize transparency, governance, and data management to safeguard against legal, reputational, and financial risks.

This dissertation aims to enrich the academic discourse on AI adoption by enlightening employee perceptions and attitudes towards AI's role in the workplace. It seek to address a gap in current literature by offering empirical insights into how AI is viewed not only as a tool for enhancing productivity but as a transformative force across various sectors. Notably, several findings align with theoretical expectations regarding AI's benefits, adding scientific validity to these perspectives. However, certain results contrast with theoretical assumptions, suggesting areas for further research.

The study also reinforces the idea that sociodemographic factors, such as education level, income, age, and sector of activity, play a significant role in shaping individual perceptions and attitudes towards AI. These insights extend beyond academia to the professional realm, serving as key drivers for organizations in shaping strategic frameworks, implementation plans, and understanding employee sentiment. Additionally, this study's findings align with Bristol et al. (2024), who highlighted that sector such as Marketing, Retail and Consumer Services, and Media stand to benefit the most from AI adoption.

The findings underscore AI's potential competitive advantage, especially for organizations that leverage its innovative and efficiency-enhancing capabilities. Yet, critical concerns regarding transparency and governance emerge as essential for building employee trust in AI initiatives.

This recent data reveals a dynamic trend in AI discussions within the economic and financial spheres. Following a surge in mentions during Q4 2022, a seven-fold increase from Q3 2022 to Q2 2023, the Q2 2024 earnings season marked a shift as firms, especially in tech-oriented sectors, showed signs of *AI Fatigue*. This phenomenon saw a 29% decline in AI mentions compared to the previous peak in Q2 2023. However, AI discussions expanded across non-tech industries, achieving a 15% quarter-over-quarter growth. This broadening interest suggests that while tech sectors may be experiencing saturation, other industries are increasingly recognizing AI's relevance, fuelling a diversified engagement with AI across the economic landscape Zhao and Ao (2024).

Moreover, regulatory pressures, such as those from the AI Act, could inhibit AI investments in Europe, with projections suggesting a potential reduction of €31 billion over the next five years and a 20% dip in AI investments (Mueller, 2021). For SME, especially in Portugal, where they constitute 99.9% of businesses (PORDATA, 2023), and 78% of total employment (Thelle et al., 24), the compliance costs associated with high-risk AI systems could be particularly burdensome, threatening their competitive position. This underscores the need for balanced legislation that fosters innovation without imposing excessive costs on smaller enterprises. The choices made by policymakers and organizations in the near term could shape productivity and societal outcomes.

Hazan et al. (2024) highlight that rapid AI adoption and worker redeployment could elevate Europe’s productivity growth to 3% annually by 2030. Conversely, a slower pace could cap growth at 0.3%, leaving many workers unprepared for the future of work. These decisions represent a delicate balance, with AI technology on one side and human capital development on the other. Achieving an optimal equilibrium between the two will be essential for fostering both economic prosperity and social welfare.

In Portugal, while only 8% of companies utilized AI solutions in 2023, there is a growing interest in AI-driven productivity, with 43% of firms anticipating a considerable productivity boost through AI integration, and 38% planning to invest in AI-based automation over the next five years. Thelle et al. (2024) also highlight generative AI's significant potential for SMEs, emphasizing its user-friendly nature and accessibility, which make it particularly suitable for smaller enterprises aiming to enhance productivity.

Additionally, while many authors emphasize that AI offers economic benefits to companies, promotes workforce inclusion and diversity by upskilling individuals with lower education levels, and optimizes waste and energy management, few studies consolidate these advantages as a unified impact of AI. In this holistic potential, AI parallels the role of Environmental, Social, and Governance (ESG) initiatives today, suggesting that AI, could drive comprehensive value across economic, social, and environmental domains. This ESG-like potential should be embraced by leaders, companies, and even individuals to ensure that AI technologies are used to foster and develop society as a whole.

Having personally deeper insights into the aerospace and defense and healthcare sectors, it becomes possible to envision distinct paths for AI adoption in each. While both sectors stand to gain significantly from AI-driven advancements, their trajectories appear to differ. In the aerospace and defense sector, there is a strong orientation toward AI transition, supported by substantial private investment and a workforce eager to innovate and remain competitive. This sector seems well-prepared to embrace AI, with the economic resources and strategic focus necessary to lead in technological adoption.

In contrast, the healthcare sector faces more challenges. Although there is willingness among healthcare professionals to integrate AI, there is a notable lack of knowledge, tools, and support. The healthcare sector, largely under public management, often faces investment constraints due to limited government funding, which restricts its capacity to adopt AI advancements. This underinvestment is particularly regrettable, as integrating AI into healthcare could significantly enhance population health, patient satisfaction, and productivity, initiating a positive cycle of societal benefits. Generative AI alone is estimated to contribute around €4 billion to this sector, supporting personalized education, diagnostic assistance, patient interaction, and efficient document handling. Beyond generative AI, other AI types hold substantial promise for improving this sector (Thelle et al. 2024).

Looking to the future, it’s evident that AI is poised to move beyond individual experimentation and into a phase of strategic value capture, reshaping not only organizations but also individuals’ lives. With 64% of respondents expecting AI to profoundly change their lives and 83% expressing interest in AI, the path forward for companies involves translating vision into tangible value. This shift will require a reimagining of talent and skill development strategies, supported by both formal and informal mechanisms that foster continuous adaptation.

As Relyea et al. (2024) highlighted, the next inflection point will be defined by companies' ability to integrate AI into their operations in ways that support long-term growth while aligning human capital with new technological advances. The journey will demand innovation, foresight, and a commitment to ongoing transformation.

While this study's findings suggest that AI may increase social disparities and have limited perceived benefits for sustainability, Thelle et al. (2024) provide an optimistic counterpoint. Early indicators from their research show that generative AI could help bridge skill inequalities in the labour market by enhancing skill levels, particularly among those with lower competencies. Additionally, AI and related digital technologies have potential environmental benefits, especially in decarbonizing the energy sector, by enabling flexible energy utilization and supporting smart grid systems, AI can play a pivotal role in advancing sustainable energy solutions.

The research presented several limitations that should be acknowledged. First, accurately gauging participants' understanding and knowledge of AI posed challenges, as self-assessment may not fully capture the depth or accuracy of their familiarity with the technology. Additionally, although the sample size was adequate for the scope of this study, it may not be entirely representative of the wider Portuguese population, especially given the specific demographics involved. Finally, the subjective nature of respondents' views introduces the possibility of bias, which could impact the broader applicability and generalizability of the findings to other contexts or populations. These limitations suggest that future research with larger, more diverse samples and potentially more objective assessments of AI knowledge could yield more comprehensive insights.

This research offers a foundational exploration of AI usage, serving as a stepping stone for future studies involving more extensive and diverse participant samples. Such future studies could delve into AI's influence across varied sectors and demographic groups, offering a more comprehensive view of how specific industries, demographic factors, and professional backgrounds shape AI perceptions. These insights have the potential to broaden the academic discourse on AI's role and stimulate additional research focused on its multifaceted impacts within different settings.

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Appendix A

Artificial Intelligence in Organizations: Examining Employee Perceptions and the Impact on Business Competitiveness

Social and Demographic Information (Multiple Choice Answer)

1. What is your age?
    - < 25
    - 25-34
    - 35-44
    - 45-64
    - > 65

2. What is your gender?
    - Male
    - Female
    - Prefer not to say
    - Other option

3. What is your approximate annual income (before taxes)?
    - < €7,700
    - €7,701 - €16,500
    - €16,501 - €27,400
    - €27,401 - €43,000
    - €43,001 - €80,000
    - > €80,000

4. What is your highest level of education? (You may select the option you are currently pursuing)
    - High School
    - Bachelor's Degree
    - Postgraduate
    - Master's Degree
    - Doctorate

5. In which industry or sector do you primarily work?
    - Technology (IT, Software, Telecommunications)
    - Healthcare and Pharmaceuticals
    - Education
    - Finance and Banking
    - Manufacturing
    - Retail and E-commerce
    - Transportation and Logistics

- Marketing, Advertising, and Media
- Legal Services
- Hospitality and Tourism
- Construction
- Government and Public Administration
- Agriculture or other Primary sector activities
- Security and Armed Forces
- Other: _____

6. What is your current professional situation?
    - Employed
    - Self-Employed
    - Freelancer
    - Unemployed
    - Working Student
    - Student

(Please indicate the extent to which you agree with each statement using a scale from 1 to 5, where 1 means "Strongly Disagree," 2 means "Disagree," 3 means "Neutral," 4 means "Agree," and 5 means "Strongly Agree.")

Knowledge and Preparedness for AI

7. I understand the basics of how AI works.
8. I understand how AI is applied in different industries.
9. I'm interested in the evolution of AI.
10. I feel that I have the knowledge needed to use AI.
11. I am confident in my ability to learn how to use AI tools.
12. Products and services using artificial intelligence make me excited.
13. Products and services using artificial intelligence make me nervous.

Possible Benefits of AI

14. Products and services using AI have more benefits than drawbacks.
15. AI will drive economic development and create new business opportunities.
16. AI can help reduce social inequalities by providing better access to services like healthcare and education.
17. I feel that AI can enhance global competitiveness for companies and countries.
18. I feel that AI will lead to more efficient and sustainable use of natural resources, improving environmental sustainability.
19. AI can increase the gap between different social groups.
20. Increase use of AI will lead to more diversity and inclusion in the workforce.
21. Increase use of AI will lead to more income inequality and a more polarized society.

AI Usage in Daily Life

22. How frequently do you use chatbots (e.g., customer support chatbots)?
23. How frequently do you use generative AI tools (e.g., ChatGPT, Gemini, Claude, etc.)?

24. How frequently do you use voice assistants (e.g., Alexa, Siri, etc.)?
25. How frequently do you use recommendation systems (e.g., Netflix, Amazon suggestions)?
26. How frequently do you use image recognition tools (e.g., facial recognition, Google Lens)?
27. How frequently do you use AI-powered translation services (e.g., Google Translate, DeepL)?
28. I believe that AI will increasingly become a part of my daily life in the future.
29. I am comfortable relying on AI for personal decisions.
30. AI tools help me make better decisions in my personal life.
31. AI will enable my company to better compete in the global market.
32. I use AI-based tools or systems at work.
33. AI tools may help reduce the amount of time it takes me to complete tasks.
34. I believe that AI will improve my productivity.
35. AI will help me focus on more strategic and value-added tasks by automating routine work.
36. I believe that AI can enhance creativity and innovation in my job role.
37. I feel prepared to use AI-based systems to perform my tasks at work.
38. Products and services using AI have profoundly changed my daily life in the past 3–5 years.
39. Products and services using AI will profoundly change my daily life in the next 3–5 years.

Perception of the Company's Use of AI

40. AI will change how I do my current job in the next 5 years.
41. AI will replace my current job in the next 5 years.
42. AI will play a key role in my company’s long-term business strategy.
43. I believe that AI provides benefits to the employees of companies that use it.
44. I believe that AI provides benefits to the customers of companies that use it.
45. My company is transparent about how AI is integrated into its processes.
46. If my company adopts AI, I believe it will positively impact my work and productivity.
47. I am willing to learn new skills to work with AI systems.
48. I believe that AI will help my company remain competitive in the market.
49. I am concerned that AI adoption in my company could lead to job displacement.
50. AI will increase collaboration and teamwork within my company.
51. AI may improve the quality of work by reducing human errors.
52. I believe my company’s use of AI will increase its competitiveness in the market.
53. AI will create new jobs and opportunities to make up for the jobs that are lost.