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# Adapting to Change: A Comprehensive Analysis of AI's Impact on Corporate Employment in Pakistan

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*The present thesis explores the particular implications of the use of Artificial Intelligence (AI) in Pakistani corporate sectors. We investigate how AI technologies have affected labour dynamics and employment positions in important areas including information technology, banking, and media through quantitative analysis.Our study identifies the types of jobs that are vulnerable to automation and assesses whether education and learning can help to mitigate this risk. By concentrating on these elements, we hope to offer a clear understanding of how AI will affect employment in Pakistan, covering issues like job displacement, shifts in the makeup of the workforce, and possible socioeconomic repercussions.*

*This research attempts to inform the formulation of strategic initiatives that maximise the advantages of AI adoption while guaranteeing the sustainability and inclusivity of corporate employment in Pakistan by providing a nuanced perspective on AI's impact on employment in that country*
Keywords: *Media Ai, Adapting change, Corporate employment , impact*

## Introduction

The English philosopher Hobbes, four centuries ago described a monstrous sea creature dubbed “Leviathan”, referring to a strong modern state and the rule of an absolute monarchy. Since then, the death of freedom has come to be associated with Leviathan. Today, with the arrival of the Fourth Industrial Revolution, artificial intelligence has surprisingly made significant contributions to society while simultaneously creating a number of social issues, like the technological gap, racial discrimination, class division, etc. AI has the potential to become a new "digital Leviathan" age, which would provide significant problems to society structure if it is not controlled and governed. The effect of AI on the labour market is one of them that has drawn a lot of scholarly interest. This paper examines the ways in which artificial intelligence impacts employment by reviewing the appropriate literature. It then makes relevant suggestions to improve the social stratification structure in the AI era, thereby fostering equitable society and common well-being (Yue, 2023).

The chapter has also identified the gap in the existing literature that this study intends to fill and has further outlined the aims, objectives, and research questions that the study would achieve and answer. Moving forward, this chapter has discussed the scope and significance of the study, concluding with an overview of the structure of the complete research report.



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## Problem Statement

Many people are worried that in the next ten or twenty years, artificial intelligence technologies will result in widespread unemployment in Pakistan just as other countries in the world. According to a recent study, "a substantial share of employment, across a wide range of occupations, at risk in the near future" will be affected by new information technologies (Frey and Osborne 2013).

Increased automation may lead to a rise in inequality, according to a 2015 analysis from Bank of America Merrill Lynch. According to study from Oxford University, over the next 20 years, technology might replace up to 35% of workers in the UK and 47% of workers in the US (Frey and Osborne, 2017). This information was included in the paper. The World Bank (2016) reports that far more jobs in developing nations are in jeopardy, with 69% of jobs in India, 72% of jobs in Thailand, 77% of jobs in China, and an astounding 85% of jobs in Ethiopia.

## Research Background

The relentless technological advancements in Pakistan particularly in Karachi has emerged as a transformative force which has significantly impacted the socio-economic landscape of the country (Arif, 2018). One of particular concerns that are raised by these advancements in technology has been regarding the inequality and job security caused by these advancements particularly by the rapid integration of artificial intelligence technologies (Yue, 2023). This research would undertake a comprehensive exploration to scrutinize the validity of these concerns by emphasizing the unique features of AI and drawing parallels between historical waves of automation and robotization and the recent advances facilitated by widespread AI adoption.

The distinctiveness of AI technologies lies in their potential to substantially alter the dynamics of productivity growth particularly among low-skilled workers. Observations have suggested that AI could lead towards lower capital costs in various sectors which could open avenues for significant opportunities in enhancing productivity (Ernst, Merola, and Samaan, 2019). This becomes important particularly for developing countries like Pakistan where the potential for leveraging AI for productivity gains is substantial. While these prospects exist at the same time there is a growing unease that AI would lead towards increase in unemployment and inequality in the country. To harness the full benefits of AI-driven technological advancements in Pakistan, a nuanced approach is therefore significant. While skills policies do and can play a crucial role, they alone can fall short of addressing the multifaceted challenges posed by AI integration (Rimsha and Ayleen, 2021).

Therefore, this research would focus on the necessity of new regulations that are tailored specifically for the digital economy which would aim to mitigate concentration in the market and ensure fair competition in the market and effective data protection.

## Justification of Study

In the wake of rapid advancements in artificial intelligence technologies, concerns have intensified regarding the potential widespread unemployment that could unfold in the next ten to twenty years due to it. These apprehensions are substantiated by findings from a important study that was conducted by Frey and Osborne (2013) which identified that a substantial share of employment across diverse occupations was and would be at further risk in the future due to the advent of new information technologies. The increase in automation has raised further concerns about the exacerbation of economic inequality. An analysis from Bank of America Merrill Lynch as quoted by Ernst, Merola, and Samaan (2019) showed a potential correlation between automation and rising inequality which has thus emphasized the need to scrutinize the socio-economic repercussions of AI adoption. Additionally, projections from the research of Oxford University quoted by Frey and Osborne (2017) revealed that over the next two decades, technology might replace up to 35% of workers in the UK and a staggering 47% of workers in the US. These statistics have underlined the urgency of


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comprehensively understanding the potential impact of AI on employment dynamics.

The gravity of the situation extends beyond developed economies. The report by the World Bank (2016) has painted a concerning picture for developing nations as well which has indicated that a significant percentage of jobs are in jeopardy due to increase in technology. The report showed that 69% of jobs in India, 72% in Thailand, 77% in China, and an astonishing 85% in Ethiopia are reported to be at risk which has increased the global significance of investigating the implications of AI on human employment with a particular emphasis on understanding the unique challenges and opportunities faced by developing economies including that of Pakistan.

Amidst these looming challenges, there is a pressing need for a focused study that not only validates these concerns but also explores the various aspects of the influence of AI on employment in a specific context of Pakistan. Therefore, this research is being conducted to provide a comprehensive analysis of the impact of AI on human employment in Pakistan.

**Research Purpose and Objectives**

The primary aim of this study is to conduct a comprehensive analysis of the influence of AI on human employment in Pakistan with a focus on understanding the impact of AI applications on labour dynamics, productivity, inequality, and economic growth (Yue, 2023). Following objectives would be achieved in order to fulfil this primary aim of the study.

- To assess the extent to which the current digital transformation driven by AI is adding or saving labour in various sectors within the Pakistani economy.
- To investigate the effects of AI-driven digital transformation on inequality in the workforce and its implications for social and economic disparities in Pakistan.
- To critically evaluate the question of whether AI has the capacity to replace human labour entirely considering the limitations and capabilities of current AI technologies.

**Research Questions**

The focused research would be providing answers to the following research questions which will be answered through a Likert scale.

- RQ1: Artificial Intelligence (AI) can really replace humans.
- RQ2: AI will effect equality and productivity in working sectors in near future.
- RQ3: We can specifically anticipate a rise in productivity and earnings growth as a result of the widespread use of AI in sectors that have not yet seen significant automation.
- RQ4: Your concern about the potential impact of Artificial Intelligence (AI) on your employment status.
- RQ5: You have personally experienced any changes in your employment status or income due to the influence of AI.
- RQ6: Have you actively sought to acquire new skills or education to adapt to changes in the job market influenced by AI?

***Hypothesis***

H1: Higher AI Integration Is Associated with Higher Rates of Job Displacement.

Null Hypothesis (H0): The rates of job displacement are not significantly correlated with the degree of AI integration across Pakistan's industries.
Alternative Hypothesis (H1): Increased rates of job displacement among human workers are linked to higher levels of AI integration in industries.

H2: AI's detrimental effects on employment are minimised by education and training.

The Null Hypothesis (H0) states that there is no discernible difference in employment outcomes between people who, in response to improvements in AI, have gotten relevant education and training and those who have not.
Hypothesis Alternative (H1): People who have participated in specialised education and training programmes designed to address the effects of


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artificial intelligence on the labour market tend to have better employment results than people who haven't gotten such preparation.

### *Scope of the Study*

This study would provide a thorough examination of the multifaceted impact of artificial intelligence on the employment landscape in Pakistan. The study would cover various aspects that would include but would not be limited to the effects that AI would have on job dynamics, income distribution, productivity and inequality in the country. Specifically, the study would scrutinize the extent to which AI-driven digital transformation has altered the nature of employment in different sectors across (Umasankar, Padmavathy, Shefali and Ashish, 2023) the Pakistani economy and would continue to do so. By exploring the relationships between AI adoption and labour dynamics, the research has aimed to shed light on whether the current wave of digital transformation is leading to a net addition or saving of labour. Further, the study would investigate the implications of AI on inequality and productivity within the workforce. Special attention would be given to sectors that have not yet experienced significant automation with a focus on anticipating potential positive impacts on productivity and earnings growth.

The scope of the study would also extend to assessing concerns that are related to the concentration of technological rents and profits from AI so that it could be understood as to how these benefits are being distributed among various stakeholders (Ellemers and Haslam, 2012) in the Pakistani context. This examination would critically evaluate and show whether a select few entities are disproportionately benefiting from the technological advancements brought forth by AI or the case is otherwise. Furthermore, the research would address the overarching question of whether AI has the potential to replace human labour entirely. By analysing the current capabilities and limitations of AI technologies, the study would concentrate on providing insights into specific tasks or occupations where AI may complement human workers rather than replacing them (Umasankar, Padmavathy, Shefali and Ashish, 2023). Lastly, the study would also conduct an exploration of the complementary role of human capabilities in conjunction with AI. The study would identify how human skills and expertise contribute to the effective implementation and utilization of AI technologies by emphasizing the collaborative potential between humans and AI for enhanced productivity.

### Significance of the Research

The analysis and review of past studies that are available on the impact of artificial intelligence on employment have highlighted a critical knowledge gap which necessitates that a focused study is carried out to enhance the understanding of the complicated social and economic repercussions that the adoption of AI can have (Yeboah, 2023). To address this gap, this research has proposed and would conduct a comprehensive examination of mechanization waves in the past to understand the transformations that they had in professions and employment landscapes over time. Further, in the current scenario, it is important to stress upon the vital role that an understanding of the influence of AI on employment would play in shaping sustainable development strategies and informing evidence-based policy-making in Pakistan. Through understanding the context of earlier mechanization waves, the research has aimed to draw parallels and distinctions between the experiences of advanced and developing economies in adapting to the automation of manual workforce (Guliyev, 2023).

Furthermore, the study is important as it would contribute valuable insights into the specific aspects of the impact of AI on the Pakistani workforce by recognizing the diverse economic landscape and unique socio-cultural factors at play in the context of Pakistan. This understanding is crucial not only for anticipation of potential challenges but also for identification of opportunities for skill development, education, and strategic economic diversification. This research has sought to provide a forward looking perspective that goes beyond a mere analysis of the past. It would thus be important for policymakers, government, businesses and educational institutes


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as it would offer actionable recommendations to navigate the transformative effects of AI on employment (Yue, 2023).

### Research Gap

The present studies on the effects of artificial intelligence on society, jobs, and the economy reveals a noticeable gap in the literature that this particular study aims to fill. This study has been focused to address this knowledge void by enhancing the understanding of the impact of AI particularly in the context of Pakistan. While there has been research that has aimed to understand the influence that AI have on employment, much of the research is predominantly centred on global trends (Franken and Wattenberg, 2019) or have been conducted in light of developed nations. There is a lack of sufficient attention to the socio-economic implications of AI in developing nations. While global projections have highlighted potential consequences on employment and vulnerability of jobs in developing countries due to AI, the existing body of research does not adequately address the unique challenges faced by developing countries. Adding to this, another significant gap in the existing literature is the limited focus on socio-economic characteristics of individual countries (Guliyev, 2023).

This study would rectify this by providing a tailored analysis focused on Pakistan and diverse dynamics and unique challenges that this region has.

### Research Structure

This research has been organized into five chapters with each focused on distinct aspects of the study. In the introductory first chapter, the background, aims and objectives and problem statement along with research questions and the scope of the study are presented. Moving on to the second chapter, an exhaustive review of existing literature is undertaken which is followed by the third chapter that has offered an overview of the research methodology applied in the study. The fourth chapter has undertaken the analysis of the collected data and discussed the findings in relation to the research objectives. The fifth and final chapter of the research has included the conclusion and recommendations derived from the study.

## LITERATURE REVIEW

### Introduction

This chapter has reviewed the past literature that was available on the topic. It begins with exploration of the concept of artificial intelligence that is followed by distinction between employment and paid work. Following this, an historical perspective on the impact of automation on employment and productivity is presented and then the chapter addresses the specific impact of AI on employment, efficiency, and productivity (Allen, 2009). Furthermore, the short-term and long-term impact of AI on employment is explored and the chapter ends with providing the conceptual and theoretical frameworks supporting the research

### Concept of Artificial Intelligence

Mohammed (2019) has defined artificial intelligence or AI as a form of intelligence that is exhibited by machines rather than natural human intelligence. This intelligence enables machines to perform diverse tasks including predicting and adapting to situations, making autonomous decisions and engaging in continuous learning processes.

### Distinction between Employment and Paid Work

Work is seen as a broader concept as compared to merely paid employment or work. Paid work results from a trade-off that involves leisure time, domestically produced commodities, and goods for the market. As discussed by Coyle and Nakamura (2022), this perspective is crucial for measurement especially considering the transition from non-market produced goods to market-produced goods in the 1970s. The advent of technology led to the displacement of homemade items as the women participation in the workforce increased. The question arises that whether this should be considered more or less work. A notable shift has occurred in recent decades as work has moved from external to internal measurements, an example of which is


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that the classification of stay-at-home moms as childcare workers might suggest a decrease in their numbers over the past four decades however time-use surveys since the 1970s have revealed a less pronounced decline in hours worked than indicated by measured employment hours (Dinkelman and Ngai, 2022).

Time-use studies show that despite a decrease in workforce hours, fathers are working longer hours including time spent on childcare and housekeeping. The consideration of childcare and household duties is essential for a comprehensive understanding of work. Even with advancements in AI, human interaction remains irreplaceable in personal and professional spheres particularly in finding fulfilling activities during leisure. While robots may provide care for bedridden elderly patients, the emotional satisfaction derived from human interaction is unlikely to be replicated (Huda, 2022). The anticipated increase in paid employment for caregiving is certain but the question remains whether higher salaries will also allow individuals to choose fewer working hours that will enable them to offer more uncompensated care to friends and family members (Dayanandan and Mehta, 2022).

**The Impact of Automation on Employment and Productivity from a Historical Perspective**

Historically, the process of specialization and the continuous division of labour has resulted in increased living standards and productivity. This shift is evident as robots have taken over routine and labour-intensive tasks. The modern farmers have invested in advanced equipment for industrial agricultural production contrasting with the traditional practice of manually cultivating the land with self-made tools for personal consumption. These supply chains which are characterized by automated processes and the involvement of highly skilled labor at each phase have facilitated the efficient and timely production of goods and services at consistently predetermined levels of quantity and quality. (Marglin, 1974; Braverman, 1974).

The earlier phases of technological progress were primarily notable by the automation of repetitive tasks. Common cognitive functions such as calculations, record-keeping, and information searches were efficiently handled by computers. Cordeschi (2006) has explained that industrial robots were programmed to automate repetitive manual tasks like welding, painting, and packaging which resulted in the replacement of workers in low and middle skilled roles.

The study conducted by Lund and Manyika (2017) for McKisney on the impact of technology on jobs in the long term by analysing history has discussed that advent of technology leads towards employment fluctuations with declines seen in some sectors which is offset by the creation of new jobs elsewhere. Throughout the evolution of advanced economies, significant shifts in employment sectors have transpired such as the decline in agriculture and more recently in manufacturing. Despite these changes, overall employment has continued to grow. An example is given of the US where the agricultural workforce dropped from 60 percent in 1850 to under 5 percent by 1970 and manufacturing employment reduced from 26 percent in 1960 to below 10 percent today. Similar trends are observed globally as well with China experiencing a one-third reduction in its agricultural workforce between 1990 and 2015. Despite these shifts, emerging industries and occupations have absorbed displaced workers.

Further, the study through historical examples such as the Industrial Revolution in England has shown that even if new jobs are generated by technology, average real wages remain stagnate for a period which causes challenges for individual workers (Allen, 2009). The study has suggested that technology creates more jobs than it eliminates often in unforeseen occupations (Lin, 2011). Further, automation has historically led to productivity growth by stimulating demand and job creation. As companies benefit from higher productivity, they can lower prices, pay higher wages and distribute profits which boosts demand and creates more jobs. Rising productivity has typically accompanied employment growth as increased incomes drive spending on goods and services.


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Lastly, the study has shown through historical analysis that technology has led to reduced work hours and increased leisure time. This shift has allowed people to enjoy more leisure time with the average workweek falling nearly 50 percent since the early 1900s (Lund and Manyika, 2017). This trend has given rise to new industries catering to leisure activities from sports like golf to entertainment like video games.

**Impact of AI on Employment, Efficiency and Productivity**

The current discussions on the impact of AI on employment has focused on a dual mechanism that involves both creation and destruction aspects which are indicated by theoretical analyses by various researchers (Stafie and Grosu, 2022). The compensating effect that stems from the creation mechanism suggests that AI holds the potential to enhance employment, generate new job opportunities and grow the economy. On the other hand, the replacement effect that functions as the destruction mechanism causes job losses as new technology supplants older technology that leads to the inevitable displacement of jobs tied to outdated technologies (Gonzales-Inca et al., 2022). The concern about humans being replaced by robots intensifies with the realization that AI can replace jobs across various domains (Vrontis et al., 2022).

The technological revolution has served as a concentrated manifestation of technological progress that has fostered economic growth and transformed the social employment structure by supporting the industrial revolution. The introduction of AI as a new technology is theoretically linked to increased labour productivity (Piątkowski, 2020). Furthermore, technological advancements lead to cost reduction along with more efficient resource utilization, and increased capital output. Consequently, the prevailing trend leans towards the substitution effect of machines. Anticipated technological advancements and productivity boosts are thus expected to drive demand for essential components in the creation of new goods in the short term (Wong-Pinto et al., 2020). While process innovation yields cost savings, it concurrently diminishes the demand for labour which contributes to an escalation in the unemployment rate.

Frey and Osborne (2017) have discussed that before the emergence of artificial intelligence, the prevailing belief was that only highly skilled workers possessed the capabilities required for non-routine manual and cognitive tasks which demanded skills like dexterity, creativity, and social intelligence. However, as explained by Vermeulen and Psenner (2022), the recent developments in AI indicate that an increasing number of non-routine cognitive functions can be automated. In its current applications, AI refers to computer software that has the capability to predict the future and identify patterns in data through sophisticated algorithmic procedures (Das and Behera, 2017). While AI may be capable of tasks like formulation of medical projections, recommendations of treatments, detection of cancer and identification of fraud, the high skilled workers can also face a disproportionate impact from AI unlike earlier automation waves. It is important to note that even if AI automates complex and non-routine operations, it does not necessarily imply the outright replacement of workers.

In general, technological advancements enhance labour efficiency by partially taking over or expediting worker responsibilities. This can lead to reduced manufacturing costs and increased output per effective labour input which can potentially result in decreased employment due to mechanization that is called the substitution effect. However, if there is sufficient demand for the good or service lower production costs might drive higher output through what is called the productivity effect. In adapting to the Fourth Industrial Revolution that is marked by blurred boundaries between the digital, biological, and physical subjects, technologists are exploring opportunities that are presented by cutting-edge developments like AI, robotics and the internet of things (Dong et al., 2020). These technologies hold the potential to instigate significant socioeconomic changes and democratize access to services such as the internet, education and healthcare.


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**Impact of AI on Employment in Short Run**

The primary issue regarding artificial intelligence revolves around how the individuals will be navigated through the associated disruptions through AI and what the difficulties will be in the coming years. A prevalent belief among most economists is that people will endure challenges due to a decrease in the demand for their skills which will potentially lead to extended periods of unemployment and a heightened need for worker retraining. Some jobs may become unfeasible or undesirable for employees. While it is conceivable to prepare the younger generation for a future where robots assume many roles the task of retraining older individuals is considered more formidable by economists (Yeboah, 2023). There is a reluctance to embark on new beginnings that is coupled with a sense of loss for what has been relinquished. The hate to a notion of progress that diminishes both prestige and financial standing implies that overcoming the loss of status may be more challenging in the short term as compared to coping with income reductions.

The questions around AI and employment in short term would revolve around the understanding of the nature of work and its importance along with resolving the question that whether employment is primarily valuable for the monetary gains it yields or does it hold significance for the structure it provides to lives. The discourse surrounding the potential impact of automation on employment essentially centres on how people will utilize their leisure time. Therefore, it becomes crucial to distinguish between the prospect of how people will allocate time if robots assume their jobs and the challenge of establishing a stable and equitable income distribution in such a scenario (Levin et al, 2012). It is imperative to recognize that the solutions to these issues may substantially differ from short-term strategies but nonetheless, it is crucial to acknowledge that the handling of short-term challenges as these will inevitably shape the long-term outcomes.

**2.7 Impact of AI on Employment in Long Run**

The failure to differentiate between short-term and long-term consequences can contribute to the confusion regarding the anticipated outcomes of artificial intelligence on employment and unemployment. Many of the people seek to project the future on a more extended scale when they are contemplating the impacts of artificial intelligence and increased automation on their lives. Rather than concentrating solely on the recent five years, it is beneficial to compare the current lifestyle with that of ancestors who lived ten generations ago. Allen (2015) has explained that in the 19$^{th}$ century, a majority of Americans engaged in agricultural work with minimal involvement in other forms of employment during their leisure time. In contemporary times, only a small portion of Americans are directly employed in agriculture while the public school system employs more individuals than the agricultural sector. In essence, the present occupations of individuals differ significantly as compared to that of our grandparents and a substantial portion of individuals today occupies roles that did not exist in the preceding generation

If it is seen in the long term, it becomes apparent that automation has not led to a rapid decline in employment. Interestingly, many economists find it confusing that paid employment has remained remarkably steady despite economic growth and one might have anticipated increased spending on leisure activities with rising incomes. Contrary to common intuition, employment tends to decrease with technological advancements in the long run. Both the overall employment rate and the number of hours worked have experienced declines. This disparity between the perceptions of the impact of technological progress on employment and the actual reality highlights two key observations. Firstly, employment and work hours have not decreased as dramatically as expected. Secondly, economists often conceptualize a system wherein those desiring employment can find opportunities which reveals a nuanced understanding of the dynamics between technology and the labour market (Yeboah, 2023).


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**Theoretical Framework**

The theoretical foundation for this research would be based on the theoretical framework of Social Identity Theory to investigate the impact of artificial intelligence on human employment in Pakistan. The Social Identity Theory proposes that the individuals form social identities by categorizing themselves and others into social groups that are based on shared characteristics which can influence their perception and response to AI-driven developments in the workforce (Ellemers and Haslam, 2012). The people have the tendency to classify themselves and others into social groups that can potentially be based on factors like technological proficiency, adaptability to AI-driven changes, and involvement in automated industry sectors. This social classification is followed by forming a social identity where people develop a sense of belonging and identity within their social groups (Scheepers and Ellemers, 2019) that can shape their support or opposition to AI in the workplace

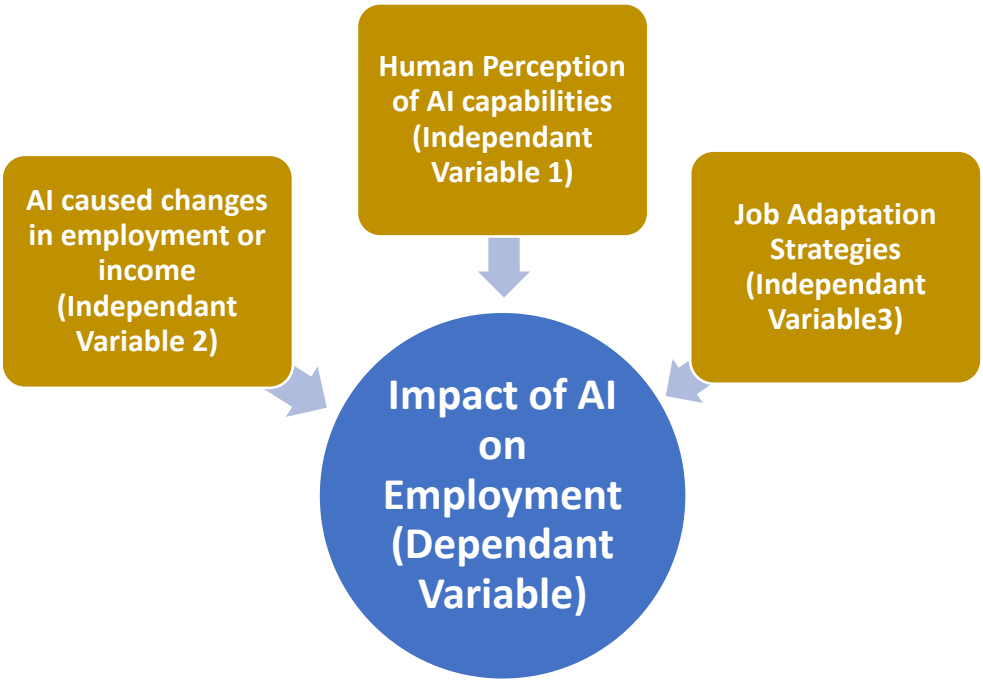
The theory can be used to understand reactions to AI in the workplace based on the relationships of individuals with these technological advancements. Workers experiencing job displacement would react more negatively while those in sectors embracing AI would respond more positively. Further, social identities influenced by beliefs about AI can impact group dynamics that can lead towards the formation of subgroups based on perspectives on technological growth that would influence cooperation and organizational culture.

The Theory of Technological Determinism by Thorstein Veblen will also serve as theoretical basis for this research. This theory ash focused on two key principles that are the autonomy of technology and the idea that technological changes drive social transformations (Lawson, 2013). This theory is further built on by Li Shuo who proposed a categorization of technological determinism into hard and soft forms. Hard technological determinism takes an extreme stance that technology solely dictates social development and downplays social constraints on technological progress (Yue, 2023). On the other hand, soft technological determinism acknowledges the reciprocal influence between technology and society.

With the emergence of artificial intelligence, the essence of technological determinism has become more visible. Research has indicated that the Fourth Industrial Revolution has brought about a surge in human-like intelligence due to advancements in computer speed, data collection, storage, and algorithms (Agrawal et al, 2019). This heightened intelligence is profoundly impacting human employment by increasing the contradiction between sluggish labour productivity growths and evolving employment demands. Therefore, societal issues such as class disparities and income inequality are becoming more pronounced and thus technology is evidently shaping human life and steering the course of social development.

***Conceptual Framework:***


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## RESEARCH METHODOLOGY

### Chapter Introduction

This upcoming chapter offers readers an insight into the research methodology employed by the researcher. The chapter begins with outlining the research approach, philosophy, and design adopted for the study. Subsequently, it has elaborated on the data collection method along with the sampling technique. Additionally, the tools used for data analysis has been discussed and the chapter has concluded by examining the ethical considerations taken into account by the researcher.

### Research Philosophy

Research philosophy constitutes a crucial aspect of research as it represents the underlying beliefs that guides the entire research process. Researchers can typically adopt from among three main research philosophies. The first is positivism which emphasizes on obtaining factual data through observation. This philosophy is commonly employed in statistical research particularly when the researcher's role is more limited (Ryan, 2018). Researchers following a positivist approach often opt for a quantitative research design. The second approach is interpretivism that involves an in-depth study of respondents' lives. Researchers utilizing this philosophy often employ qualitative research methods to establish an empathic connection with the selected respondents (Alharahsheh and Pius, 2020). The third philosophy is pragmatism which combines elements of both positivism and interpretivism. For the specific research at hand, the researcher would adopt positivism as the research philosophy. This choice aligns with the study's focus on statistical data and understanding human behaviour. The quantitative research design will be in harmony with this chosen research philosophy as well

### Research Approach

Researchers can employ either of the two approaches in their studies that are inductive and deductive research approaches. The inductive research approach begins with a specific observation and leads to a broader general idea. This approach is commonly used when researchers are developing new theories or hypotheses particularly in cases where limited literature exists on the specific topic and there is no pre-existing theory to test (Soiferman, 2010). On the other hand, the deductive approach starts with a broad observation and narrows down to a specific conclusion. Researchers opt for deductive approaches when testing and validating an already formulated theory (Gaus, 2017). In the context of this research, the deductive research approach is


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employed. This choice is made because the research aims to test an already established hypothesis regarding the connection between AI and human employment. Given that the deductive approach is well-suited for such research, the researcher has opted for this specific research approach.

**Research Design**

In general, researchers have the option to choose between qualitative and quantitative research designs. Qualitative research design involves expressing research through words and text making it well-suited for understanding ideas, concepts, thoughts, and various experiences (Goertz and Mahoney, 2012). It enables the collection of detailed insights into the topic under consideration. On the other hand, quantitative research design utilizes numbers, figures, and statistics to validate theories and hypotheses and is suitable for the generalization of facts and the quantification of human behaviour and attitudes.

For the specific research around AI and its impact of employment in Pakistan, a quantitative research design using descriptive method that will make use of panel data analysis technique for testing links between various variables will be employed for several reasons. Firstly, the research focuses on quantifiable aspects of human employment and productivity that aligns with the strengths of the quantitative research method (Queirós, Faria, and Almeida, 2017). The connection of AI with different aspects of human employment involves variables and quantitative research design is well-suited for testing relationships and links between such variables. Additionally, this design allows for a larger sample size that will reduce errors and biases in the data and enhancing the accuracy of results and findings.

**Data Collection Method and Research Instrument**

Researchers can utilize two methods for collecting research data that are primary and secondary data collection methods. In the primary method, researchers gather first-hand and on the ground data themselves while in the secondary method they analyse past research conducted by other researchers or organizations (Ajayi, 2017). Primary data collection yields accurate and specific data directly relevant to the researcher's study. This method provides updated information that increases the reliability of both the data and the collection process compared to secondary sources. However, primary data collection is time-consuming and costly as researchers need to personally engage with all respondents (Lowry, 2015). On the other hand, secondary research offers advantages in terms of time and cost as this data is readily available at lower rates or even free online. It is suitable for information that requires resources beyond an individual researcher's capacity such as large organizations or government data and is applicable for data spanning a considerable period. Nevertheless, the drawback of secondary data is its potential for being outdated and not originally intended for the researcher's specific purpose (Tasić and Bešlin Feruh, 2012).

The research at hand will employ a primary data collection method for several reasons. Firstly, the shift toward AI is a recent trend that necessitates updated knowledge. Secondly, the research is focusing on a specific country which requires that the researcher obtain data directly from the source to enhance the reliability and accuracy of the findings (Wilcox et al., 2012). Within primary quantitative research, various methods are available, such as surveys, interviews, controlled observations, and polls. This study will utilize survey questionnaires that will distributed online to reach a broader respondent base for three way ANOVA analysis. The primary variables in the research would be:

**Dependant Variables:**


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| | |
|---|---|
| **Impact of AI on Employment (DV)** | The following variable can be obtained from the data collected regarding the human concern about the potential impact of Artificial Intelligence (AI) on employment status. |

**Independent Variables:**

| | |
|---|---|
| **Human Perception of AI capabilities (IV1)** | This variable can be derived from responses obtained from the survey, combining them to create a variable measuring the general perception of AI's capabilities. |
| **AI caused changes in employment or income (IV2)** | This binary variable (Yes/No) can be derived from the data about personal human experience with any changes in employment status or income due to the influence of AI |
| **Job Adaptation Strategies (IV3) -** Human Adaptation Strategies for AI Influenced Job Market | This binary variable (Yes/No) can be derived from the data of human seeking to acquire new skills or education to adapt to changes in the job market influenced by AI |

**Sample Size**

Our goal is to gain an understanding of how AI is affecting the employment of our target population by conducting 210 samples and analysing them through sample testing.

***Population***

We will analyse the overall influence of AI on the corporate jobs of our sample population, taking into consideration age groups ranging from 18 to 50, irrespective of gender.

**Sample Selection**

For this research, stratified sampling would be employed. Stratified sampling is a variant of random sampling that involves dividing the population into subgroups or strata followed by random sampling within each stratum (Parsons, 2014). In this case, the population of customers would be stratified based on age and other demographics and then random sampling was conducted within each stratum with only one condition which was the age factor being above 18 years of age. This sampling method is chosen for its ability to provide greater precision and accuracy compared to simple random sampling (Stehman, 2012).

**Data Analysis**

The collected data would be analysed using SPSS to generate frequency and mean tables. The researcher would utilize the Pearson Chi Square that is a tool to determine if the difference between the expected and actual data is the result of random variation or a relationship between the variables being examined. (Schober, Boer, and Schwarte, 2018). Following this, the researcher would employ logistic regression techniques to analyse the dependent variable against the independent variables in the research. Logistic regression is crucial for establishing relationships between the dependent and independent variables (Ranganathan, Pramesh, and Aggarwal, 2017). These techniques are well-suited for the analysis of quantitative data and would thus be used by the researcher.

**Ethical Considerations**

Ethics constitute a crucial element of the research process and their absence can pose a challenge to the credibility of both the research and its findings. Therefore, ethics should be integrated into every aspect of the research methodology (George, 2016). As the research involves first-hand data collection, ensuring privacy becomes paramount.


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To address this, the researcher would obtain written consent from each respondent before gathering data and participants would have the option to withdraw at any point during the data collection process. Minimal personal data would be collected and none that could potentially identify the participants would be published. Additionally, participants would be assured that their names and personal details will not be disclosed to any third party. The collected data would be securely stored in both hard and soft copies. In the analysis phase, the researcher would ensure that responses are not exaggerated and that no bias is introduced into the process.

## RESULTS

### 4.1. Demographic characteristic of sample

**Table 4.1.1 - Gender**

**Statistics**

Please specify your gender:

| | | |
|---|---|---|
| N | Valid | 210 |
| | Missing | 0 |

**Please specify your gender:**

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | Female | 53 | 25.2 | 25.2 | 25.2 |
| | Male | 157 | 74.8 | 74.8 | 100.0 |
| | Total | 210 | 100.0 | 100.0 | |

Table 4.1.1 shows the number of people in our study based on their gender. It indicates that out of the total participants (210), 53 were female, making up 55.2% of the group. On the other hand, there were 157 male participants, constituting 74.8% of the total. This suggests that more males took part in the study compared to females.

**Table 4.1.2 - Age**

**Statistics**

What is your age?

| | | |
|---|---|---|
| N | Valid | 210 |
| | Missing | 0 |

**What is your age?**

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | 18-2 | 94 | 44.8 | 44.8 | 44.8 |
| | 25-3 | 82 | 39.0 | 39.0 | 83.8 |
| | 35-4 | 26 | 12.4 | 12.4 | 96.2 |
| | 45-5 | 7 | 3.3 | 3.3 | 99.5 |
| | 55 a | 1 | .5 | .5 | 100.0 |
| | Total | 210 | 100.0 | 100.0 | |


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Table 4.1.2 provides an overview of the age distribution among the participants in our study. Out of the total 210 individuals surveyed, the majority fell within the age range of (18-25), constituting 44.8% of the sample. Following closely, 39% of the participants belonged to the age group of (25-35). A smaller proportion of respondents were in the age brackets of (35-45), comprising 12.4% of the sample, while individuals aged (45-55) accounted for 3.3%. Only one participant, representing 0.5% of the total, was aged (55 and above).

**Table 4.1.3 - Qualification**

**Statistics**

What is your highest qualificatior

| | | |
|---|---|---|
| N | Valid | 210 |
| | Missing | 0 |

**What is your highest qualification?**

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | Bachelor's degr | 119 | 56.7 | 56.7 | 56.7 |
| | Intermediate/A Le | 30 | 14.3 | 14.3 | 71.0 |
| | Master's degree | 32 | 15.2 | 15.2 | 86.2 |
| | Ph.D. Degree | 4 | 1.9 | 1.9 | 88.1 |
| | Vocational/techni | 25 | 11.9 | 11.9 | 100.0 |
| | Total | 210 | 100.0 | 100.0 | |

Table 4.1.3 presents the educational qualifications of the participants in our study. Out of the total 210 individuals surveyed, 30 respondents (14.3%) reported having Intermediate/A Levels or less education. The majority of participants, comprising 119 individuals (56.7%), held Bachelor's degrees. A smaller proportion of respondents, 4 individuals (1.9%), had obtained Ph.D. degrees, while 25 participants (11.9%) had undergone vocational/technical training. Additionally, 32 respondents (15.2%) reported having Master's degrees.

**Table 4.1.4 - Employment status**

**Statistics**

What is your current employmen

| | | |
|---|---|---|
| N | Valid | 210 |
| | Missing | 0 |

**What is your current employment status?**

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | Full-time employment | 119 | 56.7 | 56.7 | 56.7 |
| | Home-maker | 2 | 1.0 | 1.0 | 57.6 |
| | Part-time employment | 31 | 14.8 | 14.8 | 72.4 |
| | Retired | 2 | 1.0 | 1.0 | 73.3 |
| | Self-employed | 39 | 18.6 | 18.6 | 91.9 |
| | Student | 17 | 8.1 | 8.1 | 100.0 |
| | Total | 210 | 100.0 | 100.0 | |



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Table 4.1.4 provides an overview of the employment status of participants in our study. Out of the total 210 individuals surveyed, the majority, 119 respondents (56.7%), reported being employed full-time. Part-time employment was the next most common category, with 31 individuals (14.8%) working in this capacity. Additionally, 39 participants (18.6%) identified as self-employed. A small percentage of respondents, 2 individuals each (1%), were homemakers and retired. Finally, 17 participants (8.1%) indicated that they were students.

**Table 4.1.5 - Sector or industry of work**

**Statistics**

Which sector or industry do you \

| | | |
|---|---|---|
| N | Valid | 210 |
| | Missing | 0 |

**Which sector or industry do you work in?**

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | Finan | 23 | 11.0 | 11.0 | 11.0 |
| | Healt | 16 | 7.6 | 7.6 | 18.6 |
| | IT | 83 | 39.5 | 39.5 | 58.1 |
| | Media | 55 | 26.2 | 26.2 | 84.3 |
| | Other | 33 | 15.7 | 15.7 | 100.0 |
| | Total | 210 | 100.0 | 100.0 | |

Table 4.1.5 outlines the sectors or industries of work reported by participants in our study. Out of the total 210 individuals surveyed, the highest number, 83 respondents (39.5%), indicated working in the Information Technology (IT) sector. The Media sector was the next most prevalent category, with 55 individuals (26.2%) employed therein. Additionally, 23 participants (11%) reported working in the Finance sector, while 16 individuals (7.6%) were engaged in the Healthcare sector. Furthermore, 33 respondents (15.7%) identified their work in other sectors not explicitly listed, demonstrating diversity in industry.

**Table 4.2.1 - Artificial Intelligence (AI) can replace humans**

**Statistics**

Artificial Intelligence (AI) can real

| | | |
|---|---|---|
| N | Valid | 210 |
| | Missing | 0 |



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**Artificial Intelligence (AI) can really replace humans.**

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | Agree | 85 | 40.5 | 40.5 | 40.5 |
| | Disag | 44 | 21.0 | 21.0 | 61.4 |
| | Neutr | 47 | 22.4 | 22.4 | 83.8 |
| | Stron | 34 | 16.2 | 16.2 | 100.0 |
| | Total | 210 | 100.0 | 100.0 | |

Table 4.1.6 presents participants' views on whether Artificial Intelligence (AI) can replace humans. Out of 210 respondents, 44 (21.2%) disagreed, 47 (22.4%) were neutral, 85 (40.5%) agreed, and 34 (16.2%) strongly agreed.

**Table 4.2.3. - Artificial Intelligence (AI) affect**

**Statistics**

AI will effect equality and product

| | | |
|---|---|---|
| N | Valid | 210 |
| | Missing | 0 |

**AI will effect equality and productivity in working sectors in near future**

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | Agree | 116 | 55.2 | 55.2 | 55.2 |
| | Disag | 14 | 6.7 | 6.7 | 61.9 |
| | Neutr | 31 | 14.8 | 14.8 | 76.7 |
| | Stron | 49 | 23.3 | 23.3 | 100.0 |
| | Total | 210 | 100.0 | 100.0 | |

Table 4.2.3 presents the opinions of the public regarding the impact of artificial intelligence (AI). Of the 210 individuals surveyed, 14 (6.7%) answered they didn't think AI would have a big influence. A further thirty-one (14.8%) expressed no strong opinion. The majority, 116 (55.2%), concurred that AI has an impact. Furthermore, 49 respondents (23.3%) firmly agreed that AI has an effect. This indicates that most participants think AI matters, and many of them have strong opinions about it

.



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**We can specifically anticipate a rise in productivity and earnings growth as a result of the widespread use of AI in sectors that have not yet seen significant automation?**

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | Agree | 119 | 56.7 | 56.7 | 56.7 |
| | Disagre | 13 | 6.2 | 6.2 | 62.9 |
| | Neutral | 29 | 13.8 | 13.8 | 76.7 |
| | Strongl | 49 | 23.3 | 23.3 | 100.0 |
| | Total | 210 | 100.0 | 100.0 | |

An understanding of participant opinions regarding the use of artificial intelligence (AI) may be found in Table 4.2.4. Thirteen (6.2%) of the 210 respondents to the study expressed disagreement with the premise of AI adoption. In a similar vein, 29 people (13.8%) had no opinion. A total of 119 people (56.7%) agreed that AI should be adopted, and 49 participants (23.3%) strongly agreed with this statement. These findings demonstrate that a sizable portion of participants strongly agree with the use of AI, and many favour it

**Table 4.2.5. - AI Impact Concern Rating**

**On a scale from 1 to 5, where 1 is 'Not concerned at all' and 5 is 'Very concerned,' please rate your concern about the potential impact of Artificial Intelligence (AI) on your employment status.**

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | 1 | 37 | 17.6 | 17.6 | 17.6 |
| | 2 | 40 | 19.0 | 19.0 | 36.7 |
| | 3 | 46 | 21.9 | 21.9 | 58.6 |
| | 4 | 62 | 29.5 | 29.5 | 88.1 |
| | 5 | 25 | 11.9 | 11.9 | 100.0 |
| | Total | 210 | 100.0 | 100.0 | |

The participants' ratings of their level of concern regarding the possible effects of artificial intelligence (AI) on their employment position are shown in Table 4.2.5. 37 respondents (17.6%) out of the 210 people that were polled gave a score of 1, meaning they had no worry at all. In a similar vein, 40 people (19%) ranked their concern as a 2, whilst 46 people (21.9%) selected a grade of 3. Sixty-two people (29.5%), or a higher percentage of respondents, rated their level of concern as moderate (4). Finally, 25 individuals (11.9%) expressed extreme anxiety about the possible effects of AI on their employment situation by rating their issue as a 5. These findings demonstrate that people's concern over the potential impact of AI on their



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**Table 4.2.6. - Personal Experience with AI Impact on Employment and Income**

**Statistics**

You have personally experience

| | | |
|---|---|---|
| N | Valid | 210 |
| | Missing | 0 |

**You have personally experienced any changes in your employment status or income due to the influence of AI.**

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | Agree | 117 | 55.7 | 55.7 | 55.7 |
| | Disag | 21 | 10.0 | 10.0 | 65.7 |
| | Neutr | 26 | 12.4 | 12.4 | 78.1 |
| | Stron | 46 | 21.9 | 21.9 | 100.0 |
| | Total | 210 | 100.0 | 100.0 | |

The individual experiences of participants about the effects of computational intelligence (AI) on their income and work are listed in Table 4.2.6. Of the 210 people who participated in the study, 21 (10%) denied that AI had an impact on their income or place of employment. In a similar vein, 26 people (12.4%) held no opinion. 46 people (21.9%) strongly agreed with the assertion that AI has affected their career and income, as did the majority of participants, including 117 persons (55.7%). These results show that a sizable portion of participants have seen how AI has affected their career and income, and many of them have expressed agreement or substantial concurrence with this.

**Table 4.2.7. - Adaptation Efforts in Response to AI Influence on Job Market**

**Please rate whether you have actively sought to acquire new skills or education to adapt to changes in the job market influenced by AI.**

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | Agree | 122 | 58.1 | 58.1 | 58.1 |
| | Disag | 16 | 7.6 | 7.6 | 65.7 |
| | Neutr | 23 | 11.0 | 11.0 | 76.7 |
| | Stron | 49 | 23.3 | 23.3 | 100.0 |
| | Total | 210 | 100.0 | 100.0 | |

The participant's attempts to adjust to the impact of artificial intelligence (AI) on the workforce are shown in Table 4.2.7. 16 respondents (7.6%) out of the 210 people polled disagreed that adapting to AI's effects were necessary. Furthermore, 23 people (11%) had no opinion on the matter. Nonetheless, the majority of participants—122 people, or 58.1 percent—agreed that measures to adapt are required in light of AI's impact on the corporate sector. Moreover, 49 people (23.3%) strongly concurred with this statement. These findings demonstrate that a large number of individuals recognize the significance of adapting to AI's effects on the job market. Many of them concur, or concur strongly, that adaptation efforts are essential



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## 4.3. Hypothesis Testing

**Case Processing Summary**

| | Cases | | | | | |
|---|---|---|---|---|---|---|
| | Valid | | Missing | | Total | |
| | N | Percent | N | Percent | N | Percent |
| Artificial Intelligence (AI) can really replace humans. * You have personally experienced any changes in your employment status or income due to the influence of AI. | 210 | 100.0% | 0 | 0.0% | 210 | 100.0% |

**Artificial Intelligence (AI) can really replace humans. * You have personally experienced any changes in your employment status or income due to the influence of AI. Crosstabulation**

Count

| | | You have personally experienced any changes in your employment status or income due to the influence of AI. | | | | |
|---|---|---|---|---|---|---|
| | | Agree | Disag | Neutr | Stron | Total |
| Artificial Intelligence (AI) can really replace humans. | Agree | 67 | 3 | 8 | 7 | 85 |
| | Disag | 23 | 7 | 7 | 7 | 44 |
| | Neutr | 20 | 8 | 10 | 9 | 47 |
| | Stron | 7 | 3 | 1 | 23 | 34 |
| Total | | 117 | 21 | 26 | 46 | 210 |

**Chi-Square Tests**

| | Value | df | Asymptotic Significance (2-sided) |
|---|---|---|---|
| Pearson Chi-Square | 71.803[a] | 9 | <.001 |
| Likelihood Ratio | 65.209 | 9 | <.001 |
| N of Valid Cases | 210 | | |

a. 4 cells (25.0%) have expected count less than 5. The minimum expected count is 3.40.

### 4.3.2. H-2: Education and Training Reduce AI's Harmful Employment Impact

**Table 4.3.2**

**Case Processing Summary**

| | Cases | | | | | |
|---|---|---|---|---|---|---|
| | Valid | | Missing | | Total | |
| | N | Percent | N | Percent | N | Percent |
| AI will effect equality and productivity in working sectors in near future * We can specifically anticipate a rise in productivity and earnings growth as a result of the widespread use of AI in sectors that have not yet seen significant automation? | 210 | 100.0% | 0 | 0.0% | 210 | 100.0% |


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**AI will effect equality and productivity in working sectors in near future * We can specifically anticipate a rise in productivity and earnings growth as a result of the widespread use of AI in sectors that have not yet seen significant automation? Crosstabulation**

Count

| | | We can specifically anticipate a rise in productivity and earnings growth as a result of the widespread use of AI in sectors that have not yet seen significant automation? | | | | |
|---|---|---|---|---|---|---|
| | | Agree | Disagre | Neutral | Strongl | Total |
| AI will effect equality and productivity in working sectors in near future | Agree | 103 | 1 | 8 | 4 | 116 |
| | Disag | 2 | 7 | 2 | 3 | 14 |
| | Neutr | 9 | 3 | 17 | 2 | 31 |
| | Stron | 5 | 2 | 2 | 40 | 49 |
| Total | | 119 | 13 | 29 | 49 | 210 |

**Chi-Square Tests**

| | Value | df | Asymptotic Significance (2-sided) |
|---|---|---|---|
| Pearson Chi-Square | 238.101[a] | 9 | <.001 |
| Likelihood Ratio | 194.420 | 9 | <.001 |
| N of Valid Cases | 210 | | |

a. 6 cells (37.5%) have expected count less than 5. The minimum expected count is .87.

**Table 4.2.3**

**Case Processing Summary**

| | Cases | | | | | |
|---|---|---|---|---|---|---|
| | Valid | | Missing | | Total | |
| | N | Percent | N | Percent | N | Percent |
| On a scale from 1 to 5, where 1 is 'Not concerned at all' and 5 is 'Very concerned,' please rate your concern about the potential impact of Artificial Intelligence (AI) on your employment status. * Please rate whether you have actively sought to acquire new skills or education to adapt to changes in the job market influenced by AI. | 210 | 100.0% | 0 | 0.0% | 210 | 100.0% |



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**On a scale from 1 to 5, where 1 is 'Not concerned at all' and 5 is 'Very concerned,' please rate your concern about the potential impact of Artificial Intelligence (AI) on your employment status. * Please rate whether you have actively sought to acquire new skills or education to adapt to changes in the job market influenced by AI. Crosstabulation**

Count

| | | Please rate whether you have actively sought to acquire new skills or education to adapt to changes in the job market influenced by AI. | | | | |
|---|---|---|---|---|---|---|
| | | Agree | Disag | Neutr | Stron | Total |
| On a scale from 1 to 5, where 1 is 'Not concerned at all' and 5 is 'Very concerned,' please rate your concern about the potential impact of Artificial Intelligence (AI) on your employment status. | 1 | 8 | 6 | 2 | 21 | 37 |
| | 2 | 21 | 6 | 8 | 5 | 40 |
| | 3 | 24 | 3 | 10 | 9 | 46 |
| | 4 | 52 | 1 | 2 | 7 | 62 |
| | 5 | 17 | 0 | 1 | 7 | 25 |
| Total | | 122 | 16 | 23 | 49 | 210 |

**Chi-Square Tests**

| | Value | df | Asymptotic Significance (2-sided) |
|---|---|---|---|
| Pearson Chi-Square | 65.333[a] | 12 | <.001 |
| Likelihood Ratio | 65.396 | 12 | <.001 |
| N of Valid Cases | 210 | | |

a. 8 cells (40.0%) have expected count less than 5. The minimum expected count is 1.90.

**Summary of Findings**

In our study on the impact of Artificial Intelligence (AI) on employment in Pakistan, our findings strongly support our hypotheses. Firstly, we examined how AI integration correlates with job displacement. Our statistical tests, including the Pearson chi-square test ($\chi^2 = 71.803$, $p < 0.001$) and the Likelihood ratio test ($\chi^2 = 65.209$, $p < 0.001$) (Table 4.2.1), revealed significant associations. Specifically, we found that as AI becomes more prevalent, more individuals experience job loss. This confirms our initial hypothesis that increased AI integration leads to higher rates of job displacement.

Furthermore, we investigated the role of AI-related education and training programs in improving job outcomes amidst AI-driven changes in the job market. The results of our analysis, supported by the Pearson chi-square test ($\chi^2 = 238.101$, $p < 0.001$) and the Likelihood ratio test ($\chi^2 = 65.333$, $p < 0.001$) (Table 4.2.2), provided compelling evidence. We observed that individuals who participated in AI-related training programs had significantly better job outcomes compared to those who did not undergo such training. These findings underscore the critical importance of AI-related education and training initiatives in equipping individuals with the skills necessary to thrive in a rapidly evolving job landscape shaped by AI advancements.

**Discussion, Conclusion & Recommendations**

***Discussion of Analysed Data***

The analysis of demographic characteristics and statistical factors in our research illuminates the varied makeup of the sample and provides important information about a range of aspects of the job marketplace.

***Gender Distribution***

The gender distribution of participants indicates a significant male majority, with 74.8% of the sample being male and 25.2% being female.


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This disparity in gender needs to be carefully considered because it could introduce response variances that should be investigated in later analyses.

***Age Distribution***

There is a high proportion of the respondents in those between the ages of 18 and 25 (44.8% of the sample), according to the age distribution. This younger generation's domination is to be expected given their increased exposure to and flexibility with new technologies. It is crucial to record viewpoints from a range of age groups, as evidenced by the steady decrease in representation in groups of older individuals.

***Educational Background***

There is a wide range of educational backgrounds; 56.7% of the population has a bachelor's degree. One significant finding is the proportion of respondents (14.3%) with Intermediate/A Levels or less schooling, highlighting the inclusion of a diverse range of academic levels. The inclusion of those with vocational/technical training (11.9%) and Ph.D. holders (1.9%) provides further detail to the study's educational diversity.

***Employment Status***

The majority of participants (56.7%) are employed full-time, indicating that this is a working group that is actively involved. People who are self-employed (18.6%) and students (8.1%) are included in the study to help provide a more thorough understanding of the range of work statuses covered.

***Industry Distribution***

With 39.5% of the participants, the corporate marketplace split reveals an influential position in the information technology (IT) sector. At 26.2%, the media industry comes in second, with a sizable presence from a variety of businesses. Respondents' (15.7%) identification of their employment in industries not on the list further emphasises the diversity and highlights the varied nature of the AI-related job market across a range of businesses.

***Perception of AI Replacing Humans***

Diverse viewpoints are revealed by those who participated about AI taking the place of humans. About 62.7% of respondents agreed or strongly agreed with the idea, and 43.6% disagreed or were neutral. This diverse spectrum of viewpoints highlights the diversity of beliefs within the participant pool and lays the groundwork for further investigations.

***Correlation Between AI Integration and Job Displacement***

Thorough statistical analyses, such as the Likelihood ratio test ($\chi^2 = 65.209$, $p < 0.001$) and Pearson chi-square test ($\chi^2 = 71.803$, $p < 0.001$), offer strong proof of a noteworthy correlation between the integration of AI and job displacement.

There is an apparent spike in the displacement of jobs caused by AI. The results provide strong support for the theory that more AI integration raises the risk of job displacement. This emphasises how important it is to take preventative action to lessen any potential problems brought on by the growing use of AI in business.

***Role of AI-related Education and Training Programs***

Statistical tests such as the Likelihood ratio test ($\chi^2 = 65.333$, $p < 0.001$) and Pearson chi-square test ($\chi^2 = 238.101$, $p < 0.001$) are used to examine the role of AI-related education and training programs.

Positive work results are significantly correlated with involvement in AI-related training courses, according to the findings. People who participate in these courses have much better employment outcomes than people who do not receive such training. This demonstrates the critical role that educational interventions have in providing people with the skills they need to succeed in the changing employment market that artificial intelligence is creating.

All things considered, this thorough data analysis provides a thorough grasp of the participant profile and validates important


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relationships, offering subtle insights into the effects of AI on corporate employment in Pakistan. These observations serve as a foundation for further talks and offer insightful viewpoints to the larger conversation about AI in the work environment.

***Time Duration***

This three-month study project was carefully carried out with the goal of determining how Artificial Intelligence (AI) affects corporate employment in Pakistan. The study's comprehensive nature necessitated a complex and time-consuming methodology, from the creation of research questions to the final data analysis. The procedure started with a thorough analysis of the body of previous research to provide a solid basis. The research strategy was then carefully considered, including the creation of surveys and data collection techniques.

***Contribution to the Study***

Present study makes a noteworthy scholarly contribution to the extant literature about the effects of Artificial Intelligence (AI) on corporate employment, specifically in the distinct setting of Pakistan. This study fills a significant vacuum in the literature by concentrating only on Pakistan's viewpoint, an area in which little to no thorough research has yet been done on this particular subject.Frey, C. B., & Osborne, M. A. (2017).

***Pakistan: A Contextual Perspective***

The majority of research on AI's effect on employment is conducted in a global framework, frequently ignoring the subtleties of local dynamics. We provide a contextualised view of the opportunities and problems AI poses to the local job market by focusing our research on Pakistan. Policymakers, companies, and educational institutions need to have this sophisticated perspective in order to navigate Pakistan's unique socioeconomic terrain. Miremadi, M. (2016).

***Specifics of the Demographics***

Through an examination of demographic factors such age, gender, education level, and work status, our research sheds light on the heterogeneous makeup of the Pakistani labour force. This nuanced knowledge contributes to the literature by providing a more thorough grasp of the ways in which various demographic groups interpret and are impacted by artificial intelligence in the corporate sector.Baron, R. A. (2019).

***Analysing Perception***

The investigation on responses from respondents about AI taking over from humans brings a fresh perspective to the body of literature already in existence. This careful examination offers a basis for comprehending the social and cultural perspectives on AI inside the Pakistani job market, a viewpoint that is sometimes overlooked in more general international research.Suchman, L. A. (2007).

***Correlations between Statistics***

Our study's thorough statistical analyses, which explicitly looked at the relationship between AI integration and employment displacement, add genuine information to the topic. This data, which has its roots in the Pakistani setting, strengthens the arguments made regarding the possible difficulties that AI may present for the regional workforce.Scott, S. V. (2008).

***Interventions in Education:***

The study makes a distinctive contribution by concentrating on how AI-related courses of study affect employment outcomes. Our findings provide useful information for governments and educational institutions looking to provide the workforce with the skills it needs to prosper in the face of AI-driven developments by illuminating the efficacy of such projects in the Pakistani context. (Baron, R. A. (2019).

To summarise, this study represents a ground-breaking endeavour in tackling the paucity of literature about the effects of artificial intelligence on corporate employment, particularly in the context of Pakistan. The present study's contextual insights, demographic details, perception analysis, statistical correlations, and educational interventions contribute to the advancement and enrichment of the debate surrounding the consequences of artificial intelligence (AI) on


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Pakistan's workforce. The fast changing landscape of AI and employment in the region presents an opportunity for this research to serve as a catalyst for additional research and policy issues.

***TheoreticalContribution***

Examining the effects of AI on corporate employment in Pakistan via the prism of Social Identity Theory (SIT), this study contributes significantly to theory. Henri Tajfel and John Turner's Social Identity Theory examines how people assign themselves and other people to social groups, impacting attitudes, behaviours, and perceptions. A unique theoretical framework is provided by the application of SIT to the study of AI in the workplace, which improves our comprehension of the complex social dynamics connected to technology breakthroughs. The key theoretical advances are as follows:

***AI and Group Dynamics***

According to the Social Identity Theory, people classify themselves together according to traits they have in common. This theory's application to the study of AI in the workplace enables a nuanced investigation of the ways in which workers classify their own experiences with AI integration. It makes it possible to recognise new social groupings that are forming in the workforce and illustrates how group dynamics may affect attitudes and perceptions of AI. W. W. Norton & Company (2022)

***Dynamics Within and Between Groups***

SIT highlights the difference between an individual's belonging to an in-group and their non-belonging to an out-group. With regard to AI, the theory offers a paradigm for comprehending how workers divide coworkers, companies, or even AI technologies into in-groups and out-groups. This differentiation advances our understanding of how social identity shapes reactions to AI-related developments in work settings.Suchman. (2007)

***AI's Social Category Perception***

This study approaches AI as a social category in the workplace by utilising SIT. It looks at how workers classify AI as an in-group or out-group entity and how that classification affects their reactions and attitudes. This theoretical viewpoint contributes to our knowledge of the social aspects of AI adoption by highlighting the role that AI integration plays in forming social identities in the workplace.Venkatesh, V. (2015).

***Effect on the Formation of Social Identity***

The theory of social identity also suggests that behaviour is influenced by social identity. This study explores the potential effects of AI integration on employees' social identity creation in the setting of employment. It investigates if the adoption of AI creates a sense of cohesion or discord in the workforce and how this affects results relating to jobs.

***Initiatives for Education and Training as Tools for Developing Social Identity***

The study expands on SIT's theoretical applicability to AI-related training and educational initiatives. According to social identity theory, having common experiences strengthens social identification. Regarding AI education, the theory clarifies how involvement in these initiatives helps workers develop a common identity, which may help to reduce unwanted opinions and promote a team mentality towards adjusting to AI-driven transformations.Frey, & Osborne, M. A. (2017).

***Conclusion***

In conclusion, this research has undertaken a comprehensive exploration of the impact of Artificial Intelligence (AI) on corporate employment in Pakistan, with a theoretical underpinning grounded in Social Identity Theory (SIT). Over the course of three months, our study has endeavored to fill a significant gap in the existing literature by offering a nuanced perspective within the specific context of Pakistan, where limited research has been conducted on this critical intersection of technology and the workforce.

**Key Findings**

**Diversity of Demographics:** The demographic data revealed a heterogeneous workforce, with a notable predominance of men and an abundance of


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younger workers. The diversity of industries, occupations, and educational backgrounds represented in the Pakistani workers created an extensive array of viewpoints.

**Views Regarding Artificial Intelligence:** A comprehensive grasp of the cultural and sociological attitudes about AI within the community of employees is vital, as seen by the diverse range of perspectives displayed by participants regarding AI's potential to replace humans.

**Association with Workplace Displacement:** Extensive statistical analysis validated the initial premise by demonstrating a strong link between greater instances of job displacement and increased AI integration. This highlights how important it is to use strategic planning to handle issues related to possible job displacement brought on by the widespread use of AI in business.

**The Importance of Education in Context to AI:** The study emphasized how important AI-related training and education programs are in fostering successful employment outcomes. Participants in these projects showed noticeably improved job outcomes, highlighting the vital role that educational interventions play in providing people with the skills they need to prosper in a quickly changing labor market that is being driven by advances in artificial intelligence.

**Contribution of Theory:** This research makes a theoretical contribution by creatively utilizing the theory of social identity (SIT) to examine AI and employment. The study has offered insights into the complex social dynamics related to AI integration by using SIT as the theoretic lens. This has allowed for a unique viewpoint on how people classify each other in a setting of technology progress.

**Contribution to the Literary Works:** This study adds a great deal to the body of knowledge by offering a thorough analysis of how artificial intelligence is affecting corporate workforce in Pakistan. The study's contextual insights, demographic details, perception analysis, statistical correlations, and educational interventions all contribute to advancing and enriching the conversation on the implications of artificial intelligence (AI) for the workforce.

This study establishes the foundation for additional research. Additional research might examine the long-term socio-economic effects of the adoption of AI in Pakistan, undertake longitudinal assessments, and go deeper into particular industries.

To put it briefly, this study offers a distinct viewpoint to the current global discussion about AI and employment while also offering stakeholders useful information to help them navigate Pakistan's changing scenario. The results are significant because they may be used to inform the development of laws, plans of action, and training programs that facilitate the seamless incorporation of AI in work environments and guarantee a prosperous future for corporate job opportunities in Pakistan.

**Recommendation**

- Create stable and comprehensive AI-focused training initiatives for workers in both public and private sectors.
- Develop strong public–private collaborations to jointly address AI-related challenges and design industry-relevant reskilling programs.
- Encourage lifelong learning by promoting continuous skills development throughout an individual’s career.
- Establish clear ethical guidelines and standards for responsible AI integration in workplaces.
- Expand access to digital learning resources, especially in regions with limited traditional educational opportunities.
- Provide targeted support for small and medium-sized businesses (SMBs) through incentives, training subsidies, and assistance in adopting AI technologies.
- Promote industry-specific AI regulations that protect employee rights and ensure fair and responsible implementation.


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 Form a National AI and Employment Task Force comprising experts from government, industry, and academia to offer timely recommendations and monitor AI's impact on jobs.

**References**


Agrawal, A., Gans, J. S., & Goldfarb, A. (2019). Artificial intelligence: the ambiguous labor market impact of automating prediction. *Journal of Economic Perspectives, 33*(2), 31-50.

Ajayi, V. O. (2017). Primary sources of data and secondary sources of data. *Benue State University, 1*(1), 1-6.

Alharahsheh, H. H., & Pius, A. (2020). A review of key paradigms: Positivism VS interpretivism. *Global Academic Journal of Humanities and Social Sciences, 2*(3), 39-43.

Allen, P. (2015). *Together at the table: Sustainability and sustenance in the American agrifood system.* Penn State Press.

Allen, R. C. (2009). Engels' pause: Technical change, capital accumulation, and inequality in the british industrial revolution. *Explorations in Economic History, 46*(4), 418-435.

Arif, M. (2018). ICTs and development in Pakistan: A review. *Journal of Innovations and Sustainability, 4*(3), 7-25.

Cordeschi, R. (2006). Searching in a maze, in search of knowledge: issues in early artificial intelligence. In *Reasoning, Action and Interaction in AI Theories and Systems: Essays Dedicated to Luigia Carlucci Aiello* (pp. 1-23). Berlin, Heidelberg: Springer Berlin Heidelberg.

Coyle, D., & Nakamura, L. (2022). Time Use, Productivity, and Household-centric Measurement of Welfare in the Digital Economy. *International Productivity Monitor, 42*, 165-186.

Das, K., & Behera, R. N. (2017). A survey on machine learning: concept, algorithms and applications. *International Journal of Innovative Research in Computer and Communication Engineering, 5*(2), 1301-1309.

Dayanandan, S., & Mehta, K. (2022). What Does Joy in Living Mean to Elderly Residents of Nursing Homes in Singapore?. *Religions, 13*(5), 469.

Dinkelman, T., & Ngai, L. R. (2022). Time use and gender in Africa in times of structural transformation. *Journal of Economic Perspectives, 36*(1), 57-80.

Dong, Y., Hou, J., Zhang, N., & Zhang, M. (2020). Research on how human intelligence, consciousness, and cognitive computing affect the development of artificial intelligence. *Complexity, 2020*, 1-10.

Ellemers, N., & Haslam, S. A. (2012). Social identity theory. *Handbook of theories of social psychology, 2*, 379-398.

Ernst, E., Merola, R., & Samaan, D. (2019). Economics of artificial intelligence: Implications for the future of work. *IZA Journal of Labor Policy, 9*(1).

Franken, S., & Wattenberg, M. (2019, October). The impact of AI on employment and organisation in the industrial working environment of the future. In *ECIAIR 2019 European Conference on the Impact of Artificial Intelligence and Robotics* (Vol. 31). Academic Conferences and publishing limited.

Frey, C. B., & Osborne, M. A. (2013). The future of employment. *University of Oxford, 17*.

Frey, C. B., & Osborne, M. A. (2017). The future of employment: How susceptible are jobs to computerisation?. *Technological forecasting and social change, 114*, 254-280.




This work is licensed under a Creative Commons Attribution 4.0 International License

Gaus, N. (2017). Selecting research approaches and research designs: A reflective essay. *Qualitative Research Journal, 17*(2), 99-112.

George, A. J. (2016). Research ethics. *Medicine, 44*(10), 615-618.

Goertz, G., & Mahoney, J. (2012). A tale of two cultures: Qualitative and quantitative research in the social sciences. *Princeton University Press*.

Gonzales-Inca, C., Calle, M., Croghan, D., Torabi Haghighi, A., Marttila, H., Silander, J., & Alho, P. (2022). Geospatial artificial intelligence (GeoAI) in the integrated hydrological and fluvial systems modeling: review of current applications and trends. *Water, 14*(14), 2211.

Guliyev, H. (2023). Artificial Intelligence and Unemployment in high-tech developed countries: New Insights from Dynamic Panel Data Model. *Research in Globalization, 100140*.

Huda, S. (2022). Investigating the Appropriateness of Healthcare Robots for Elderly People in Bangladesh (Doctoral dissertation, © University of Dhaka).

Lawson, C. (2013). Technology, technological determinism and the transformational model of social activity 1. In *Contributions to social ontology* (pp. 32-49). *Routledge*.

Levin, K., Cashore, B., Bernstein, S., & Auld, G. (2012). Overcoming the tragedy of super wicked problems: constraining our future selves to ameliorate global climate change. *Policy sciences, 45*(2), 123-152.

Lin, J. (2011). Technological adaptation, cities, and new work. *Review of Economics and Statistics, 93*(2), 554-574.

Lowry, L. D. (2015). Bridging the business data divide: insights into primary and secondary data use by business researchers.

Lund, S., & Manyika, J. (2017). Five lessons from history on AI, automation, and employment. *McKinsey Global Institute, November*. www. mckinsey. com/global-themes/future-of-organizationsand-work/five-lessons-from-history-onai-automation-and-employment, 13.

Mohammed, Z. (2019). Arfificial intelligence definifion, ethics, and standards. *Electronics and communicafions: Law, standards and pracfice*. The British University in Egypt.

Parsons, V.L. (2014). Stratified sampling. *Wiley StatsRef: Statistics Reference Online*, pp.1-11.

Piątkowski, M. J. (2020). Expectations and challenges in the labour market in the context of industrial revolution 4.0. The agglomeration method-based analysis for Poland and other EU member states. *Sustainability, 12*(13), 5437.

Queirós, A., Faria, D., & Almeida, F. (2017). Strengths and limitations of qualitative and quantitative research methods. *European journal of education studies*.

Ranganathan, P., Pramesh, C. S., & Aggarwal, R. (2017). Common pitfalls in statistical analysis: logistic regression. *Perspectives in clinical research, 8*(3), 148.

Rimsha Arif and Ayleen Naushahi (2021). How susceptible is Pakistan's Job Market to AI? *Mahbub ul Haq Research Centre at LUMS*.

Ryan, G. (2018). Introduction to positivism, interpretivism and critical theory. *Nurse researcher, 25*(4), 41-49.

Scheepers, D., & Ellemers, N. (2019). Social identity theory. *Social psychology in action: Evidence-based interventions from theory to practice, 129-143*.



This work is licensed under a Creative Commons Attribution 4.0 International License

Schober, P., Boer, C., & Schwarte, L. A. (2018). Correlation coefficients: appropriate use and interpretation. *Anesthesia & analgesia, 126*(5), 1763-1768.

Soiferman, L. K. (2010). Compare and Contrast Inductive and Deductive Research Approaches. *Online Submission*.

Stafie, G., & Grosu, V. (2022). Digital transformation of accounting as a result of the implementation of artificial intelligence in accounting. *Revista Romana de Economie, 54*(1).

Stehman, S.V. (2012). Impact of sample size allocation when using stratified random sampling to estimate accuracy and area of land-cover change. *Remote Sensing Letters, 3*(2), pp.111-120.

Tasić, S., & Bešlin Feruh, M. (2012). Errors and issues in secondary data used in marketing research.

Umasankar Murugesana, Padmavathy Subramanianb, Shefali Srivastavaa, Ashish Dwivedic. (2023). A study of Artificial Intelligence impacts on Human Resource Digitalization In Industry 4.0. *Decision Analytics Journal 7 (2023) 10024*.

Vermeulen, B., & Psenner, E. (2022). Exploiting the technology-driven structural shift to creative work in regional catching-up: toward an institutional framework. *European Planning Studies, 30*(9), 1798-1823.

Vrontis, D., Christofi, M., Pereira, V., Tarba, S., Makrides, A., & Trichina, E. (2022). Artificial intelligence, robotics, advanced technologies and human resource management: a systematic review. *The International Journal of Human Resource Management, 33*(6), 1237-1266.

Wilcox, A. B., Gallagher, K. D., Boden-Albala, B., & Bakken, S. R. (2012). Research data collection methods: from paper to tablet computers. *Medical care, S68-S73*.

Wong-Pinto, L. S., Menzies, A., & Ordóñez, J. I. (2020). Bionanomining: biotechnological synthesis of metal nanoparticles from mining waste—opportunity for sustainable management of mining environmental liabilities. *Applied microbiology and biotechnology, 104*(5), 1859-1869.

World Bank Group. (2016). *World development report 2016: Digital dividends.* World Bank Publications.

Yeboah, F. F. (2023). The Impact of Artificial Intelligence on Employment: Evidence in Africa.

Yue, Q. (2023, May). Study on the Impact of Artificial Intelligence on Employment and Income Inequality, Based on Technological Determinism Theory. In *8th International Conference on Financial Innovation and Economic Development (ICFIED 2023)* (pp. 329-338). Atlantis Press.



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