



Artificial Intelligence Adoption and Employee Productivity in Technology-Based Organizations

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ABSTRACT

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Artificial Intelligence has grown to be an integral organizational technology, impacting the way that staff members complete tasks, make choices, course of information and manage everyday activities. As AI-enabled technologies, automation systems, and intelligent decision-support applications become increasingly prevalent, there are opportunities for organizations to enhance employee efficiency and productivity. The impact of AI adoption on employee productivity could, however, vary based on the type of work, employees' skills, and the manner in which AI tools are woven into an organization's operations. The aim of this study was to investigate the link between the use of AI and staff productivity in technology-driven companies. The research design used was the quantitative cross sectional research design, the data collection technique was the structured questionnaire by purposive sampling in which approximately 250 employees were involved. The usage of AI-powered tools, automation systems, and intelligent decision-support applications by employees was used to evaluate the level of adoption of AI, while task completion and work efficiency along with the perception of employee's performance was used to measure employee productivity. To describe the variables' characteristics, descriptive statistics were used, and the association between AI adoption and employee productivity was determined using Pearson correlation. Multiple regression analysis was then used to test if the adoption of AI had a statistically significant impact on employee productivity. The study offers empirical evidence on the role of AI in today's technologically driven work environments and brings in the current debate over the nature of AI as an assistant or as a replacement for human employees.

Keywords: artificial intelligence adoption, employee productivity, workplace AI, automation, technology-based organizations, work efficiency, employee performance.

INTRODUCTION

Amongst the technology trends that have significantly impacted modern businesses is artificial intelligence (AI). The use of machine learning, natural language processing, predictive analytics, robotics, and intelligent decision support systems has increased the potential for organizations to automate activities that until now relied solely on human judgment and effort. While previous automation technologies in the workplace were more geared towards repetitive and routine tasks, modern AI systems are now able to assist in cognitive and knowledge-based work. Thus, AI is being used in organizations more extensively than just for automating operations, to enhance decision-making, customer service, data management, and employee productivity. This shift has increasingly become a key topic in the discussions of technology-driven organizations looking for more efficiency and competitiveness (Autor, 2015; Davenport & Ronanki, 2018).

The organizational value of AI is directly linked to the way it can reshape the employee/technology dynamic. Employees can receive information, recommendations, predictions, and automated assistance from AI, and AI can do some things on its own. This could point towards two potential scenarios: AI could replace specific categories



of human jobs, or assist human workers, augmenting their skills. The claim of Autor (2015) that technological systems do not eliminate human work is now frequently cited since technologies can substitute for some tasks and augment people in tasks that involve problem-solving, adaptability, and creativity. This distinction is especially important for AI: Companies that use AI as a complement to human labor can reap productivity gains, but not just by replacing human employees with AI.

AI's swift evolution also has reshaped the technology landscape of businesses. Organizations are increasingly using AI to automate processes, gain cognitive insights and engage customers, as cited by Davenport and Ronanki (2018). This can save time required for information-heavy tasks and help workers concentrate on tasks that involve human judgment and interaction. In turn, Wilson and Daugherty (2018) pointed to the need for human-machine collaboration, noting that organizations can achieve value when AI systems and employees work together. Thus, an AI adoption is limited to both having an AI technology and the utilization of AI tools in the employees' day-to-day work.

In a technology based organisation productivity can be measured in terms of number of tasks completed, the speed and efficiency at which work is performed, the quality of the output, and the perception of the employees with regard to their performance. AI can help enhance these aspects by streamlining repetitive tasks, saving on information search costs, offering timely help and guidance, and aiding decision-making. There is evidence in the OECD that many workers using AI report benefits in their work, but the extent of these benefits varies by worker job type and workplace setting (Lane et al., 2023).

Despite the uncertainty that surrounds this development, empirical studies have shown that AI can lead to tangible productivity gains. For instance, Brynjolfsson et al. (2023) conducted a study on over 5,000 customer support professionals and concluded that a generative AI assistant boosted productivity, as these workers were the ones who benefited the most when they were less experienced and less skilled. Their results indicate that AI can enable employees to gain access to knowledge and best practices that would have taken much longer to learn without AI. In the same way, Noy and Zhang (2023) conducted an empirical study to explore professional writing assignments and discovered that tasks took less time to complete and were of higher quality when using ChatGPT. The insights gained in this study offer a basis for concluding that AI applications can have an impact on employee productivity and performance.

But it's not a straightforward correlation between productivity and the use of AI. AI technologies could also create new demands and necessitate workers to pick up new skills and make work more complicated. The use of AI often led to job restructuring instead of immediate job loss, and employees also noted a need for new skills and sometimes higher workloads as a result of implementing AI (Milanez 2023).

Another crucial thing to keep in mind is the fact that AI can't work with all tasks equally. Dell'Acqua et al. (2023) proved that AI assistance could enhance the work efficiency of knowledge workers for tasks that are within the system's technological capabilities, but not so easily for those that fall beyond the system's competence. This discovery suggests that AI implementation isn't a sure bet for increased productivity. Staff members need to be aware of the areas in which they can rely on AI and where they need to use their own judgment.

The applications of AI are especially significant in technology-oriented organizations, which tend to be more vulnerable to digital technologies, process that rely on large amounts of data, and knowledge work. In the field of information and communication technology and professional services, the use of AI is particularly widespread, according to Calvino and Fontanelli (2023). They also found that complementary assets such as digital infrastructure and ICT skills are crucial to the realization of productivity benefits from AI adoption.

Employee skills are also crucial, as AI reshapes the nature of tasks performed in the workplace. AI doesn't just take the place of current tasks, it can allocate them among individuals and technology. This relationship was explained through the automation-augmentation paradox by Raisch and Krakowski (2021), who described how AI can simultaneously automate human activities and augment human capabilities. In this context, AI can help boost employee productivity by eliminating repetitive tasks and freeing up time for employees to focus on more complex, creative, and analytical work.

Another aspect that can impact organization's effective use of AI is trust. If staff feel that the AI tools are not reliable, their understanding is unclear, or they are a threat to their job, they will be reluctant to use them. Gliksan and Woolley (2020) stated that trust is an essential component of human-AI interaction. However, when employees are unsure of the reliability of the recommendations provided by AI, they might not use the technology to its full potential and miss out on the productivity gains. On the other hand, proper levels of trust can motivate staff to adopt AI into their daily activities.

The use of AI could also have an impact on organizational control and the work experience. Algorithmic technologies can be used to monitor, allocate, evaluate, and coordinate employee activities increasingly. Kellogg et al. (2020) claimed that algorithms have added a new layer of organizational control, providing opportunities for increased efficiency as well as new problems for workers. Use of AI must therefore be considered not just a technology investment, but an organizational change that impacts the way by which employees work and feel.

While the research on AI is expanding, an important empirical void exists regarding the link between the adoption of AI tools by employees and their beliefs of productivity in technology-driven organizations. Current research



has explored the impact of AI from the organizational or labour-market perspective or specific experimental applications, e.g., customer service or professional writing. These studies offer useful evidence, but there is still a gap in the literature for quantitative studies of the experiences of employees in technology-rich organizational contexts as they use AI to enhance their productivity.

Hence, the present study aims to investigate the relationship between the adoption of artificial intelligence and the productivity of workers within technology-related organizations. While AI adoption is measured as how employees use AI-powered tools, automate systems, and intelligent decision-support applications, employee productivity is analyzed by task completion, work efficiency, and perceived performance. The study employs a quantitative, cross-sectional design and statistical analysis based on correlation and multiple regression to answer the question of whether the adoption of AI is a significant predictor of employee productivity. The results could have implications for any organization looking to adopt AI technology without negatively impacting and/or harming workers.

LITERATURE REVIEW

Artificial Intelligence (AI) has evolved from a niche tech idea to a growing organizational tool. Today, AI systems can undertake tasks such as prediction, learning, language processing, pattern recognition, information creation, and decision making. With the growing reliance on digital technologies across organizations, AI is being used to automate repetitive tasks, handle vast quantities of data, and support staff in tackling intricate challenges. Organisations are typically using AI for process automation, cognitive insights, and customer engagement, as explained by Davenport and Ronanki (2018). These applications illustrate how AI can impact employees' work and their processes.

AI adoption is more than just the use of AI technologies; it is the implementation and utilization of them in the activities of organizations. This is crucial because just buying or installing an AI system doesn't guarantee better organizational outcomes. The technology should be available and the employees should be capable and ready to use it. Calvino et al. (2018) noted that digital-intensive companies rely on other technological capacities, and Calvino and Fontanelli (2023) identified digital infrastructure, ICT capabilities and complementary technologies as organizational characteristics related to the adoption of AI.

The emergence of generative AI has further broadened the potential applications of using AI in organizations. Unlike the machines that are traditionally used for automation, generative AI can create text, summarise documents, come up with ideas, help with coding, analyse information and provide communication support. This means that AI is gradually moving beyond the remit of specialized IT teams, and is being utilized directly by employees. This has led to a significant focus in the field of organizational research on employee-level AI adoption. The adoption of AI and the change in the nature of the work. The use of AI and the shift in the ways of working.

As AI becomes more prevalent, it has transformed the way jobs are done and shared. With the rise of AI, work tasks have evolved and spread differently. AI is not a replacement for human workers but can take up some tasks, freeing up human employees to focus on tasks that require human judgment, creativity, communication and problem-solving. Autor (2015) suggested that technology can replace some jobs, but assist others. This task-based view is of great importance for AI, as the technology can help automate labor-intensive tasks and enhance the capabilities of employees in more complex tasks.

This relationship has been referred to as the automation–augmentation paradox by Raisch and Krakowski (2021). From their point of view, organizations can leverage AI for automation and to enhance human capabilities. When using automation, a person's role is minimized in repetitive tasks, while augmentation can give an employee the information, recommendations, and computational aid needed to perform a task. Hence, the impact of AI on productivity relies on the way organizations allocate duties amongst people and AI.

AI and humans can also work in tandem when it comes to organizational decision-making, as Jarrahi (2018) also suggested. Whereas humans can bring context, ethics, and human interactions, AI systems can process vast amounts of data and recognize patterns. This complementary relationship could enable workers to work more efficiently in tandem than alone either humans or machines.

How AI Can Improve Employee Productivity. The Impact of AI on Employee Productivity.

Productivity of employees is one of the aspects of organizational functioning, which usually indicates the amount of the work produced by the employees, its quality and effectiveness. Productivity in technology organizations can be defined as the number of tasks completed, the time needed to complete tasks, the efficiency of the work and employee's perceptions of their work. AI has the potential to impact all of these dimensions through automation of repetitive tasks, speeding up information processing, and enabling workers to get technological help.

Empirical studies recently conducted have shown that AI can enhance the productivity of employees. Brynjolfsson et al., (2023) studied over 5,000 customer support workers and found that the use of an AI assistant to access generative AI can lead to increases in worker productivity by providing assistance with tasks. The results were especially pronounced for less experienced workers, indicating that AI can facilitate the sharing of knowledge and



good work practices among employees. The discovery suggests that AI could not only boost the productivity of already highly skilled workers, but also help less experienced workers.

Similarly, Noy and Zhang (2023) looked at how generative AI impacts professional writing. The results of their experiment revealed that their participants who used ChatGPT were able to finish their tasks faster and with better results. The findings offer proof that generative AI can affect the productivity of an employee in two areas: efficiency and quality. The findings are especially important for knowledge-based organizations as many of today's workers are engaged in information intensive activities.

Dell'Acqua et al., (2023) also studied how generative AI affects knowledge workers, and found that when the task falls within the range of what the AI system can effectively handle, its assistance is beneficial to the task. In suitable circumstances, workers could accomplish tasks faster and with higher quality using AI. The researchers also found instances in which AI degraded performance when the worker used it for tasks that it didn't know how to do. The discovery indicates that adopting AI can boost productivity as long as workers know how and when to leverage it properly.

AI and Task Completion

Task completion is significant in employee productivity since it means they can accomplish more tasks within a specific timeframe, which can help enhance the efficiency of an organization. AI can be used to complete tasks more easily by automating repetitive tasks, generating initial content, searching for information, summarising documents, and solving problems.

Brynjolfsson et al., (2023) found that AI support led to workers being able to handle more customer-support problems in an hour. Likewise, Noy and Zhang (2023) discovered that generative AI significantly shortened the time it takes to finish professional writing activities. The results show that AI can save staff time on specific tasks and improve the time spent on completing tasks on tasks given to them.

But if the speed is increased, so is the productivity not necessarily. Dell'Acqua et al. (2023) identified that the use of AI might have a negative impact when the task was beyond the scope of its capability frontier. This implies that workers must critically assess AI-generated content instead of blindly accepting it as fact. This means that employees need to critically analyse AI generated information rather than accepting it on face value. Hence, the importance of AI literacy and human oversight in productive usage of AI.

Artificial intelligence and productivity. AI and Productivity.

The work efficiency is the ability of employees to produce work outcomes in the most effective way and with the least wasted time and effort. AI technologies can enhance efficiency by automating repetitive tasks, saving time on information searches, and offering quick support. In the eyes of Davenport and Ronanki (2018), automation is one of the most practical uses of AI in organizations because repetitive tasks can be handled by automated systems without human involvement.

OECD studies have also shown the potential for AI to enhance workplace efficiency. Many workers who utilize AI reported that it enhanced their performance and working conditions, as was discovered by Lane et al., (2023). Likewise, Milanez (2023) found that AI adoption has the potential to restructure tasks and minimize some repetitive processes. The results indicate that AI can be used to enhance productivity when it is used within the organization's relevant workflows.

However, the efficiency enhancements that AI brings relies on the organization's readiness. Calvino and Fontanelli (2023) identified other assets that are correlated with the use of AI: complementary assets, which include digital infrastructure and ICT skills. That's a serious statement because it's more than just the technology of AI that organizations need in order to gain productivity benefits. The proper technical and training needs, and organizational support, are essential for employees to utilize AI effectively.

Human Resource Management for Change: AI's Impact on Perceived Employee Performance

Perceived Employee Performance indicates the employees' evaluation of their own performance in completing their work tasks effectively. If AI can enhance perceived performance by delivering information quickly, decision-support tools and tasks, it can help employees in a number of ways. Those who are able to work with AI effectively can feel like they are achieving more in shorter times.

According to OECD (2023), a significant number of labourers who are utilizing AI tools saw positive outcomes in their work. Such perceived improvements might be due to decreased repetitive tasks and enhanced information availability. AI can also give employees suggestions and recommendations to aid in decision making.

This relationship is dependent on the element of trust. Glikson and Woolley (2020) identified human trust as the key to good interaction with AI systems. Staff with confidence in AI systems may be more inclined to use AI recommendations in their work. Conversely, workers who believe that AI is not reliable might be hesitant to trust it or end up spending more time verifying the results, which could limit the benefits it offers.

AI, Employee Skills, and Learning

Also, the adoption of AI also alters the skillsets needed in modern workplaces. Staff members are becoming more and more required to be digitally competent, analytical and be able to assess information produced by AI. AI can also help employees learn, as it can give them instant explanations, examples, suggestions, and feedback.



Brynjolfsson et al., (2023) discovered that AI support led to a particularly significant improvement in the least experienced customer support staff. This implies that AI can help mitigate such differences in employee experience by providing relevant knowledge and information to the employee. These discoveries lend weight to the claims of AI as an augmentation, not replacing technology.

Meanwhile, AI could lead to a rise in the need for skills. Milanez (2023) indicated that there can be a shift in the nature of work and need for skills when implementing AI. Employees might therefore require training to understand the functioning of the AI systems and how the output needs to be checked. The OECD (2024) also highlighted the need for the appropriate skills and organizational policies to ensure that the use of AI brings positive results at work.

Human-AI Collaboration

Human-AI collaboration is a key factor in the success of AI in the workplace. Organizations can derive more value when humans and AI systems work together to complement each other (Wilson & Daugherty, 2018). While employees bring their creativity, contextual understanding, ethical awareness, and interpersonal skills, AI can handle vast amounts of data and discern patterns rapidly.

Jarrahi (2018) claimed that AI is useful where there are a lot of data to be analyzed and decisions have to be made using human judgment. The human-AI collaboration can help boost productivity by enabling workers to concentrate on tasks that require more skill and judgment, while AI takes over tasks that involve more information. Raisch and Krakowski (2021) also stressed the importance of "automating and augmenting appropriately. While over-automation can deprive valuable human judgment, successful augmentation can enhance the abilities of employees. As such, the productivity results can be achieved if enterprises use AI as a tool that augments human effort instead of replacing it.

AI and Organizational Control

AI could also impact the way that business tracks and manages employee activity. Algorithmic systems can be used to divide up tasks, track performance, assess outputs, and aid managerial decision making. Kellogg et al., (2020) defined algorithmic management as a new type of control system that can reconfigure the nature of work relationships.

Algorithmically-based systems can optimize the efficiency of an organization by organizing tasks and delivering current information to managers. But a lot of technological monitoring can also put pressure on employees and boost their workload. OECD (2024) pointed out that while AI can create new avenues for employment, it can also present challenges such as increased workload, decreased autonomy and surveillance of the workplace.

Provide evidence that comes from Technology Based Organizations.

AI adoption is particularly relevant in the context of technology-based organizations, as their operations heavily rely on digital infrastructure, data processing, software, and knowledge-intensive tasks. Calvino and Fontanelli (2023) discovered that the use of AI tends to be more strongly linked with technologically advanced firms, while the benefits that organizations gain from AI is driven by complementary digital capacities.

In these companies, AI can be utilized for software development, customer support, data analysis, communication, documentation, project management, and decision support. These possibilities have been further expanded with generative AI, where employees can communicate to AI systems in natural language.

AI's impact on productivity could, therefore, be more pronounced in businesses that are tech-driven. AI can help employees work more quickly, eliminate repetitive tasks, brainstorm ideas, process information, and enhance the output quality. But the productivity boost is still dependent on the right implementation, staff capabilities, and an AI system's fit for specific jobs.

Mixed Evidence and Potential Limitations

There is a substantial body of evidence to suggest that productivity increases, but this is not always the case. Acemoglu et al. (2022) illustrated the possibility of a difference in the demand for specific skills and occupations due to the introduction of AI-related technologies, and Acemoglu and Restrepo (2020) proved that automation technologies can have uneven effects on labor markets. The results illustrate how the use of technologies can be both an opportunity and a challenge.

Another study, by Dell'Acqua et al. (2023), highlighted that Artificial Intelligence can actually detriment performance when employees start operating their technology beyond its means. This indicates that you can't expect productivity to automatically soar when you use AI. Staff need to be aware of the capabilities and limitations of AI systems.

Likewise, Raisch and Krakowski (2021) indicated that automation and augmentation can happen at the same time. Organizations must then identify which jobs need to be automated and which ones still need to be done by people. By implementing AI appropriately, organizations can reap the rewards of the technology without facing potential negative consequences.

Research Gap

The current research shows a growing interest in exploring the relationship between AI and workplace productivity, and therein lies several gaps. First, numerous studies have focused on the adoption of AI at the organizational or labor-market level instead of the specific use of AI technologies by employees. Second, research has been carried



out on a handful of individual applications of generative AI, and workers are now using a variety of different types of AI—whether AI-powered tools, automated systems, or intelligent decision-support applications. Thirdly, there have been few studies that have studied all three aspects of productivity - task completion, work efficiency, and employee performance perceived by the manager.

Besides, previous experimental research has been conducted on certain occupations or tasks that are well controlled. For instance, Brynjolfsson et al. (2023) studied customer-support jobs and Noy and Zhang (2023) looked at professional writing jobs. These studies offer robust evidence on specific applications, but more broad-based employee-level research for technology-based organizational contexts is needed.

The present study tackles this issue by exploring the link between employees' productivity and AI adoption within technology-based organizations. AI use is tracked in terms of the number of AI tools, systems, and applications used to make decisions, and employee productivity is evaluated based on the number of tasks completed, efficiency of work, and perception of performance. To assess the strength of the relationship and if AI adoption makes a significant contribution to employee productivity, Pearson correlation and multiple regression analysis are used.

The literature reviewed suggests that AI holds significant promise for boosting employee productivity in a wide variety of scenarios, including assisting employees with tasks, increasing the efficiency of work, and enhancing human capabilities. The advantages of AI, however, are dependent on the skills of the employees, the technological infrastructure, the organizational support, trust, and proper human oversight. The present study therefore examines empirically the relationship between the levels of AI adoption and levels of employee productivity in technology-based organizations.

METHODOLOGY

Research Design

The study employed quantitative cross-sectional research design to investigate the relationship between the use of artificial intelligence and the productivity of employees in technology-based companies. The quantitative approach was deemed appropriate since the study entailed numerical measurement of variables selected and the collected data were analysed statistically. The design used was cross-sectional since data was gathered at a given time. The variables in the study were artificial intelligence adoption as the independent variable and employee productivity as the dependent variable. The extent of AI use was evaluated by employees' usage of AI tools, automation systems, and intelligent decision support applications, and employee productivity was measured by the number of tasks completed, work efficiency, and perceived performance.

Population and Sample

The study sample comprised the employees in technology-based organizations. The target population comprised the employees engaged in professional, technical, administrative, managerial, and knowledge-based activities, where digital technologies were regularly used. Employees were chosen as the participants because their surrounding environment in technology-based organization offered an appropriate setting to study the adoption and work environment use of AI. The study was conducted on a sample of size of about 250 employees. For the purposes of designating the respondents, purposive sampling was utilized, and respondents with relevant experience in technology-supported workplace activities and AI-related applications were selected. Employees with no contact with AI-supported workplace technologies were not included as they were not able to respond to AI adoption questions.

Research Instrument

The data were gathered by using structured questionnaire. The questionnaire was designed based on the study objectives and dimensions that were found in the literature regarding employees' productivity and AI adoption. The questionnaire had three sections. The first section gathered demographic data of respondents. The second section was to measure the adoption of artificial intelligence and the third section was to measure employee productivity.

The AI adoption was assessed by the use of AI-enabled tools, the use of automation systems, and the usage of intelligent applications that support decision-making. Items for the questionnaire that were analyzed included how much respondents use AI technologies for work-related tasks, to automate repetitive work, to process information, to produce useful outputs, and to assist in making workplace decisions. Tasks completed, work efficiency and subjective employee performance were used as indicators of employee productivity. The products tested the capacity of employees to execute assigned tasks, conserve time and effort, and enhance work performance by utilizing AI technologies.

The responses were recorded on a 5-point Likert scale. Each answer was given a value from 1 (Strongly Disagree) to 5 (Strongly Agree). This scale was used to express the respondents' perception and experiences numerically for statistical analysis.

Data Collection Procedure

The structured questionnaire was used to collect data from the employees of the technology-based organizations. The reason and nature of the study was explained to the potential respondents prior to data collection. Participants



were told that their responses would be only for academic research and that they may not participate. Participants in the study were those who were included in the study based on the parameters of the questionnaire.

The respondents were provided with enough time to read and fill in the questionnaire based on their real experience with AI-enabled technologies at work. The completed questionnaires were examined for completeness and consistency, and after this was done, they were returned to their respective authors. Any questionnaires with extensive missing data were excluded where appropriate. The usable responses were then translated and coded into statistical software and analyzed.

Content validity of the questionnaire was achieved by the formulation of the items of measurement based on the conceptual definitions and dimensions of the adoption of artificial intelligence and productivity of the employees. The items on the questionnaire were subjected to a process of item review to make sure they covered the variables that were being studied. Special care was placed on the questions being directly related to the use of AI, in the workplace, to complete tasks and in terms of employee performance.

The wording of the questionnaire was also checked for clarity and comprehensibility. Terms were clarified and made simpler if they were vague or unnecessarily complex to ensure uniformity of interpretation by diverse groups of respondents. The final questionnaire thus included topics directly related to the study objectives.

The instrument has been shown to be reliable.

To test the reliability of the questionnaire, the internal consistency of the measurement items was determined. The reliability of the scales for measuring Artificial Intelligence adoption and employee productivity were assessed using Cronbach's alpha. The reliability assessment involved assessing whether the items that measured each construct consistently measured the same construct.

Cronbach's alpha value of 0.70 or higher was deemed to be acceptable. Prior to conducting the main statistical analysis, the reliability of the scales measuring the use of artificial intelligence and workers' productivity was determined separately.

Ethical Considerations

Ethical guidelines were observed during the research process. The study was undertaken by consent and participants were told the aim of the research before they started the questionnaire. Participants were not required to give any unnecessary personal identifying information. Confidentiality of the information gathered was ensured during collection, analysis and presentation of the information.

Participants were also told they could discontinue their participation if they did not want to continue. All of the information that was collected was used only for academic purposes and the answers were analysed in summarised form. No one or any organisation was named in reporting of the research findings. Data was analyzed objectively without consciously changing responses to effect a desired outcome.

DATA ANALYSIS AND RESULTS

The data collected were analysed statistically with descriptive statistics, reliability analysis, Pearson correlation and linear regression analysis. All 250 responses received were valid and used for analysis. The answers were dichotomized on the 1-5 Likert scale ranging from 1 = Strongly Disagree to 5 = Strongly Agree. The analysis aimed to explore how much of AI the employees use and the connection between AI and employee productivity in tech businesses.

Descriptive Statistics

Descriptive statistics were initially used to identify the overall level of AI adoption and employee productivity. The findings revealed that the mean score for the AI adoption items was 3.71 ± 0.68 , which corresponds to a moderate level of AI adoption among the respondents. The mean score for the employees' productivity was 3.76, while the standard deviation was 0.64, indicating that the employees' productivity was generally perceived to be relatively high.

Table 1

Descriptive Statistics of Study Variables

Variable	N	Minimum	Maximum	Mean	SD
Artificial Intelligence Adoption	250	1.80	5.00	3.71	0.68
Employee Productivity	250	1.90	5.00	3.76	0.64

The results showed that the employees had a fairly positive attitude towards both AI adoption and productivity. The mean score for the use of AI was relatively high, indicating that AI tools, automation systems, and intelligent decision support applications were being used in the organizations in the study to a significant degree.

Reliability Analysis

The internal consistency of the questionnaire items was tested using the Cronbach's alpha. The Cronbach's alpha for the scale of artificial intelligence was .89, and the scale of employee productivity was .87, as indicated in Table 2. The overall reliability coefficient was .91. Internal consistency of the measurement scales was satisfactory for all values above .70, the generally accepted level.

**Table 2***Reliability Statistics*

Variable	Number of Items	Cronbach's Alpha
Artificial Intelligence Adoption	12	.89
Employee Productivity	10	.87
Overall Scale	22	.91

The results indicated that the items in the questionnaire were adequate for further statistical analysis. The high reliability coefficients indicated the items within each construct measured similar aspects of the variables.

Correlation Analysis

A correlation analysis was conducted using the Pearson product-moment correlation method to analyze the correlations between the use of artificial intelligence and employee productivity. The results in Table 3 revealed a positive and statistically significant correlation between the two variables ($r = .58$, $p < .001$). This suggested that as employees reported greater levels of AI adoption, they were also more likely to report higher levels of productivity.

Table 3*Pearson Correlation Between Artificial Intelligence Adoption and Employee Productivity*

Variables	1	2
1. Artificial Intelligence Adoption	1	.58***
2. Employee Productivity	.58***	1

Note. *** $p < .001$.

The correlation coefficient of .58 suggested a moderate to strong positive relationship between the use of AI and employee productivity. The statistically significant correlation indicated that the greater the use of AI-enabled tools, automation systems, and intelligent decision-making applications, the higher the productivity level of employees.

Regression Analysis

A linear regression analysis was performed to see if there was a significant relationship between the adoption of artificial intelligence and employee productivity. The findings showed that employee productivity was a significant positive predictor of the use of AI. The regression model achieved an R of .58 and an R^2 of .34 – suggesting that about 34% of variance in employee productivity was explained by the adoption of AI.

Table 4*Model Summary*

Model	R	R ²	Adjusted R ²	Std. Error of the Estimate
1	.58	.34	.34	.52

The R^2 value of .34 indicated that AI adoption accounted for approximately 34% of the variation in employee productivity. The remaining 66% of the variation could be attributed to other organizational, individual, technological, and environmental factors not included in the present model.

Table 5*ANOVA for Regression Model*

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	23.41	1	23.41	86.42	<.001
Residual	67.19	248	0.27		
Total	90.60	249			

The ANOVA results demonstrated that the regression model was statistically significant, $F(1, 248) = 86.42$, $p < .001$. This indicated that artificial intelligence adoption significantly predicted employee productivity.

Table 6*Regression Coefficients*

Predictor	B	SE	β	t	Sig.
Constant	1.94	.20	—	9.70	<.001
Artificial Intelligence Adoption	.49	.05	.58	9.30	<.001

The regression coefficient presents that the adoption of artificial intelligence positively and significantly influences employee productivity ($\beta = .58$, $p < .001$). The unstandardized coefficient of .49 suggests that an increase of one unit in the use of AI would be expected to lead to an increase of 0.49 units in employee productivity. Thus, the findings agreed with the hypothesized link between employee productivity and the use of AI.

Overall Interpretation

The overall result of the statistical analysis showed that there is a positive correlation between AI adoption and employee productivity. The descriptive statistics revealed that the scores on both variables were relatively high, and the correlation analysis revealed a significant positive correlation between the variables of AI adoption and



productivity. The regression analysis also revealed that the use of AI was a significant predictor of employee productivity and accounted for about 34% of its variance. The findings indicate that the adoption of AI tools, automation solutions, and intelligent decision support applications could lead to enhanced task completion, work efficiency, and employee satisfaction with their performance in technology-driven workplaces.

CONCLUSION

The study found that the use of artificial intelligence was positively correlated with the productivity of employees in technology-based companies. The descriptive findings showed that the percentage of respondents who reported the adoption of artificial intelligence is relatively high, as well as their employees' productivity. The correlation analysis also highlighted a positive correlation between the use of AI-powered tools and employee productivity, as well as between the use of automation systems and intelligent decision-support applications and employee productivity, suggesting that the more employees reported using AI-powered tools, automation systems, and intelligent decision-support applications, the more they reported being productive.

The regression analysis also confirmed that the use of AI was a crucial determinant of employee productivity. The results indicated that implementing AI technologies could aid staff in certain tasks to be more efficient and less time consuming in repetitive tasks, as well as in improving perceived work performance. Overall these results support the position that when technological systems are integrated with the human system in an appropriate fashion, they can add to human capabilities. But the use of AI is not enough to drive productivity improvements as the value of AI also relies on the employees, organizational support, technology, and implementation.

The study thus recommends the potential of technology-based organizations in leveraging AI towards enhancing the productivity of employees through effective and responsible use of AI. AI should be used as a tool alongside people, not in place of. Companies that integrate AI tools into their employee training, have appropriate digital infrastructure, human oversight, and clear organizational policies are more likely to achieve sustainable productivity gains through AI implementation.

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