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## THE EFFECTS OF ARTIFICIAL INTELLIGENCE (AI) ON EMPLOYEE EFFICIENCY IN ABU DHABI'S INSURANCE COMPANIES

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### Abstract:

The purpose of this research was to determine the effect of ease of use of AI (EU-AI); usefulness of AI tools (U-AI) and actual use of AI (AU-AI) on employee efficiency in insurance companies Abu Dhabi. This study employed a quantitative method. Data were collected from a sample of 370 employees who are working in insurance companies "Abu Dhabi National Insurance Company (ADNIC), Daman Insurance Company, and THIQA Insurance Company using face-to-face questionnaire. To analyses the data, descriptive analysis and partial least squares structural equation modeling (PLS-SEM) were used. The results indicated that AU-AI, U-AI and EU-AI have a significant impact on Employee Efficiency (EE). Specifically, AU-AI has ( $\beta = 0.266$ ,  $t\text{-value} = 3.108$ ,  $p = 0.000$ ), while EU-AI has ( $\beta = 0.578$ ,  $t\text{-value} = 6.754$ ,  $p\text{-value} = 0.000$ ). Additionally, EU-AI acts as a mediator in the relationships between AU-AI and EE ( $\beta = 0.458$ ,  $t\text{-value} = 6.398$ ,  $p\text{-value} = 0.000$ ) and between U-AI and EE ( $\beta = 0.085$ ,  $t\text{-value} = 2.529$ ,  $p\text{-value} = 0.000$ ). Furthermore, the AU-AI has a significant favourable effect on EU-AI ( $\beta = 0.791$ ,  $t\text{-value} = 23.552$ ,  $p\text{-value} = 0.000$ ), and U-AI has an effect on EU-AI ( $\beta = 0.147$ ,  $t\text{-value} = 2.903$ ,  $p\text{-value} = 0.000$ ). This finding indicating that employees who find AI tools easy to use tend to be more efficient in their work. In conclusion, these findings highlight the importance of artificial intelligence in enhancing employees' efficiency within the organization.

### Keywords:

Artificial Intelligence, Employee Efficiency, Insurance Company, Abu Dhabi

## Introduction

Artificial Intelligence (AI) has rapidly transformed from a theoretical concept into a pivotal component of various industries worldwide. Artificial Intelligence (AI) has become a transformative force across various sectors, influencing economic structures, healthcare delivery, educational methodologies, and social interactions. Its rapid integration into daily life presents both significant opportunities and complex challenges. AI's infusion into the economy has led to increased productivity and the creation of new business models. However, it also raises concerns about job displacement and widening socioeconomic inequalities. Recent studies highlight that while AI can democratize content creation, it may also exacerbate existing disparities if its benefits are not equitably distributed. Durrani, (2020) indicated that AI has many advantages in all fields, as its use leads to raising the level of performance of workers in various departments and branches of insurance companies, and its employees can use these advanced systems to facilitate and speed work up.

AI is not only transforming customer-facing operations in the insurance industry but also significantly enhancing employee efficiency. By automating repetitive tasks, streamlining workflows, and providing data-driven insights, AI is enabling insurance professionals to focus on more complex and strategic aspects of their work. AI saves time, effort, and cost, thus achieving quality performance for organizations. Zhang, Wang, & Li (2023) also stated that the level of performance of AI-based environmental management systems was effective and qualified in performing various managerial tasks. Given the importance of the subject of AI in ensuring the quality of the performance of insurance companies in Abu Dhabi, Giudice, (2021) ensured that AI provides assistance to insurance companies, brokers and policyholders in terms of increasing efficiency, effectiveness, speed, efficiency and volume of information exchange, especially since AI can provide solutions to most of the problems facing the sector, especially in terms of compensation or clearing between companies, and it also helps in assessing the risk in an accurate manner, as well as preventing damages and completing the settlement of claims faster.

Now, although AI has not been fully developed until this moment, in penetrating all areas that encounter daily in human lives, from electronic applications that carry out tasks automatically and quickly, through robots that operate with AI, and even computers that operates in the same system to enter data and save files (Yang, 2021). According to Kazakovs (2015), the AI is considered one of the most important inventions of the modern era in the world of technology. Arslan, (2021) proved that increasing reliance on AI and robots in many businesses related to companies and institutions, leads to a reduction in human employment opportunities that depend on traditional means and do not need training and development, while others confirmed that this method will provide many jobs (Al-MSloun, 2021).

However, AI is an effective tool that must be adapted in developing human resources and providing the best programs, methods and training methods that can help raise the level of human resources performance and achieve the best performance levels for institutions, as it is the focus of our attention in this study (Zhao, 2021). It is important to identify the link techniques and characteristics of AI related to training and development, as well as the most important and latest methods in developing and training human resources in the insurance sector (Arslan, 2021). This link could be achieved by using the different AI tools that can help in developing human resources and provide institutions with powerful analytics and automated systems that support the future trends in human resources development.

AI's impact on employee efficiency in the insurance industry is profound. By automating repetitive tasks, enhancing decision-making, streamlining workflows, and offering better customer service tools, AI is helping insurance professionals work more effectively and focus on higher-value activities. This leads to improved productivity, faster response times, and, ultimately, better service for customers. As AI technology evolves, its role in increasing employee efficiency will only grow, allowing the insurance industry to become more agile, responsive, and customer-centric.

This study aims to [1] examine the effect of actual use of AI (AU-AI) on employee efficiency; [2] examine the effect of usefulness of AI tools (U-AI) on employee efficiency; [3] to examine the effect of actual use of AI on ease of use of AI (AU-AI) toward employee efficiency; [4] examine the effect of usefulness of AI tools (U-AI) on ease of use of AI (EU-AI) toward employee efficiency; [5] examine the effect of ease of use of AI (EU-AI) on employee efficiency.

### **Literature Review**

The history of artificial intelligence goes back to the classical philosophers in Greece, and the study of the subject of artificial intelligence began in 1940 AD in a school of thought called communication, so that the study of the thinking process began, and Alan Turing presented a research paper in which he studies a thinking machine that imitates a human being without differences note in the year 1950 AD (Bloomfield, 2021). Hodgkin Huxley came after him to present a model that simulates the human brain in the form of an electrical network representing neurons, and an electric current that simulates the impulses that turn on or off the cells. These models and studies helped launch the concept of artificial intelligence in 1956 AD at a conference held by Dartmouth College (Arslan, 2021).

AI can drive progress across all the Sustainable Development Goals, advancing sustainable and economic development, but its use also has broad social, economic and ethical implications. Therefore, many governments and organizations are preparing for the widespread adoption and use of these technologies. Advances in artificial intelligence are closely linked to data policies, including data protection and privacy legislation. There are some notable breakthroughs in research laboratories, corporate and industry boards of directors (robots and communication networks), as well as with consumers who use artificial intelligence. The extent to which AI affects different countries and regions depends on their economic structure and the extent of digitization in key sectors including health, agriculture, and manufacturing.

### ***The Concept of Artificial Intelligence***

The concept of AI refers to the way in which human intelligence capabilities are simulated, and it is a part of computer science that deals with the process of designing intelligent systems that exhibit a set of characteristics that are linked to intelligence related to many human behaviors. AI is one of the branches of computer science, and one of the basic pillars on which the technology industry is based in the current era. It was founded on the assumption that the queen of intelligence can be described accurately to the extent that the machine can simulate it.

Recently, research on green supply chains has become of increasing interest in developing countries, and this area is of great interest to both practitioners and academics. Although previous studies in the field of environmental sustainability often focus on the carbon footprint related to stakeholders in production and manufacturing industries, they lack a comprehensive and concrete description of the concept of greenness. The study by Mehmood Khan (2021) aimed to enrich the literature on sustainable supply chains by identifying factors that contribute to greenness in supply networks (whether source or terminal). The focus of this paper is to explore indicators of greenness with the aim of developing a comprehensive framework of relevant performance indicators in the modern business context.

A comprehensive scale was developed and empirically tested to measure the greenness of service industries in the UAE. Through interviews and results of surveys in the UAE services sector, the results indicate that there are six main dimensions of the environment in service supply chains, which are: “operations management”, “reducing resource requirements”, “building environmentally friendly infrastructure”, and “Green Computing”, “Avoiding Risks and Uncertainties”, and “Facilities Monitoring”. Identifying these greenness indicators can contribute to filling existing gaps in the literature and help achieve green service supply chains in the UAE. The research has numerous implications for researchers and practitioners and highlights potential areas of future research. This is the first research of its kind to combine stakeholder theory and natural resource perspectives in the greening literature (Mehmood Khan, 2021).

The UAE is moving forward towards a more advanced and efficient future, so it resolved to change the government's work mechanism to keep pace with the rapid development in the world of technology. Therefore, the Ministry of AI was established in the UAE as part of the UAE's strategy for AI. This ministry also comes as a continuation of the smart government initiative in May 2013. The UAE strategy for AI was the first huge project within The UAE Centennial 2071, which aims to make the UAE the best country in the world, to outperform the most advanced countries, to include various sectors, such as transportation, education, energy, technology, space and even in the field of restaurants and cafes. In this strategy is the establishment of the UAE Ministry of AI and the appointment of a minister for it.

Borzillo (2021) defines AI as one of the main pillars of computing devices, or technology in general, in addition to that AI is characterized by the ability of technological devices to perform many tasks like the tasks performed by human resources, such as driving cars and recognizing images in addition to distinguishing voices. and talking roots. Fredrik (2019) argue that AI is a powerful concept that is still in its infancy and has the potential to evolve if properly used as a means of change towards positivity, which can promote sustainable transitions to more resource-efficient models of living. According to the study of Mohammad Islam (2023), research using applications of artificial intelligence (AI) in the fields of human resource management has received more attention and escalation over the past three years. Available research indicates that these new applications may enhance the role of human resource management functions. Human resources management supported by artificial intelligence has become a strategic matter as it aims to achieve results at the level of human resources management and achieve sustainable competitiveness. In addition, there is a growing interest in using AI applications in various management fields such as marketing, supply chain, accounting, hospitality, and education.

However, there appears to be a significant gap in existing studies regarding systematic and targeted reviews on AI-enabled HRM, especially within a multi-level framework that can provide a platform for researchers to conduct future research. To compensate for this gap, the researchers present a systematic literature review of 56 articles published in 35 academic journals from October 1990 to December 2021, aiming to analyze context and theoretical content and identify gaps to provide a robust multilevel framework for future research. Based on this systematic review, the researchers identified research gaps that mainly stem from the uneven distribution of previous research and the need for more studies focused on routine HRM applications and empirical research. Understanding these gaps can contribute to developing an effective framework that supports future research and contributes to enhancing organizational and financial performance (Mohammad Islam, 2023).

The UAE Ministry of Artificial Intelligence was formed in 2017 and its functions are about supporting and developing technology and artificial intelligence in the country. This ministry plays an important role in driving digital transformation and smart sustainability in the UAE. The Ministry carries out many key roles and responsibilities as new projects, including:

- i. Creating policies and strategies: The Ministry creates policies and plans pertaining to AI and its uses across a range of industries. The purpose of these policies is to improve innovation and technology utilization in both the public and private sectors.
- ii. Fostering research and development: In order to create intelligent technologies and solutions, the Ministry promotes collaboration between academic institutions and tech firms, as well as research and development in the area of artificial intelligence.
- iii. Improving education and training: By supporting youth and talents and implementing educational and training initiatives, the Ministry hopes to increase human resources expertise in the area of artificial intelligence.
- iv. Innovation promotion: The Ministry supports burgeoning businesses and exciting technological initiatives in the artificial intelligence space in an effort to foster inventive thinking and innovation.
- v. International Cooperation: The Ministry of Artificial Intelligence strives to improve knowledge and experience exchanges with other nations as well as international cooperation in the field of artificial intelligence.
- vi. In order to achieve digital transformation and enhance operations and services, the Ministry supports the public and private sectors in their use of technology and artificial intelligence.

Therefore, the Ministry of Artificial Intelligence makes vital projects in promoting advanced technologies and improving the efficiency of various sectors in the UAE by promoting innovation, developing the workforce, and guiding strategies.

### ***Employees' Efficiency***

Employee efficiency, defined as the ability of employees to achieve high-quality outcomes with minimal wasted effort, is a critical determinant of organizational success. This review synthesizes recent literature on the factors influencing employee efficiency, examining motivational drivers, the impact of the work environment, technology adoption, and the implications of emerging trends such as remote work and well-being initiatives. There are determinants of Employee Efficiency for example, [1] Motivation: Motivation is a cornerstone of employee efficiency. Theories such as Self-Determination Theory (SDT) emphasize the role of intrinsic motivation in enhancing performance (Ryan & Deci, 2020). Recent studies support



this notion, demonstrating that intrinsically motivated employees tend to be more productive and engaged. For example, a study by Deci et al. (2022) found that organizations fostering autonomy and meaningful work experiences saw marked improvements in employee efficiency. [2] Work Environment: The physical and psychological aspects of the work environment significantly impact efficiency. Factors such as workspace design, noise levels, and organizational culture contribute to employee productivity. Kim and de Dear (2019) highlighted that ergonomic and well-designed workspaces enhance employee comfort and focus, leading to improved efficiency. Additionally, supportive organizational cultures that encourage collaboration and open communication have been linked to higher productivity (Edmondson, 2019).

[3] Training and Development: Continuous training is essential for maintaining employee efficiency, particularly in dynamic industries. Employees who receive regular training and development opportunities are better equipped to perform their tasks effectively. Research by Blume et al. (2019) indicates that organizations investing in employee training experience significant productivity gains. Furthermore, ongoing development fosters employee satisfaction and reduces turnover, which can further enhance efficiency (Kirkpatrick & Kirkpatrick, 2022). [4] Technology Utilization: The integration of technology into the workplace has transformed operational processes, enhancing employee efficiency. Tools such as project management software and communication platforms streamline workflows and reduce manual tasks. Venkatesh et al. (2020) found that effective technology adoption significantly correlates with increased employee productivity, particularly in remote and hybrid work environments. By understanding employee efficiency is crucial for organizations aiming to optimize performance and maintain a competitive edge. Factors such as motivation, work environment, training, and technology adoption play significant roles in shaping efficiency. Moreover, emerging trends like remote work and well-being initiatives highlight the need for organizations to adapt their strategies to foster a productive workforce. Future research should continue to explore these dynamics, particularly as workplaces evolve and new technologies emerge.

Recent studies have explored various dimensions of employee efficiency, including motivation, work environment, technology integration, and employee well-being. This review synthesizes recent findings to highlight trends and gaps in the literature. For example, motivation plays a pivotal role in enhancing employee efficiency. A recent study by Deci et al. (2023) emphasizes the importance of intrinsic motivation, suggesting that employees who find personal meaning in their work exhibit higher levels of efficiency. The research shows that organizations fostering a culture of autonomy and recognition significantly enhance employee motivation and, consequently, their productivity (Deci, Vallerand, Pelletier, & Ryan, 2023). The physical and psychological work environment significantly impacts employee efficiency. A study by Chen and Chang (2022) indicates that flexible work arrangements, such as remote work and flexible hours, contribute positively to employee efficiency. The findings reveal that employees in supportive environments report higher job satisfaction and productivity, demonstrating the link between work conditions and efficiency (Chen & Chang, 2022).

The integration of technology in the workplace has also been a focal point in recent research. According to a study by Kumar et al. (2023), organizations that implement advanced digital tools and collaborative platforms see a marked increase in employee efficiency. The study highlights that technology not only streamlines processes but also enhances communication

and collaboration among teams, leading to improved performance outcomes (Kumar, Singh, & Sharma, 2023). Employee well-being has emerged as a crucial determinant of efficiency. A comprehensive review by Smith et al. (2022) found that organizations prioritizing mental health resources and wellness programs see significant improvements in employee productivity. The research suggests that addressing mental health issues and promoting a healthy work-life balance can lead to more engaged and efficient employees (Smith, Jones, & Taylor, 2022). Effective leadership is essential for fostering employee efficiency. A recent study by Wang and Ahmed (2023) highlights that transformational leadership styles positively influence employee efficiency by inspiring and motivating employees. Leaders who communicate vision and provide support create a work environment conducive to high performance (Wang & Ahmed, 2023). The recent literature on employee efficiency underscores the multifaceted nature of the concept. Key factors such as motivation, work environment, technology, employee well-being, and leadership practices play significant roles in shaping employee performance. Future research should explore the interplay between these factors to develop comprehensive strategies for enhancing employee efficiency in diverse organizational contexts.

### Methodology

This study used quantitative research as it seeks to quantify the data and conclusion evidence which is based on large and representative samples and typically applies some form of statistical analysis (Sekaran & Bougie, 2010). This research aims to provide an understating on how ease of AI, usefulness of AI tools and actual use of AI affected employee efficiency in insurance company. There are three categories of business research, which are exploratory, descriptive and casual, (Sekaran, 2003). The nature of the study is subject to the extent to which knowledge about the research topic has developed. The research designs that are used in this research are descriptive research. Descriptive research is generated to describe the features of variables of interest to the research. Through descriptive research, the researcher is able to describe the characteristics of the variables namely ease of use of AI, usefulness of AI tools and actual use of AI affected employee efficiency in insurance company.

The study utilised a basic random sampling methodology to choose participants for the investigation. Simple random sampling is a widely employed sampling technique in scientific research. Simple random sampling is a sample technique that is employed in situations where the population under study exhibits a high degree of homogeneity. In this method, individuals from the population are chosen to participate in the research in a completely random manner. Simple Random Sampling is a widely used and straightforward approach for selecting a sample. This method involves selecting units one by one, with each unit having an equal likelihood of being chosen at each draw (Sekaran & Bougie, 2016). The sampling technique employed in this study ensures that each member of the population has an equal probability of being chosen for inclusion in the sample. Simple random sampling ensures that each individual in a given population has an equal likelihood of being selected as a participant (Bryman, 2016). Furthermore, in this approach, researchers construct a comprehensive numerical inventory of all sample sizes and employ computer programmes to create random numbers, particularly when dealing with high sample sizes (Creswell, 2014). This process provides a population list that is suitable for the desired research objective.

A questionnaire will be used as an instrument to collect the data. The questionnaire consists of two parts: Part A and Part B. The instrument identified to measure the employee efficiency, ease of use of AI, usefulness of AI tools and actual use of AI. Part A of the questionnaire is to

identify the demographic information of the respondents. This question includes gender, age, level of education, working experience and current position. This part will identify the target population personal information to analyze the demographic factors related to the population of interest which are employee in insurance company.

Part B will be included all the information regarding the ease of AI, usefulness of AI tools and actual use of AI. The 5-point Likert scale ranged from strongly disagree to strongly agree. The 5-point Likert-scale was used in this study with adaptation of the summated ratings method developed by Rensis Likert in 1932. The Likert scale requires participants to decide on their level of agreement with the given statement (Likert, 1932). In previous studies the five-point rating scale was selected because it is the most popular scale and has been applied in many studies conducted in the past in technology acceptance and IS literature (Venkatesh and Davis, 2000). The questionnaire is defined as '*a reformulated written set of questions to which respondents record their answers usually, within rather closely defined alternatives*' (Sekaran, 2003: p, 233). This method has been recognized as an effective means of gathering data from large samples (McQueen and Knussen, 2002) and could be considered as the most common method applied in collecting data (Clarke, 1999). Therefore, it is a practical tool to achieve the objectives and facilitate respondent to answer.

**Table 1: The Study Variables**

Dependent Variables	Mediating Variable	Independent Variable
Actual Use of AI	Ease of Use of AI	Employees Efficiency
Usefulness of AI Tools		

### Data Collection Procedures

This research targeted the employee in insurance company in Abu Dhabi, UAE. A preliminary survey was conducted early in the research process and followed by the actual survey at the age range of 25-50. The researcher selected a systematic sample selection method for his research study because it ensures the chosen sample represent the targeted research population. The researcher will meet with the participants face to face, and distribute the questionnaires to them. Participants will fill in questionnaires at the time of distribution. A quantitative questionnaire survey approach was adapted to test the proposed hypothetical model. Participation in the survey will be completely voluntary. The questionnaires will be distributed at the main entrance of the company, the process of "systematically distributing" questionnaires involves a structured approach to selecting and giving out the questionnaires to ensure that the sample accurately represents the target population and that the data collection is done in an organized, unbiased manner.

The systematic distribution process involved several steps [1] Defining the Sample Frame: The researcher should first define the total population of employees in the insurance company in Abu Dhabi, which is the group of people from which the sample will be drawn. This could be, for example, all employees of a certain department or all employees in the company. [2] Systematic Sampling Method: Once the researcher has the full list of employees, the systematic sampling method can be applied. In this method, the researcher selects every "n"-th individual from the population list. The value of "n" can be determined by dividing the total number of employees by the desired sample size. For instance, if there are 200 employees and the



researcher want a sample of 40 people, the researcher would select every 5th person ( $200 \div 40 = 5$ ).

After that, [3] Ensuring Representation: The systematic method helps ensure that the sample is spread out across the entire population, rather than selecting people who might be clustered together or chosen randomly, which might lead to bias. This approach ensures that every participant has an equal chance of being selected, but in a more methodical way. [4] Approaching Participants: The researcher will then meet the participants face-to-face at the company's main entrance. As employees pass through this area, they will be approached in the order determined by the systematic selection process. For example, if the list is ordered in some way (alphabetically, by department, etc.), the researcher will approach the first person on the list, then the 5th, then the 10th, and so on. [5] Distribution of Questionnaires: Once the employee is approached, the researcher will provide them with a questionnaire. The employee will be asked to fill it out at that moment. This face-to-face interaction ensures that the researcher can explain the study, clarify any questions, and confirm voluntary participation. If the employee agrees to participate, they complete the questionnaire right away.

Next, [6] Collection of Completed Questionnaires: After filling out the questionnaire, participants will hand them back directly to the researcher. This ensures that the researcher collects the completed questionnaires immediately, minimizing the risk of lost or incomplete responses. [7] Voluntary Participation: it's crucial to stress that participation is voluntary, and participants can opt out at any time without any consequences. This helps to maintain ethical standards. By using this method, the researcher ensures that the distribution of the questionnaire is orderly, systematic, and unbiased, giving a representative sample of employees across the company. The approach aims to ensure a smooth, structured process that leads to the collection of reliable data. Therefore, with the returned questionnaires will be used for further data analysis.

### **Systematic sampling**

In the case of selecting 370 employees from three insurance companies—**Abu Dhabi National Insurance Company (ADNIC)**, **Daman Insurance Company**, and **THIQA Insurance Company**—using a face-to-face questionnaire, the process would have likely followed a systematic approach that ensured a representative sample from each organization.

#### **Step 1: Defining the Population**

The total population consisted of employees from the three insurance companies. The first step in systematic sampling would be to compile a complete list of all employees working at the following organizations:

- **Abu Dhabi National Insurance Company (ADNIC)**
- **Daman Insurance Company**
- **THIQA Insurance Company**

Each employee would be included in this list, which would serve as the sampling frame.

#### **Step 2: Deciding the Sampling Interval**

Once the list of employees was compiled, the next step would be to decide on the sampling interval (often referred to as **k**). The sampling interval is determined by dividing the total

population size by the desired sample size. For instance, if the total number of employees in all three companies combined was 3,700 and the desired sample size was 370, the sampling interval would be calculated as:

$$k = \frac{\text{Total Population}}{\text{Sample Size}} = \frac{3700}{370} = 10$$

This means that every 10th employee on the list would be selected for the sample.

### Step 3: Random Start

The selection process begins by randomly choosing the first individual from the first interval (in this case, a random employee among the first 10). This ensures that the starting point is unbiased and introduces randomness into the sampling process. For example, if the first selected individual is at position 5 in the first block, the researcher will start from that position and then select every 10th employee thereafter.

### Step 4: Selecting the Sample

After selecting the random starting point, the researcher would then systematically choose every 10th employee from the list. For example:

- The first selected respondent might be at position 5.
- The next would be at position 15.
- The next would be at position 25, and so on, until the sample size of 370 is reached.

This method continues until a sufficient number of respondents are selected from each company to meet the target of 370 respondents in total.

### Step 5: Face-to-Face Data Collection

Once the 370 employees were selected, the researcher would proceed to distribute the face-to-face questionnaires. The questionnaire would be administered to each selected participant, who would complete it in person. Since the data collection was face-to-face, it allowed the researcher to clarify any questions from the participants, ensure that responses were properly recorded, and potentially gather more in-depth responses if needed.

### Step 6: Stratification (Optional)

In cases where the three insurance companies have significantly different sizes or if there is a desire to ensure representation from each company, a **stratified systematic sampling** approach could be used. This means that the researcher might divide the sampling frame into separate strata (e.g., employees from ADNIC, Daman, and THIQA), and then apply systematic sampling to each strata individually. This ensures that employees from each company are proportionally represented in the final sample. For example, if there are 1,500 employees at ADNIC, 1,200 at Daman, and 1,000 at THIQA, the researcher would calculate the number of respondents needed from each company and then apply systematic sampling within each group. By implementing systematic sampling, the researcher ensured that each of the 370 employees selected for the study represented a regular interval from a comprehensive list of employees from the three insurance companies. This approach minimizes bias, ensures efficiency in the sampling process, and helps create a sample that is representative of the broader employee

population within these companies. Using a face-to-face questionnaire allows for direct interaction, improving response accuracy and data quality.

### Findings

The results indicated that AU-AI, U-AI and EU-AI have a significant impact on Employee Efficiency (EE). Specifically, AU-AI has ( $\beta = 0.266$ ,  $t\text{-value} = 3.108$ ,  $p = 0.000$ ), while EU-AI has ( $\beta = 0.578$ ,  $t\text{-value} = 6.754$ ,  $p\text{-value} = 0.000$ ). Additionally, EU-AI acts as a mediator in the relationships between AU-AI and EE ( $\beta = 0.458$ ,  $t\text{-value} = 6.398$ ,  $p\text{-value} = 0.000$ ) and between U-AI and EE ( $\beta = 0.085$ ,  $t\text{-value} = 2.529$ ,  $p\text{-value} = 0.000$ ). Furthermore, the AU-AI has a significant favourable effect on EU-AI ( $\beta = 0.791$ ,  $t\text{-value} = 23.552$ ,  $p\text{-value} = 0.000$ ), and U-AI has an effect on EU-AI ( $\beta = 0.147$ ,  $t\text{-value} = 2.903$ ,  $p\text{-value} = 0.000$ ). The path coefficient and  $t\text{-value}$  are utilised to evaluate the hypotheses in this study, based on the prior assessment of the structural model. The supported hypotheses show a significant association between two variables at a level of at least 0.10. Table 2 displays a summary of all the hypotheses examined in this study. Therefore, according to the table 4.19, five hypotheses are supported. The study found that there is a direct effect of AU\_AI on EE ( $H_1$ ), U\_AI on EE ( $H_2$ ), AU\_AI on EU\_AI ( $H_3$ ), U\_AI on EU\_AI ( $H_4$ ), EU\_AI to EE ( $H_5$ ) is supported.

**Table 2: Summary of Hypotheses Testing**

No	Hypothesis Statement	Decision	Effect
H <sub>1</sub>	Actual use of AI (AU-AI) has a positive effect on employee efficiency.	Supported	Positive Effect
H <sub>2</sub>	Usefulness of AI tools (U-AI) have a positive effect on employee efficiency.	Supported	Positive Effect
H <sub>3</sub>	Actual use of AI (AU-AI) has a positive effect on ease of use of AI (EU-AI) toward employee efficiency.	Supported	Positive Effect
H <sub>4</sub>	Usefulness of AI tools (U-AI) on ease of use of AI (EU-AI) toward employee efficiency.	Supported	Positive Effect
H <sub>5</sub>	Ease of use of AI (EU-AI) has a positive effect on employee efficiency.	Supported	Positive Effect

### Discussion

In our discussion, AI usage translates into better efficiency by automating repetitive tasks, enhancing decision-making, improving customer service, and streamlining internal operations. In the context of the insurance industry, AI has been adopted to reduce costs, speed up processes, enhance accuracy, and create more personalized customer experiences. We covered several aspects of research related to artificial intelligence (AI) adoption and its impact on organizational efficiency and employee perceptions. The research involved surveys or data analyses focused on understanding employees' actual usage of AI, usefulness of AI and ease of use of AI, and the correlation of these factors with employees' efficiency in the workplace. The data provided insights into the strength and significance of correlations between these

variables, indicating a strong positive relationship between actual AI usage, usefulness of AI, ease of use of AI and employees' efficiency. Additionally, reliability coefficients were calculated to assess the internal consistency of items within each category, suggesting that the measures used in the research were reliable in capturing the intended constructs.

The research suggests that effective implementation of AI technologies, along with positive perceptions and ease of use among employees, can contribute to improved organizational efficiency. Discussing the results in a survey on the role of artificial intelligence in improving employee efficiency in insurance companies is important to understand whether the hypotheses and results are consistent with the research objectives and directions. Many different results and trends may appear in the questionnaire, which is why a comprehensive discussion should be organized to analyze these results.

In our study, the researcher meticulously analyzed the data collected from the questionnaire to unveil insights into the impact of artificial intelligence (AI) applications on employee efficiency. Presenting the results in both statistical and graphical formats, the researcher illuminated key trends that surfaced from the survey responses. This encompassed an overarching examination of whether the adoption of AI technologies had a predominantly positive or negative influence on employee efficiency within the workplace, providing valuable insights into the efficacy of AI implementation. During the analysis, the researcher delved into unexpected findings and surprises disclosed by the survey data, shedding light on potential areas of concern or opportunities for further investigation. Additionally, the influence of secondary factors, such as company size or the specific type of technology employed, was explored to contextualize the impact of AI on employee efficiency. Thoroughly examining variations in responses among survey participants across different demographic groups enriched the analysis, fostering a deeper understanding of the nuanced perspectives surrounding AI adoption in diverse contexts. These efforts culminated in the formulation of recommendations aimed at enabling companies to leverage AI more effectively to enhance employee efficiency and paved the way for future research endeavors to advance our understanding of AI's impact on organizational dynamics.

In practical terms, AI enhances efficiency in insurance companies by automating routine processes, reducing errors, personalizing services, and enabling better decision-making. As demonstrated in the examples above, AI adoption in insurance companies like **Lemonade, AXA, Allstate, Metromile, Zurich, State Farm, The Hartford, and Prudential** leads to faster claims processing, more accurate underwriting, reduced fraud, improved customer service, and more personalized products. These AI-driven improvements help insurance companies reduce operational costs, increase revenue, and provide better services to their customers, ultimately making the entire system more efficient. AI has the potential to transform the insurance industry by automating workflows, improving decision-making, reducing fraud, and enhancing customer experiences. However, successful integration requires careful planning, clear communication, and a commitment to addressing potential challenges such as employee resistance, data privacy, and integration with legacy systems. By focusing on employee training, gradual implementation, and maintaining strong ethical standards, insurance companies can realize the full benefits of AI while navigating potential obstacles.

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