The Impact of Artificial Intelligence (A.I) on Recruitment and Selection of Human Resources Management (HRM)

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Abstract

The aim of this research is to examine the potential effects of incorporating artificial intelligence (AI) on the processes of recruitment and selection within the human resources management (HRM) industry in Egypt. By employing a quantitative research methodology, this study employs an empirical and descriptive focus. The data was collected from 109 participants via an internet-based survey utilising cluster random sampling. The collected data underwent analysis utilising the Structural Equation Model (SEM) of SmartPLS. The study identifies the significant impact of the attribute on human resource management for selection and recruitment. The results

of this research emphasise the effects of artificial intelligence (AI) on selection and recruitment processes. These findings provide practical and implementable suggestions for human resources professionals in Egyptian organisation. Nevertheless, the research also emphasises the significance of conscientiously implementing AI, while remaining cognizant of possible biases. Practical suggestions comprise the implementation of specialised training programmes for human resources professionals, the development of strategies to mitigate biases, and a thorough assessment of AI tools.

Keywords A.I, selection, Recruitment, HRM, NBE

1. Introduction

This study seeks to explore the impact of integrating artificial intelligence (AI) into recruitment and selection procedures in Egyptian companies, with a specific focus on the field of human resources management (HRM). The objective of this research is to investigate how AI tools, including resume screening, interview facilitation, assessments, and final hiring decisions, affect various aspects of the recruitment process. These aspects, considered as the dependent variables, include recruitment efficiency, the caliber of hired candidates, and the potential existence of biases during the hiring process.

The central ideas presented in this study propose that the utilization of AI has the potential to greatly improve the efficiency of the recruitment process by simplifying various tasks through automated screening and scheduling (Johansson and Herranen, 2019). However, it is important to recognize the potential drawbacks of relying too heavily on algorithms, as this could potentially worsen existing biases and diminish the human element of judgment in the hiring process (Raub, 2018). The overall effect on the quality of hiring is believed to depend on the careful development of AI tools, the successful mitigation of biases, and the effective integration of AI technologies with the expertise of human professionals (Lloyd and Payne, 2019).

In order to examine and evaluate these hypotheses in a practical and concrete manner, the research will entail conducting a comprehensive survey among Human Resources (HR) professionals in Egypt. Through this survey, valuable insights regarding the extent to which AI is currently being utilized in the field of recruitment and selection will be obtained. Moreover, data pertaining to various aspects such as the efficiency of the recruitment process, the outcomes of hiring decisions, and any potential biases that may arise will be gathered both prior to and subsequent to the implementation of AI technologies. By comparing these datasets, it will be possible to ascertain the exact impact that the adoption of AI has on these specific variables of interest. To achieve this, regression analysis will be employed,

allowing for a precise and accurate measurement of the influence that AI adoption has on the aforementioned dependent variables. Furthermore, these findings have the potential to serve as a foundation for the development of specialized training programs tailored for HR professionals. These programs will equip them with the necessary skills and knowledge to ethically and efficiently apply AI technologies in their daily operations. Such training initiatives will not only enhance the proficiency of HR practitioners but also ensure that AI is utilized in a responsible and appropriate manner. The main objective of this research is to provide comprehensive and evidence-based insights that delve into the numerous benefits and limitations of incorporating artificial intelligence (AI) into human resource management (HRM) practices specifically in the Egyptian context. By gathering and analyzing data, this study aims to offer valuable knowledge that can inform and shape more effective strategies for the adoption of AI technologies in Egyptian workplaces, ultimately leading to improved recruitment outcomes.

Ultimately, the successful integration of AI in HRM practices can result in a synergistic collaboration between human employees and AI systems. This collaboration will further strengthen the overall functioning of HRM by leveraging the unique capabilities of AI, such as data analysis and automation, while also maintaining the essential human touch and expertise. By optimizing the harmonious coexistence between humans and AI,

the HRM function can reach new heights of efficiency and effectiveness, ultimately benefiting both organizations and employees alike. At the end, the increasing adoption of artificial intelligence (AI) in human resources management (HRM) for recruitment and selection processes in Egyptian organizations has raised questions about its potential impact. While AI tools hold the promise of improving recruitment efficiency and enhancing the quality of hires, there are concerns regarding the introduction of biases and the erosion of human discretion in the hiring process (Smith and Shum, 2018). This research problem highlights the need to assess the overall consequences of AI integration in HRM practices in the specific context of Egypt, addressing both the advantages and potential challenges associated with this technology. Therefore, the research problem statement can be framed as follows:

"Does the adoption of AI affect HRM recruitment and selection process in the context of Egyptian organization?"

2. Literature review

In this part the literature will delve beginning with the independent variable which is the Artificial Intelligence then the dependent variable which is recruitment and selection of HRM and at the end the relationship between the independent and the dependent variable as AI and recruitment and selection of HRM.

2.1 Artificial Intelligence (A.I)

Artificial intelligence (AI) refers to computer systems or machines that are capable of performing tasks that normally require human intelligence, such as visual perception, speech recognition, decision-making, and language translation (Tien, 2017). The goal of AI research is to develop machines that can mimic and eventually surpass human intelligence in all aspects. The concept of AI has been around since the 1950s, but major advances in the field have occurred in the last decade or so, due to increased computing power, the availability of large datasets, and improvements in machine learning algorithms. The most common techniques used in AI today include machine learning, deep learning, neural networks, natural language processing, robotics, and expert systems (Jordan, 2019).

2.2 AI Usage

Artificial intelligence is revolutionizing healthcare. It is helping doctors make more accurate diagnostic decisions by recognizing patterns in medical images, genetic data, and patient records. AI is also being used for new drug discovery and precision medicine tailored to individuals. In addition, AI-powered chatbots are streamlining doctor-patient interactions by automating appointment bookings, prescription refills, and other routine tasks (Alowais et al. 2023). In the business world, AI is automating repetitive back-office

tasks, analyzing big data to generate strategic insights, detecting fraud earlier, forecasting sales trends, and optimizing complex supply chains. Customer service is being enhanced through the use of chatbots and recommendation engines that can quickly respond to buyer queries and suggest relevant products or services (Davenport, 2018).

The finance industry is deploying AI for automated algorithmic trading, comprehensive risk assessment, and to identify fraudulent transactions faster. Credit card companies are leveraging AI to analyze consumer spending patterns and set appropriate credit limits. Insurance firms are personalizing premiums and expediting claims settlement with AI systems. AI applications in education include assessing students and adapting course content to their learning needs (Mahalakshmi et al. 2022). AI tutors can provide personalized feedback, grade assignments, and make the learning experience more engaging through virtual interactions. AI is also assisting with administrative tasks like admissions management and class scheduling (Khare et al. 2018).

In transportation, AI is enabling autonomous vehicles to accurately sense the environment around them and navigate without human input. AI optimizes traffic patterns in smart cities and enhances logistics operations for transport companies (Khayyam et al. 2020). The introduction of AI has also made air travel safer. AI bolsters cybersecurity through swift pattern recognition and threat detection. It is being used for more reliable

biometric authentication as well as surveillance through facial recognition and object detection. AI also helps combat cybercrime, prevent identity theft and enhance public safety (Kunduru, 2023).

Manufacturers are using AI for quality control automation, predictive maintenance to reduce equipment downtime, and to optimize just-in-time production. In agriculture, AI analyzes crop data to monitor soil conditions, predict yields, and detect disease early. It also automates tasks such as pruning and weeding (Choudhary et al. 2020). In the world of entertainment, AI powers recommendation engines for content platforms like Netflix and Spotify. It enables advanced CGI in films and video games. On social media, AI curates personalized news feeds, identifies trending topics, moderates inappropriate content, and translates information (Meena et al. 2020).

2.3 Relative Advantage of AI

The speed at which AI systems can analyze massive volumes of data and derive insights far surpasses human capabilities. Tasks that take us hours can be accomplished by AI in mere seconds. This enables real-time decision making. Additionally, AI can scale up or down on demand, taking on large data workloads across an entire organization (Tien, 2017).

AI models can be trained to perform repetitive tasks with minimal errors, unlike humans who get bored or fatigued. This

results in greater accuracy and quality. By automating routine analytical and cognitive functions, AI systems enable humans to focus on more strategic, creative roles - enhancing productivity (Sadrfaridpour et al. 2016). AI systems can work tirelessly around the clock without any breaks. They provide instant and consistent service 24/7. Their reliability comes from their immunity to oversight errors or subjective emotional biases that affect humans. This ensures robust and uninterrupted operations (Sharma and Chaudhary, 2023).

A key advantage of AI is its ability to detect patterns and learn from experience without needing explicit reprogramming. It can adapt to changing external environments. Once deployed, the marginal cost of operating AI systems can be very low compared to large human workforces, thus resulting in significant cost savings (Aggarwal et al. 2022). Leveraging the objectivity of data-driven decisions, AI ensures neutrality and mitigates biases. With advantages like speed, scale and accuracy, AI will enable solving complex problems that have been hitherto impossible to tackle. The range of human capabilities enhanced by AI is rapidly expanding (Marda, 2018).

In summary, the advantages of artificial intelligence over human intelligence include faster processing of vast data, scalability, greater precision, higher productivity, 24/7 availability, reliability, adaptability, cost savings, neutrality, and solving complex problems - all of which drive innovation and efficiency.

2.4 AI Complexity

Based on data requirements, one major challenge is the massive amounts of structured data needed to train accurate AI models. This data must cover diverse parameters and long time periods. Assembling such vast data sets poses difficulties as they might not be readily available (Roh et al. 2019). Developing and operating AI systems requires highly skilled professionals like data scientists, machine learning engineers and domain experts. This talent is expensive to employ and currently in short supply (Zhang et al. 2020).

The complex algorithms used in artificial intelligence demand very powerful computing hardware, including high-end GPUs and TPUs. While cloud computing provides access to such resources, it can be prohibitively costly (HajiRassouliha et al. 2018). The decision-making logic behind deep learning algorithms is encoded within multilayer neural networks and is not easily explainable. This black box nature poses transparency and accountability challenges (Olaniyan et al. 2018).

If the training data used is incomplete or biased, AI systems implicitly perpetuate and amplify those biases. Continual review is essential to ensure fairness and prevent discrimination. Like any software, AI systems are vulnerable to cyber attacks and hacking. Regular security testing and updates are critical to prevent breaches. Unlike humans, AI lacks inductive reasoning and the ability to make subjective judgments that require true

discernment. AI is constrained by the specifics of its training (Schwartz et al. 2022).

The use of AI poses risks and ethical dilemmas. As regulation lags technology advancement, legal uncertainty persists around the development and use of AI systems. While AI is immensely beneficial, it requires thoughtful design, development, deployment and monitoring to address its challenges. Human oversight and domain knowledge will remain indispensable to ensure AI achieves its full potential for broad societal good (Hagemann et al. 2018).

2.5 Recruitment and selection of Human resources management

According to Mukherjee and Krishnan (2022) the aim of the research was to study the impact of artificial intelligence (AI) on the talent acquisition system of leading organizations across sectors. The authors wanted to understand how AI is aiding the employee recruitment and selection process. The research used a quantitative deductive approach. Data was collected via a structured questionnaire sent to 50 working professionals in various industries like IT, finance, education etc. The sample included companies like Apple, Cognizant, TCS, Goldman Sachs etc. The results showed that AI has not yet fully penetrated the hiring cycle but is on the verge of making breakthroughs globally. 76% of respondents believe AI will play a significant

role in hiring in the next 5 years. AI is expected to improve candidate experience, reduce cost and errors, fill positions faster, and enhance person-job fit through superior screening. However, concerns remain about AI's ability to judge soft skills and challenges for older workers to adapt.

In addition, Prabhakar (2023) aimed to understand the role of new emerging technologies in recruitment and selection process, as well as to analyze the impact of these technologies on recruitment efficiency and cost-effectiveness. The study used a survey with 60 employees from the HR departments of 10 leading IT organizations in Pune City, Maharashtra, India. The survey used closed-ended questions to gather information related to the role of new technologies in their respective companies' recruitment and selection process. Following the collection of the data, descriptive statistics like frequencies, percentages, and mean scores were used to examine it. The results showed that the majority of respondents believed that big data analysis can help in identifying suitable candidates, and that the survey had a good representation from different age groups. The study also highlighted key topics such as data privacy, ethical decision-making, and algorithmic bias, and offered tips on how employers can ensure their recruitment processes are compliant with data protection laws and ethically sound.

The impact of A.I on recruitment and selection of human resources management

Previous studies aimed to investigate the factors that influence the adoption of artificial intelligence (AI) in employee recruitment. They collected data through a self-reported survey from 300 HR professionals in China and analyzed it using structural equation modeling. The results suggest that perceived usefulness, organizational culture, and job requirements are significant predictors of AI adoption in recruitment. Additionally, the study found that common method bias was a potential limitation, but the authors took measures to address it. Overall, the study provides insights into the contextual factors that influence the adoption of AI in recruitment and highlights the importance of considering organizational and job-related factors when implementing AI technology (Pan et al. 2022).

Furthermore, Ore and Sposato (2022) this study explored the opportunities and risks of artificial intelligence in recruitment and selection from the perspective of multinational corporations' (MNC) recruiters. The study used qualitative data analysis of interview transcripts from 10 recruiters working in MNCs. The data was analyzed thematically using Braun and Clarke's six-phase process. The results of the study showed that the recruiters perceived AI adoption in recruitment and selection as beneficial, with many opportunities related to data analytics, candidate experience, and employer branding. However, the data also

suggested possible risks related to fear and distrust, which could temper some of the enthusiasm about the opportunities.

Moreover, Hemalatha et al. (2021) The primary purpose of this research is to critically analyze the impact that Artificial Intelligence (AI) is having on Human Resource management practices, more specifically on recruitment and selection in organizations. The researcher has concentrated on four AI capabilities - Natural Language Processing, Machine Vision, Automation, and Augmentation - and their impact on the Recruitment and Selection process. The researcher collected primary data through an online survey from 141 IT employees regarding Chennai city. The researcher also focused on external secondary data (articles and reports) to demonstrate some of the findings on the impact of AI capabilities on Recruitment and Selection. The study finds that the four AI capabilities (NLP, Machine Vision, Automation, Augmentation) have a significant impact on the Recruitment and Selection Process. The potential positive outcomes identified include time & cost-saving, accuracy, removes bias, reduced workload, increased efficiency, and better candidate experience. The results indicate that AI technologies can transform recruitment and selection in IT companies to become more efficient and effective. However, human intervention may still be required in certain aspects like interviews and salary negotiations. Thus, the hypothesis development is:

H1: A.I has a significant impact on recruitment and selection of Human resources management

H2: A.I has no significant impact on recruitment and selection of Human resources management
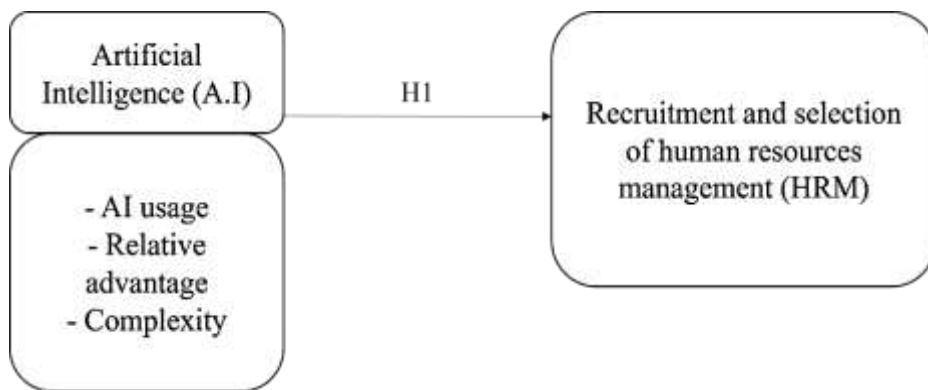
3. Conceptual framework

Figure 1: Research model

Source: Based on authors

4. Methodology

Data sources for this thesis include primary source as it aims to strengthen the decision on the hypothesis. The questionnaire was developed using research from several studies, including those by Ruff (2015) and Abduljabbar et al. (2019). It is based on surveys collected after 109 employees of the NBE financial corporate were interviewed. Employees Human resources recruitment and selection department. These are the departments that need to be

informed on AI methodology and outcomes. Due to the face-to-face interviews that were conducted, the response rate was approximately high.

The sampling method that will be employed is cluster random sampling. The process of randomly choosing a cluster from a sampling frame is known as cluster random sampling. The cluster is made up of various parts (Patil and others, 2014). Every component needs to be examined. NBE was chosen at random from the sampling frame of all Egyptian firms for the research paper. Every employee in the supply chain, logistics, and quality departments was interviewed in person. Some were removed because they were unaware of artificial intelligence. In-person interviews guarantee a high response rate and offer a great way to check for biassed or misleading opinions brought about by miscommunications or ignorance.

We'll use the cluster random sampling approach. A sampling frame including diverse groupings that separately reflect all population segments is necessary. Within the framework of this application, every company is part of a cluster that has a comparable distribution of employees in managerial and departmental roles. Next, a cluster from the sample frame ought to be chosen at random. As a result, bias would not be introduced when extrapolating the generated results to other companies (Setia, 2016).

Sedgwick (2014) claims that cluster random sampling was covered. The division of people into diverse groups is essential to probabilistic sampling. Within an organisation, each diverse group corresponds to a different degree of management. Every business is a cluster. Utilising Egypt Business Directory, a list of companies was compiled from which the clusters were chosen at random. A total of 228 businesses were identified as financial corporations. There were just six businesses listed as governmental financial banks. The list included as follows:

1- National Bank of Egypt (NBE)	2- Banque Misr	3-Banque du Caire
4- Suez canal	5- Central bank of Egypt (CBE)	6- Export Development Bank of Egypt EDBE

Source: Egypt Business Directory (2023)

The size of the sample used in the research paper is decided by

$$n = \frac{z^2 * p * (1-p)}{e^2} = \frac{(1.96)^2 * (0.5)(0.5)}{0.1^2} \approx 96.04 \approx 97$$
$$< 109$$

Therefore, the sample need to exceed 97 respondents to obtain a margin of error of 0.1

Therefore, the sample need to exceed 97 respondents to obtain a margin of error of 0.1. This require selecting 1 random cluster from the list. The chosen cluster were NBE.

After selecting NBE by cluster sampling approach, surveys were disseminated. The National Bank of Egypt (NBE), founded in 1898, is one of Egypt's oldest and largest financial organisations. The Egyptian government owns most of the bank, making it vital to national economic ambitions. NBE provides typical banking and financial services like savings, loans, and credit, as well as foreign banking and investment services, to people, corporations, and government agencies. Financial inclusion is boosted by NBE's broad urban and rural branch network. By opening representative offices and branches worldwide, the bank has facilitated international trade. Technology-driven NBE offers online and mobile banking to improve customer experiences. NBE finances agricultural, manufacturing, and infrastructure initiatives in addition to its economic importance. NBE follows the CBE's financial system stability and integrity framework.

The purpose of this study is to comprehend the impact of artificial intelligence on human recourses recruitment and selection in the finance industry. The purpose of the investigation will be to determine the efficacy of A.I. The research will be descriptive in nature.

The chosen method for addressing this issue would be quantitative analysis. The human recources selection and

recruitment department were surveyed. CFA and SEM are the confirmatory factor analysis and structural equation modelling, respectively. For characterising the research sample, the mean and standard deviation were computed, and pie charts were used to display the percentages of the variables.

CFA is the initial phase of the proposed analysis of it. According to Hox, (2021), it is utilized when an underlying model and latent variables are considered. Path analysis determines the latent variables and the dependability of the KPIs used to evaluate the variables. According to Luo, Zhang, and He (2020), the SEM is based on the CFA. In addition, it discussed how recent developments in statistical applications have simplified processes.

According to Danner, Hagemann, and Fiedler (2015), the plausibility of a theoretical causal model is determined by comparing it to observed data. It also considers the existence of latent variables, in addition to the path formation between variables. In terms of SEM, Hair et al. (2017) makes the following assumptions:

1) The assumption of multivariate normality is satisfied
2) There should be no anomalies in the data.
3) A relatively large sample size.
4) Correct model requirements

Al-Maroof and Al-Emran (2018) made reference to the SEM. They discussed how well-performing PLS estimates are. The

SEM estimates are the most accurate. It was mentioned that it was applied to a variety of statistical applications, including AMOS and SmartPls. Awang, Afthanorhan, and Mamat (2016) also favoured this method for Likert-scaled and performance-related variables.

According to Shen, Xiao, and Wang (2016), estimation is done using the Partial Least Square (PLS) approach. The reduction of correlated variables' dimensionality for the purpose of modelling dataset-provided information utilising variables covered by this study was also covered by Lu et al. (2014). Because it makes fewer assumptions than the Ordinary Least Square (OLS) technique, namely 1) large sample size and 2) independent variables, it is considered a superior choice in modelling.

2) Even though using clever techniques eliminates the need for it, the multivariate normality assumption is satisfied. In their 2016 paper, Michelot, Langrock, and Patterson covered the use of PLS in a range of statistical software. The role that this technology's creation played in enabling multivariate statistical analysis is highlighted. A number of journals authorised and peer-reviewed their structural equation modelling using PLS. Its findings are thought to be trustworthy and useful for making inferences. It guarantees the findings' repeatability and transparency.

Purwanto, A. (2021) reviewed earlier research to explore the PLS. The study concluded that principle component regression and multiple regression analysis techniques are more practical

when PLS is used as a measurement tool in statistical procedures. This is as a result of its durability.

When additional samples are taken from the complete population, robustness indicates that the model's parameters do not change noticeably. As such, it offers an excellent substitute for individuals engaged in theory confirmation, especially in the case of less well-supported ideas. Furthermore, they claimed that PLS necessitates fewer assumptions and circumstances than SEM, based on an analysis of pertinent literature. A prior study on a related problem involving artificial intelligence and talent recruiting used the SEM technique. The goal of Pillai and Sivathanu's (2020) study was to find out what factors affect IT/ITeS companies' use of AI technology for talent recruiting.

The authors gathered information from 562 respondents working for 580 IT/ITeS companies in Mumbai and Pune, India, using a survey questionnaire. Structural equation modelling (SEM) was used to examine the data and evaluate the suggested model. The study's findings demonstrated that the job, technology, and organisational features all have a favourable impact on how well AI technology fits the objective of acquiring talent. The adoption of AI technology for talent acquisition is also positively influenced by task technology fit, perceived utility, and perceived ease of use. However, privacy and security concerns have a negative impact on the use of AI in talent acquisition. The study

also discovered that the use of AI technology for talent acquisition is not much impacted by an organization's size.

5. Data results

## 5.1 Descriptive Statistics

Table 1: Descriptive measures of statement

	Mean	Std. Error
Artificial Intelligence		
1. AI usage attract candidates	**3.95**	**.712**
2. AI usage communicate with candidates	**3.81**	**.739**
3. AI usage evaluate candidates	**3.83**	**.908**
4. AI technology improves our recruitment performance	**4.15**	**.636**
5. Using AI technology enhances our recruitment effectiveness	**3.94**	**.870**
6. Using AI technology increases our recruitment ability	**3.95**	**.551**
7. AI tools are clear and understandable	**3.61**	**.952**
8. Interacting with AI tools does not require much mental effort	**3.33**	**1.147**
9. The AI tool we use in our company is easy to use	**3.60**	**.873**
10. It is easy to get AI technology to do what we want it to do	**3.69**	**.969**
Recruitment and Selection of HRM		
11. The use of new emerging technologies in recruitment and selection process has improved the efficiency of the process.	**3.90**	**.693**
12.The use of new emerging technologies in recruitment and selection has increased cost-effectiveness	**4.09**	**.764**
13. AI is beneficial for automated tasks such as resume screening.	**4.02**	**.828**
14. Candidate interviewing has become faster due to the use of emerging technology	**3.92**	**.696**
15. The use of new technologies has increased the accuracy of the recruitment and selection process	**3.83**	**.999**
16. Use of emerging technologies has resulted in improved quality of feedback given to candidates	**3.74**	**1.058**
17. The use of new emerging technologies decreases the time and effort required for recruitment and selection process	**4.20**	**.691**

Source: Based on calculation of the surveyed sample from NBE Bank
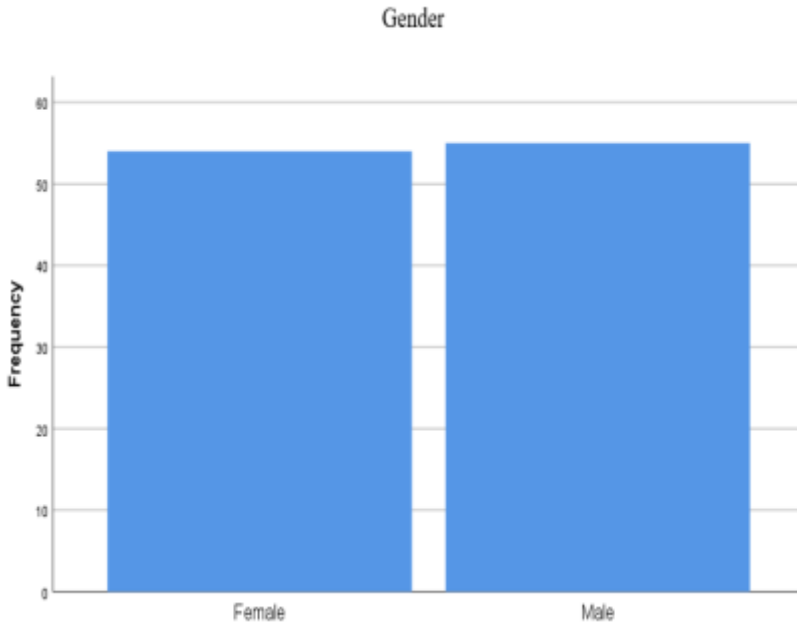
Figure 2: Bar Chart for Gender

It is observable that the majority of respondents are Males by 55% while the rest are Females by 54%. Concerning the age.
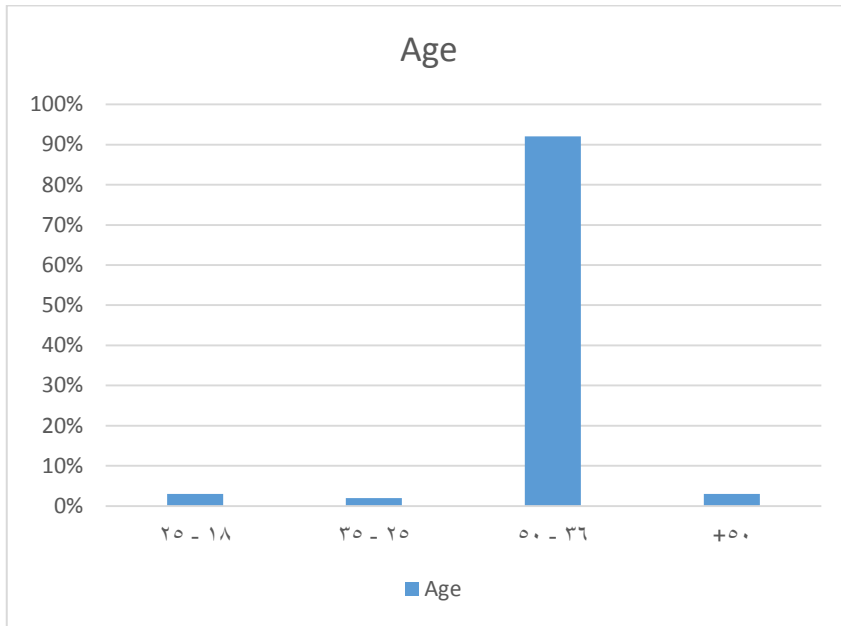
Figure 3: Bar Chart for Age

the majority of respondents aged between 36 - 50 by 41% while the minority are above aged between 25-35 by 2%.

Table 2: Frequency table for demographic variables

Variable	Categories	Frequency
Gender	**Female**	**54**
	Male	**55**
	18 - 25	**3**
	25 – 35	**2**
	36 – 50	**101**
	50+	**3**

Source: Based on calculation of the surveyed sample Bank HR employees

It is observable that the majority of respondents are Males by 55% while the rest are Females by 54%. Concerning the age, the majority of respondents aged between 36 - 50 by 41% while the minority are above aged between 25-35 by 2%.

5.2 Correlation Analysis

Table 3: Spearman coefficients for the correlation analysis

		AI	Selection and Recruitment of HRM
Spearman's rho	**AI**	1.000	.622**
	Selection and Recruitment of HRM	.622**	1.000

There is a significant strong positive relationship between AI and Selection and recruitment of HRM rate at 99% confidence level.

5.3 Confirmatory Factor Analysis

Table 4: Reliability and Validity analysis for phenomenon

	Const.	Loadings	Cronbach's Alpha	Composite Reliability	Average Variance Extracted (AVE)	Inner VIF
AI	**1AI**	0.789	0.773	0.847	0.533	3.854
	2AI	0.749				
	3AI	0.801				
	4AI	0.569				
	5AI	0.787				
Recruitment and selection of HRM	**1R&SHRM**	0.577	0.711	0.770	0.553	4.033
	2R&SHRM	0.824				
	3R&SHRM	0.916				

Source: Based on calculations using Smart PLS

Calculating the variance inflation factor was necessary for the investigation. The use of a comprehensive collinearity technique to find evidence on the Common Method Bias (CMB) is to blame for this. Kock (2017) found that the VIFs were less than five, indicating that CMB was not a factor in the investigation. Numerous aspects' authenticity and reliability are checked using CFA. The Cronbach alpha was used to assess the dependability. The Cronbach alpha for every variable was more than 0.7. Thus, each of the assertions accurately summarises the factors that contributed to the research (Vellone et al., 2013). In order to approximate the correctness of the statements in expressing the variables, the average variance extracted as well as the composite reliability were calculated. The AVE and CR of every factor were more than 0.5. This illustrates how the claims might be used to account for the various factors (Shrestha, 2021).

5.4 Structural Equation Modelling
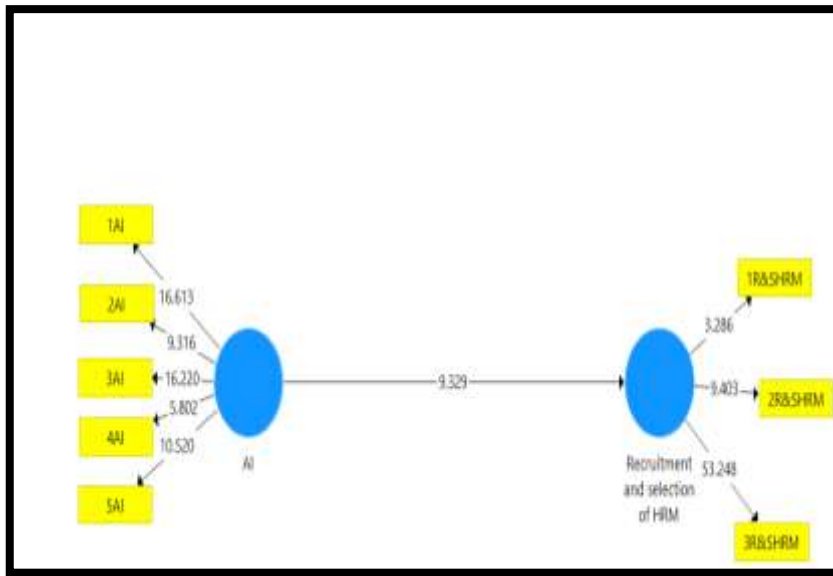
Figure 4: Structural Equation Model of the phenomenon

The previous figure shows how the relationships are built in the structural equation model. All the loading are above 0.7, which gives an indication that no statements shall be removed from the study.

The Structural equation modelling is used to investigate the impact of variables on each other. It gives an understanding for the phenomenon. After using CFA, the SEM can perfectly model data due to its assumptions being satisfied.

Table 5: Estimates of structural equation model of phenomenon

	Original Sample (O)	**Standard Error**
AI -> Recruitment and selection of HRM	0.716***	0.733

***p-value<0.01, ** p-value<0.05, "" p-value>0.05

Source: Based on calculations using Smart PLS

After applying SEM, the phenomenon was more understood. From above table, the prior attitude toward the AI had a positive significant impact on Recruitment and selection of HRM at 99% confidence level. Thus, H1 is accepted and H2 is rejected.

Table 6: Structural Equation Model.

	SSO	**SSE**	**Q^2**	**R Square**	**R Square Adjusted**
Recruitment and selection of HRM	327.000	247.117	0.244	0.513	0.509

SRMR=0.080, d_ULS=0.460, d_G=0.233, Chi-Square=134.168, NFI=0.623

A result of 0.509 for the R2 statistic implies that artificial intelligence was responsible for 50.9% of the variance in recruitment and selection of human resource management. The cross-validated redundancy measure (Q2) is the metric that is used to assess the model. The fact that Q2 is greater than zero demonstrated that the model had predictive value. In order to

determine how well the data fits the model, the SRMR, which is the root of the mean square of residuals, is used. Because its value is becoming closer and closer to zero, the model is deemed to be a good match for the data. The SRMR was determined to be 0.080, which is a metric that is considered to be satisfactory.

6. Conclusion

In conclusion, the findings of this study, based on a comprehensive survey among Human Resources (HR) professionals in National bank of Egypt, shed light on the impact of integrating artificial intelligence (AI) on recruitment and selection processes. The central idea that the utilization of AI has the potential to improve recruitment efficiency was supported by the research. The automation of tasks such as resume screening and interview scheduling was found to contribute positively to the overall efficiency of the recruitment process. This aligns with the findings of Johansson and Herranen (2019), who emphasized the simplification of tasks through the research problem, framed as the impact of AI adoption in recruitment and selection practices on HRM in Egyptian organization, was effectively addressed through the survey and subsequent analysis. The study aimed to provide evidence-based insights into the benefits and limitations of incorporating AI into HRM practices in the Egyptian context. The literature review provided a rich foundation, highlighting factors influencing AI adoption in recruitment and selection, perspectives of multinational corporations' recruiters, and

the impact of AI capabilities on HR practices (Pan et al. 2022; Ore and Sposato 2022; Hemalatha et al. 2021).

The study's academic discoveries provide a valuable contribution to the current body of literature about the effects of artificial intelligence (AI) on the recruiting and selection procedures within the field of human resources management (HRM). The report showcases the potential benefits of AI adoption in Egyptian organisations' recruiting processes, as shown by a comprehensive survey conducted among HR experts. These benefits include improved recruitment efficiency, automation of certain jobs, and general streamlining of the hiring process. The available study provides evidence to support the notion that the deliberate and strategic use of artificial intelligence (AI) technologies may have a beneficial impact on the process of recruiting new personnel.

Nevertheless, the research also highlights the need of recognising possible limitations, including the possibility of amplifying biases and reducing the role of human judgement in the recruitment process. The scholarly conclusion concurs with prior research by highlighting the need of adopting a well-rounded strategy for using artificial intelligence (AI) in human resource management (HRM). This approach entails taking into account ethical issues, biases, and effectively integrating AI technology with human skills. The research supports the concept that effective integration of AI in HRM requires a deliberate and

planned methodology, which involves finding a harmonious equilibrium between automation and human decision-making.

From a practical standpoint, the study provides actionable insights for HR professionals in Egyptian organizations. The positive impact of AI on recruitment efficiency suggests that organizations can benefit from automating routine tasks such as resume screening and interview scheduling, thereby saving time and resources. However, the practical conclusion emphasizes the importance of incorporating AI technologies responsibly, with a keen awareness of potential biases.

HR practitioners should focus on developing strategies to mitigate biases in AI algorithms and ensure that the human element in decision-making is not overshadowed. The findings suggest that a careful evaluation of AI tools, along with specialized training programs for HR professionals, can enhance the proficiency of AI adoption. This training should not only encompass the technical aspects of AI but also emphasize ethical considerations and the preservation of human judgment in the hiring process.

One notable limitation of this research is the focus on a specific sector, namely the NBE financial corporate, within the Egyptian context. Due to time constraints and the scope of the study, we did not conduct a comparative analysis across multiple sectors. While the findings offer valuable insights into the impact of artificial intelligence (AI) on recruitment and selection processes

within the financial sector, the generalizability of the results to other industries may be limited.

Different sectors may exhibit variations in organizational structures, cultures, and HR practices, influencing the adoption and impact of AI differently. Therefore, the study's findings should be interpreted with caution when extrapolating them to sectors beyond the financial industry. A more comprehensive understanding of the broader implications of AI in recruitment and selection would require a comparative analysis across diverse sectors, allowing for a nuanced exploration of industry-specific dynamics.

Future research endeavors could address this limitation by expanding the scope to encompass a broader range of industries. A comparative study across multiple sectors would provide a more holistic view of how AI adoption influences HRM practices, allowing for the identification of sector-specific challenges and opportunities. Additionally, such an approach would contribute to the development of tailored recommendations and strategies that can be applied across diverse organizational contexts.

In summary, the study provides valuable insights for HR professionals, emphasizing the potential benefits of AI adoption while underscoring the importance of ethical and careful implementation. The findings contribute to the ongoing dialogue on the role of AI in HRM, specifically in the Egyptian context,

and serve as a basis for developing specialized training programs for HR professionals to navigate the integration of AI technologies responsibly and efficiently. Ultimately, the successful integration of AI into HRM practices has the potential to enhance overall efficiency and effectiveness, fostering a collaborative environment between human employees and AI systems.

Appendix

1st variable: Artificial Intelligence

1. AI usage attract candidates
2. AI usage communicate with candidates
3. AI usage evaluate candidates
4. AI technology improves our recruitment performance
5. Using AI technology enhances our recruitment effectiveness

2nd variable: Selection and recruitment of HRM

1. The use of new emerging technologies in recruitment and selection process has improved the efficiency of the process.
2.   The use of new emerging technologies in recruitment and selection has increased cost-effectiveness
3.   AI is beneficial for automated tasks such as resume screening.

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