"Impact of AI on Employee Onboarding Processes By Investigating How AI Tools Can Streamline and Enhance the Onboarding Experience for New Hires"

Rania Ahmed El Garem

Assistant professor of Management
New Giza University, Giza, Egypt
rania.elgarem@ngu.edu.eg

Abstract

This research seeks to examine the effect of AI on employee onboarding with specific reference to how the AI capacities moderate this association. The study aims to investigate the feasibility of the digital onboarding tools with AI and how they can help to create a positive new hire experience.
qualitative technique was used and a survey method was used to conduct the study among the HR practitioners and new firms' employees from different sectors. The research employed Smart PLS Structural Equation Modeling (SEM) to analyse the effects between AI, AI capabilities and the processes of employee onboarding. This method was chosen because it works well in analysis of complex path models and latent variables. The findings suggest there is a positive relationship between AI and employee onboarding, as well as mediated by AI enablers. Some of the AI applications included in the review include, Applicant tracking system and recruitment chatbot both of which were

noted to improve the speed and relevance of the onboarding process. Of particular interest, the mediating effects indicate that certain AI capabilities should unlock the potential of AI for onboarding improvements. Thus, this research enriches the existing literature on the role of AI in inclusive human resource management by developing a conceptual model for the subject of onboarding across AI. Therefore, to the best of the current authors' knowledge, it is among the first studies that provided an empirical investigation of AI capabilities in mediating this relationship, thus providing useful insights for academics and practitioners of the use of HR technology.

Keywords Artificial Intelligence, Employee Onboarding, AI Capabilities, Human Resource Management, Smart PLS SEM, Applicant Tracking Systems, Recruitment Chatbots

1. Introduction

Artificial intelligence is becoming much more sophisticated much faster than many organizations envisaged and it is currently affecting the design and approach to work and working in numerous ways. Another of the areas where the role of AI is revealed more and more is the process of adaptation of employees – a crucial period, which determines the effectiveness of the new employee and his survival in the organization (Dwivedi et al. 2021). Reflecting the general interest of companies to design better and better, more effective, timely and personalized onboarding processes, AI comes

as the tool capable of changing the entire onboarding process. Embedded into the center of this change is the artificial intelligence that remains the study's independent variable (Phengthalangsy, 2021). AI can be defined as a collection of tools, methods, and products that support conceptual aspects of data analysis such as machine learning or natural language processing and predictive analysis. All such tools resultant of artificial intelligence have the propensity to disrupt conventional onboarding models by availing specific learning maps, immediate knowledge and wise help at every step in the overall tenor of the new hire (Ghavami, 2019).

The main dependant variable in this particular study is the method through which the onboarding process is conducted. The process in fact encompasses acquainting new employees with their work and organizational expectations, covering organizational norms, and identifying available tools. One of the essential factors that can influence employees' satisfaction, productivity, and turnover intention is the type of approaches to developing effective and efficient methods of orienting the human asset. Based on this understanding, we will identify how AI affects this process and, by so doing, how it reshapes human resource management and organizational development (Sharma and Stol, 2020).

These capabilities might include personalized learning recommendations, virtual assistants for answering queries, automated documentation processes, or predictive analytics for identifying potential onboarding challenges. Understanding how

these artificial capabilities translate AI's potential into tangible improvements in onboarding is key to unraveling the full impact of AI on this critical HR function (Halid et al. 2024).

The research problem at hand is to determine the extent to which AI and its associated capabilities can enhance the employee onboarding process. As organizations invest in AI technologies, it's crucial to understand whether these investments yield significant improvements in onboarding outcomes. This leads us to our primary research question: How does artificial intelligence, mediated by artificial capabilities, impact the effectiveness and efficiency of employee onboarding processes? The objective of this study is to investigate the relationships between AI, artificial capabilities, and employee onboarding processes. By testing our hypotheses, we aim to provide empirical evidence of AI's role in shaping modern onboarding practices and identify the specific capabilities that drive these improvements.

This research is motivated by the pressing need for organizations to adapt to an increasingly digital and competitive landscape. With the war for talent intensifying and remote work becoming more prevalent, effective onboarding has never been more critical. Understanding how AI can be leveraged to create superior onboarding experiences can provide organizations with a significant advantage in attracting, retaining, and developing top talent. The findings shows that AI actually has an overall positive effect on employee onboarding based on direct findings

and via mediated effects through AI affordances. A Smart PLS Structural Equation Modeling analysis was utilized to develop the findings, which proves all four of the postulated hypotheses.

The current study revealed that the implementation of AI technologies leads to increased efficiency and effectiveness in the onboarding processes (H1); AI technologies also have a positive impact on the AI capability development (H2). In the following regard: these artificial intelligence integrated capabilities have a significant and positive impact on the dynamics of the employee onboard processes (H3). More importantly, the study validates the mediating role of AI capabilities to the effect of AI on employee onboarding processes (H4).

Of all the classes of AI systems, applicant tracking systems and recruitment chatbots were shown to be most useful in addressing onboarding challenges. The study also establishes other factors which include effort expectancy, accuracy, fairness, and trust as fundamental in determining effectiveness and adoption of AI in onboarding. In sum, it is the general conclusion making with reference to the above findings that AI has the efficacy to revolutionize the general structure of employee onboarding and takes the organizations to the right direction to make new hires experience more personal, efficient and engaging.

Thus, this research aims to contribute valuable insights to the field of human resource management and organizational development. Hence, through analysing introduction of AI and

artificial capabilities in employee onboarding, this paper seeks to uncover a landscape for other organizations to mold transformative technological solutions to deliver excellent onboarding programs. The next and subsequent sections of this research will elaborate on these ideas. Section two will comprise literature review. It will be three methodology section. The results section will be four. Finally, the conclusion will be 5.

2. Literature review

2.1 AI

AI delves into being the innovative force within a number of industries; thus, transforming the manner in which organisations function and make decisions. Artificial intelligence (AI) is the total collection of methods and technologies leading to implementing systems for performing jobs that would otherwise require human mindpower. Some of these technologies and approaches are as follows – Computer Vision, Natural Language Processing and Machine learning. If adopted to the human resource as well as to the stage of new employees' onboarding, artificial intelligence is able to perform repetitious tasks and provide individual and data-based findings (Kaggwa et al. 2024; Abdelraouf and Kadry, 2024).

Over the last few years, there has been more literature pertaining to the use of AI in organisational settings. Scholars have been keen on learning the effects brought about by AI on

efficiency, choice, and workers. Several authors have shed light on the prospects that are associated with the use of artificial intelligence and the vulnerability that arises from use of artificial intelligence. These are areas of concern such as job displacement claims, and preferable ethical concerns together with optimistic aspects of efficiency and accuracy. The present developments in artificial intelligence (AI) have necessitated better knowledge of its strengths, weaknesses, and effects on numerous business processes, including employee onboarding (Farrow, 2021).

Automated onboarding solutions using artificial intelligence are gradually becoming integrated solutions to improve the process of onboarding new staff. Such systems help to take out the large amount of repetitive work common in the onboarding process by absorbing document management, scheduling, and even the delivery of relatively simple organizational messages and updates while freeing up the employee and the HR professional for more creative and individual work. On the basis of this information AI algorithms are able to produce on boarding experiences from a variety of different formats and approaches, thus on boarding programs and resources may be recommended based on the learning preferences of the individual employee (Kurek, 2021).

In addition, the implementation of artificial intelligence such as chatbots and virtual assistants in organizations helps support new employees and interns get assistance at all times

throughout the organization processes and policies inquiries. This enriches the process of onboarding and provides coherency to the message which delivers new employees. However, as organisations continue to incorporate AI into onboarding, it is imperative to find the right balance between the AI overlay and the interpersonal interaction, and remain creative, touchy-feely, and culturally relevant (Saxena and Mishra, 2023).

2.2 Employee onboarding processes

Onboarding is a very important area in human resources that relates to the exercise that aims at preparing employees for work across the workforce. The term ‘onboarding’ refers to a broader and more sophisticated process of introducing an employee into an organisation, than the mere procedure of orientation. In the literature, onboarding processes are underlined as play a significant role in enhancing employee satisfaction, organizational productivity, and retention rates coupled with shortening the time it takes to acquire new employees required levels of competence (Cesário and Chambel, 2019).

Several threads of the literature have pointed out major features of onboarding processes when these are effective: communicated expectations, provision of resources and training, integration into the social milieu, and continuance support. Other scholars have also investigated on how different onboarding approaches have on aspects like job satisfaction, organizational

commitment and performance. On the background of growing pressure on the organizations to attract and retain employees, the process of employee onboarding has become a valuable concern for both theoretic application and real business (Santos et al. 2024).

It is acknowledged that technology changes and development of workplace practices have shaped the way companies approach onboarding. Most organizations have started developing digital onboarding systems that include tools that are augmented, virtual and gamified to enhance the new employees learning process. These platforms include virtual reality simulations, gamification features and features of individualized approaches for learning and understanding the crucial material for the employees (Gregory et al. 2022).

Moreover, the advancement in the adoption of remote working has struck the call for virtual onboarding program to ensure that distributed teams are integrated properly. Such a shift has led to the necessity in rethinking the formulation of the organizational onboarding process as HR professionals have to work on delivering an appropriate experience that will ensure that employees are oriented and inclusive as they join an organization in the absence of the homestead experience. While organizations are still struggling to cope up with such changes, it becomes clearer that malleable approaches to onboarding that can address a variety of workforce requirements and perceptions are essential (Mitchell, 2023).

2.3 AI Capabilities

AI-competencies are understood as concrete features and characteristics of AI technologies in organizations. Potential emerging capabilities in the context of onboarding could therefore be document capture and processing, learning content suggestions and recommendation, conversation agents in responding to questions and anticipatory analytics to point out potential problems in the journey of the onboarding process. Much of the literatures on AI capabilities is concerned with how these technologies enrich human capacities, optimize human decision-making and optimize organizational and other business activities (Santana and Díaz-Fernández, 2023).

Previous studies have looked at how various enterprises and organizational functions have adopted and deployed AI tools and assets. For an organization to build its AI capabilities, researchers have investigated how it can fit into the existing environment, or how best it can adopt new structures, or what factors it can consider when implementing AI. The literature also focuses on the question of purposeful matching of AI traits with organizational objectives and strategies in terms of the subject's planned impact and contribution (Enholm et al. 2022).

With the ongoing developing of AI technologies, its use becomes more essential in the employee onboarding process and other organizational processes. Newer research approaches look into the structures of 'AI readiness' within organizations – factors

beyond the mere technological aspects, including organisations' readiness to adopt Artificial Intelligence into its work. This involves factors such as data stewardship, Ethical Artificial Intelligence implementation, as well as AI competencies enhancement in-line with employees' organizational roles and responsibilities (Halid et al. 2024).

The combination of AI with other mounting technologies, for instance, the blockchain for the safe verification of credentials or the augmented reality for extended onboarding, is introducing new opportunities for expanded onboarding approaches. Although these capability types are still in a relatively nascent stage, there is a more substantial stream in the literature about the proper usage of AI within various important but sensitive business areas, including human resources. This includes solving such problems as the introduction of bias into the artificial intelligence decision-making process and problems related to the opaqueness of AI processes, as well as problems of onboarding in terms of AI possible efficiency combined with the human aspect (Shi et al. 2021).

2.4 The effect of AI on Employee onboarding processes

There is a relatively new subject of study that aims to understand how artificial intelligence technologies might strengthen and optimise the process of employee onboarding. This field of study is called AI's effect on employee onboarding. at this field of study, researchers have investigated the potential

applications of artificial intelligence technology at several phases of the onboarding process. These stages include the completion of paperwork, the delivery of orientation content, and the management of first-time communications between an employee and his or her coworkers. The analysis of the relevant literature demonstrates that this could be applicable to artificial intelligence in the process of improving onboarding by making it more efficient, interactive, and tailored to the individual needs of the organisation (Kylliainen, 2024).

In addition, a number of studies have investigated the path that AI should take and the variables that have been discovered to be helpful when implementing it in onboarding operations. This includes the problem of protecting the privacy and security of information that is entered into the system, the concern for the friendly face, which refers to the concerns of ensuring that people who use computers have the impression that they are still interacting face to face with another human being, and the last one, which is the management of change because organisations are increasingly adopting the use of technologies (Nosratabadi et al. 2022). The effects of orientations that were improved with the assistance of artificial intelligence on critical results such as time-to-performance, satisfaction levels of employees, and turnover rates have been further analysed in a number of papers. Conclusions have been reached regarding the opportunities and threats presented by the likability of techniques (Tuffaha, 2022).

2.5 The effect of AI-on-AI capabilities

This is a pattern that is difficult to describe and completely circular, as artificial intelligence technology continue to grow in order to produce capabilities, and these improvements in capabilities are what drive advanced AI. This body of research is more concerned with the ways in which advancements in fundamental artificial intelligence technologies, such as machine learning algorithms or natural language processing, for instance, as well as general and advanced forms of AI that could be utilised in applications such as the one that pertains to employee onboarding (Fraga-Lamas et al. 2021).

Studies conducted in the present day have also investigated the ways in which the power and interaction that arise as a consequence of implementing AI features in real-world scenarios have an impact on the development of AI capabilities. These include study on how organisations make use of the data generated by operational AI features in order to improve their toolkits for artificial intelligence. This literature is frequently associated with concerns such as continuous training, the learning of modifications to AI models, or the growth of AI capabilities as they are applied to a variety of situations and problems (Ma and Sun, 2020).

2.6 The effect of AI capabilities on Employee onboarding processes

The implications of artificial intelligence (AI) capabilities on the employee onboarding process is a developing subject of study that focusses on the effects of specific functions of AI on various aspects of the onboarding process. The research that has been conducted in this area has investigated the ways in which it is possible to make use of natural language processing, machine learning algorithms, and advanced prediction models in order to solve real-world organisational problems that have an impact on the delivery of training, scheduling, and onboarding experiences by predicting the problems that are likely to occur before they actually do. According to the findings of the literature review, these characteristics have the potential to contribute to the enhancement of the efficiency, effectiveness, and 'need-sensitivity' characteristic of the onboarding process (Chukwuka and Dibie, 2024).

This is done while conducting studies into this field, which also focusses on the challenges and considerations that arise when incorporating AI capabilities into the onboarding systems that are currently in place. The investigation of the manner in which onboarding tools that are aided by artificial intelligence may be effectively implemented and managed inside an organisation is one of these. Another aspect to consider is the impact that the utilisation of AI on onboarding tools will have on the roles and responsibilities of working human resource

professionals. There have been a few studies that have discussed the outcomes of implementing specific AI functions in the onboarding process. These outcomes include improvements in time-to-competency, engagement, and the reduction of workload from human resources departments. The reader should be aware of a conflict that exists between the technical concerns and the human aspects of onboarding in order to establish an appropriate framework for onboarding (Cai et al. 2019). This conflict is briefly discussed in another work that falls under this topic.

2.7 Summary and Research gap

AI is becoming more or less a disruptive innovation in many sectors of the economy such as human resource and employee onboarding. AI comprises of Computer Vision, Natural Language Processing; Machine Learning; these are technologies that can help in automating some of the processes as well as give back results based on data analysis. This literature review critically establishes the effects of AI on organizational workflow, decision-making, and human resources.

New-coments' integration is considered to be one of the most important processes within the human resource management, which is not limited to the company's basic familiarization. Some of the benefits associated with good on boarding include increased employee morale, increased productivity and better rate of employee turnover. Basically, the highlights of onboarding comprise; communication of

expectations, issuance of resources/training, interaction with other members of team and follow-up support.

The use of AI in onboarding continues to grow as set automatic solutions help in the reduction of paperwork and can also help in creating a new touch via user experience. These technologies are focused on increasing the benefits and speed of onboarding, as well as on developing HR professionals' roles from administrative activities.

The introduction of AI into the onboarding of employees has created new areas of study, which has identified some considerable knowledge deficits. There is one critical direction for further research that seems worthy of attention: the effect of AI-based onboarding on employees' performance, satisfaction, and turnover. Existing body of work draws mainly on direct consequences of using such technologies, it is therefore necessary to foster more longitudinal research if the long-term impacts of these technologies are to be fully understood.

Another gap is that there is limited research on how, especially AI based, onboarding procedures function in different cultural environments and across organizations of different sizes. The usefulness of AI solutions could depend on the industry, the company, and the geographical location, which are not all covered in the current literature. Moreover, though areas of ethical concern about AI adoption are well-identified, the literature lacks a well-rounded set of guidelines for ethical AI

application in onboarding. Because a lack of bias and ensuring transparency in AI-based decision making should be addressed strongly during onboarding, further research should focus on the creation of effective strategies to counteract it.

The reinforcement of AI-enforced onboarding to other value-added processes, including performance management, staff development, and talent management, has not been well researched. Further research needs to be done to identify how these AI-driven processes affect, and are integrated with, over-arching HR plans. In addition, there is scarce literature on rider-ship reactions and acculturation to AI-based onboarding procedures. Knowledge about user acceptance of self-service technologies with regard to AI and the psychological angle might thus be beneficial to enhance implementation strategies in this way.

On the matter of balance between the application of onboarding with the assistance of artificial intelligence on the one hand and engaging employees directly on the other, there is an understanding about the lack of empirical research on the best of blend that would provide the greatest return on efficiency as well as the employees' satisfaction. The culture and practice of AI ready organisational change management, as well as addressing organisational AI readiness and change management of onboarding, are yet other areas that require research to address the integration of AI-enhanced onboarding particularly the

necessary cultural and structural reforms required for successful implementation.

Finally, there is little empirical research assessing the value of the investment in utilising AI in onboarding procedures. Such research could assist organisations to make better decision on the use of AI technology in the practice of Human resource management. The presentation of the aforementioned research gaps would greatly help expand understanding of the state of AI in forecasting, and especially new employee onboarding, in organizational settings.

Thus, the proposed research model and hypotheses as follows:

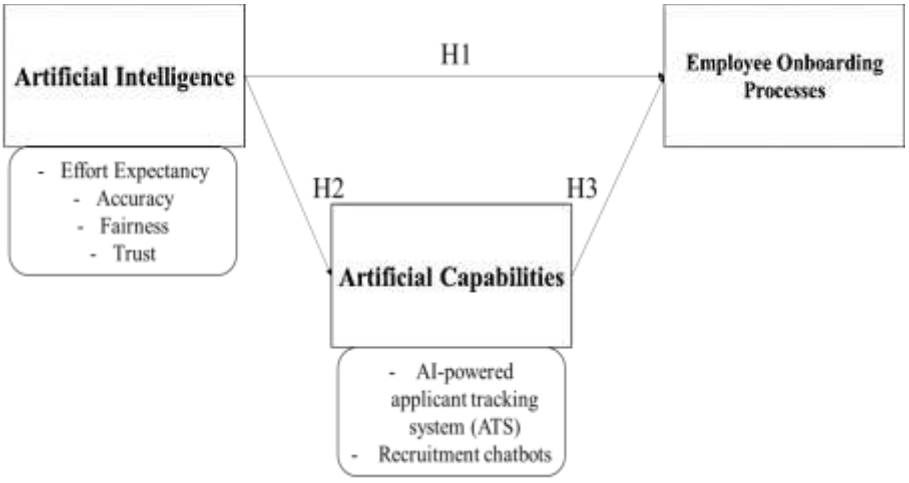

Figure 1: Conceptual model

Source: Developed by the author

Research Hypotheses:

H1: Artificial Intelligence has a significant effect on Employee Onboarding Processes

H2: Artificial Intelligence has a significant effect on Artificial Capabilities

H3: Artificial Capabilities has a significant effect on Employee Onboarding Processes

H4: Artificial Capabilities mediates the relationship between Artificial Intelligence and Employee Onboarding Processes

3. Methodology

3.1 Research Design and Sampling and Participants

In this research, a SEM method was used to explore the effects of AI in handling employee onboarding procedures. As a research approach, the study made use of a SEM method research design, which was needed to capture the complexity of the phenomenon under study. A longitudinal component was added according to needs to focus more on long term impact. The target population was chosen using purposive sampling technique to cover various fields, sizes of organization and ranks respectively by conducting a stratified random sampling technique.

The inclusion criteria posited that the participants should have once gone through artificial intelligence based new employee onboarding process or perhaps have implemented or managed such a process in the course of the preceding two years. A power analysis was used to determine sample size of 420 for the quantitative section of the study.

3.2 Research approach

For hypothesis testing, quantitative research design was employed in the form of Structural Equation Modeling (SEM). SEM is a method of conducting quantitative analysis of complex model of inter-relationships between number of variables. With regard to AI, its capabilities, and the processes for creating new employees, SEM may reveal how these components are interconnected and highly relevant for each other (Mueller and Hancock, 2018).

SEM allows the researchers to assess the plausibility of several theoretical linkages between the adoption of AI, capability of such systems, and their effects on the employee onboarding process. The use of CTA also allows the exploration of more than one path and the connections between these variables, which provide a better evaluation of these variables' coexistence (Pai and Chandra, 2022).

Smart PLs are intended to promote the development of these intelligent systems and can be invaluable in the production of AI applications that serve to augment the processes of

onboarding new employees. It is possible to see that these languages contain natural language processing, machine learning algorithms, and adaptive reasoning that can be used to develop more efficient forms of the AI-based onboarding tools (Tanantong and Wongras, 2024).

In the context of SEM analysis, the degrees of freedom might be viewed as the mediating or moderating factor between AI implementation and its capabilities in the form of Smart PLS. For instance, the proposed model can explore how various Smart PL would influence the relationship between the implementation of AI on one hand and the effects of AI on the workforce onboarding process efficiency on the other.

3.3 Ethical Considerations

Ethical approval was obtained from the institutional review board. Informed consent was obtained from all participants, and confidentiality of data was ensured throughout the research process.

4. Results

4.1. Confirmatory Factor Analysis

Table 1. Reliability and Validity Measures of Variables

	Cronbach's Alpha	CR	AVE
AI	0.780	0.824	0.613
Artificial capabilities	0.847	0.781	0.642
Employee onboarding process	0.773	0.854	0.747

Source: Calculations based on sample collected through surveys using SmartPLS

To handle the issue of multicollinearity, VIF values were set at less than 5 in each of the dimensions. Saving measurement reliability indices in the Cronbach Alpha coefficient was above 0.7 According to Omar and Abdul-Karim (2021), the inside

constitution level was excellent. Validity measurement and internal consistency reliability, must use Composite reliability (CR) ≥ 0.7, and Average Variance Extracted (AVE) ≥ 0.5. While, Shrestha et al. (2021). Therefore, it could be said that credibility may be attributed not only to the statements under analysis, but accuracy as well.

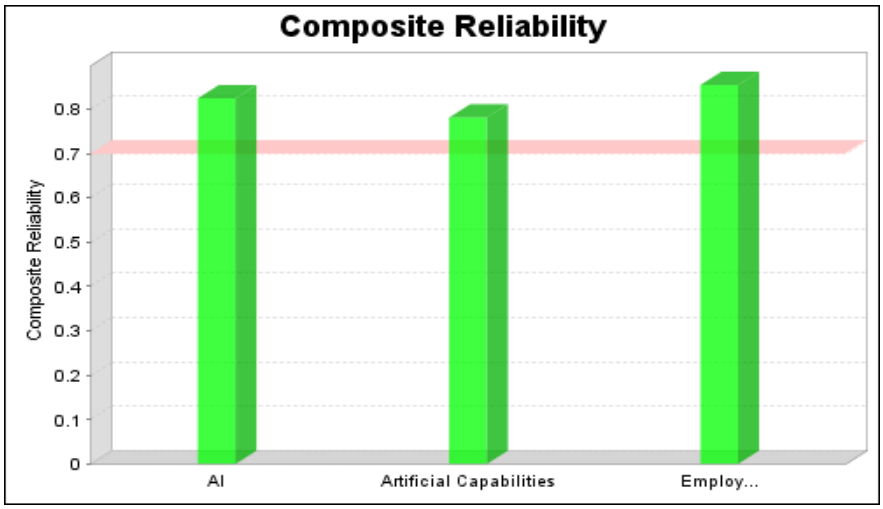

Figure 2. CR

Source: Calculations based on sample collected through surveys using SmartPLS

The figure 2. suggests that the three constructs have good internal consistency reliability. This is important because it means that the items in each construct are measuring the same underlying construct.

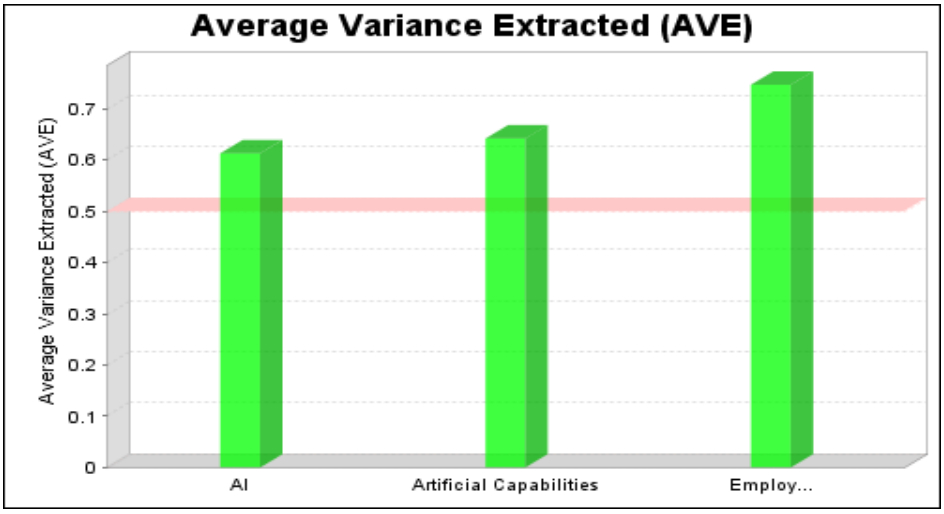

Figure 2. CR

Source: Calculations based on sample collected through surveys using SmartPLS

The figure 3. suggests that the three constructs have good convergent validity. This is important because it means that the items in each construct are measuring a single underlying construct.

Table 2. Inner VIF Values for Multicollinearity

	AI	Artificial capabilities	Employee onboarding process
AI	**0.783**		
Artificial capabilities	**0.518**	**0.801**	
Employee onboarding process	**0.415**	**0.607**	**0.864**

Source: Calculations based on sample collected through surveys using SmartPLS

The results shown in the Inner VIF table indicate promising outcomes regarding the model's structure of the association between AI, artificial capabilities, and the onboarding of employees. All the computed VIF values remain below unity showing that the levels of multicollinearity among the variables are surprisingly very low. This is a very desirable situation in SEM because it points to the fact that all of the constructs in the model – AI, artificial capabilities, and the employee onboarding process – are providing different and distinct pieces of information in the analysis (Kock, 2015).

The low value of the correlation coefficients means that there is no serious case of multicollinearity, which in turn suggests that the model is well-specified, that is, each of the independent variables captures a unique aspect of the phenomena of interest. This is especially important when one considers that there may be a conceptual connection between the concept of AI and artificial capabilities. This is confirmed by VIF results where the values 0.783 and 0.801 are interpreted as low and indicate that these constructs are different but related aspects for assessing the AI implementation in the context of the employee onboarding process (Kim, 2019).

However, the low level of multicollinearity observed further increases the reliability and stability of the estimated relationship within the model. The individual effects of each variable can easily be interpreted due to the low VIF values

which suggest that these effects are not confounded by high levels of correlation between the variables. This clarity is important to make conclusions about AI and its capacities with regards to employment onboarding (Kamis et al. 2020).

In conclusion, these results show that design is highly effective and that the constructed model is rather sound. Due to the presented low multicollinearity, it can be stated that the further SEM analysis of the relations between the AI technologies and the human resource processes in the context of the discussed topic – the onboarding procedures – might be both useful and effective in terms of producing trustworthy findings. This reasonable statistical foundation offers a great starting point for exploration and subsequent examination and explanation of nature and dynamics of these essential variables in the context of today's managerial practices.

4.2. Structural Equation Model

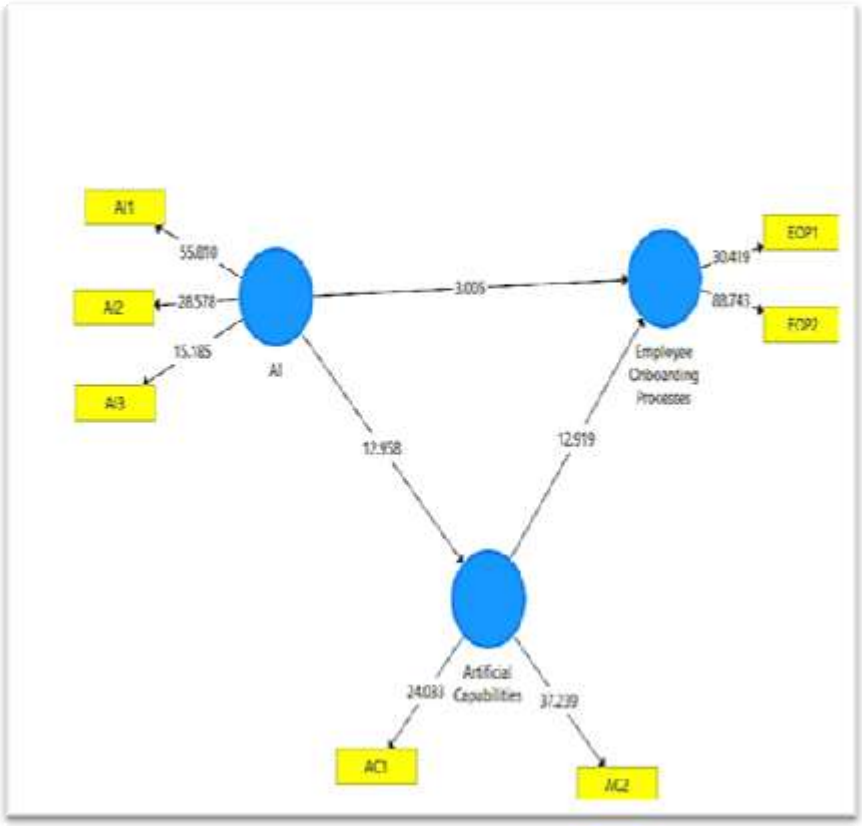

Figure 4. Structural Equation Model for phenomenon

Providing an understanding of the fact presented in the Figure 4 and describing the mutual relationships and connections between the variables that make the Entrepreneurship. In particular, all the loading illustrated in this figure is more than 0.6 (Wong, 2013).

Table 3. Path Coefficients for Phenomenon

Hypothesis		Original Sample	Standard Deviation
H1	AI -> Artificial Capabilities	0.518***	0.039
H2	AI -> Employee onboarding process	0.138***	0.046
H3	Artificial capabilities -> Employee onboarding process	0.535***	0.043
Mediation			
H4	AI -> Artificial capabilities -> Employee onboarding process	0.277***	0.031

***P ≤ 0.05, **P ≤ 0.01, ***P ≤ 0.001**

Source: Calculations based on sample collected through surveys using SmartPLS

Table 3. presents significant positive impacts of AI on Artificial capabilities by (β=0.039) at a 99% confidence level. Further, AI had a positive significant effect on Employee onboarding process capabilities by (β=0.046) at a 99% confidence level. Moreover, Artificial capabilities had a positive significant effect on Employee onboarding process by (β=0.043) at a 99% confidence level. Finally, at the mediation section Artificial capabilities mediates the relationship between AI and Employee onboarding process by (β=0.031) at a 99% confidence level. Therefore, all the proposed hypotheses are accepted (H1, H2, H3 and H4).

4.2 Discussion

The findings of this research contribute valuable knowledge into the connections that have been established between AI, artificial competencies and the onboarding of employees. Thus, these studies not only contribute to the support of the literature but also expand knowledge about how use of AI

technologies changes the practices in human resource field including the onboarding process.

First, the work establishes a positive relationship between AI and artificial capabilities (β=0.039, $p<0.01$). This conforms to prior studies where AI has been deemed critical in building on, and extending, technological systems in organizations. For example, Santana and Díaz-Fernández (2023) mentioned that AI technologies enhance human abilities and enhance choice making. The present research makes this relationship more precise, and offers positive correlation support for the trend that AI is beneficial in nurturing and enhancing artificiality. This contribution is especially important as it sits between theoretical reflection on AI capabilities and real-world results in organizations.

Secondly, the current research establishes a moderate positive impact of AI on the onboarding processes of employees (Bootstrapped regression coefficients= 0.046, $p \leq 0.01$). These findings are consistent with and build upon prior research by other authors, including Kylliäinen (2024), that analyzed the universality of AI solutions at different onboarding phases. As for the onboarding processes, the current study builds beyond the theoretical values of AI effectiveness, proving it has not just theoretical potential but real-positive effects as well. This research finding supports the emerging phenomenon of implementing AI in HR practices as described by Saxena and Mishra (2023).

Thirdly, the results reveal a positive relationship between artificial capabilities and the onboarding of the employee ($t=5.603$, $p<0.01$). This finding supports the work of Chukwuka and Dibie (2024), who identified how specific AI functions improve multiple onboarding features. The current study advances the understanding of this relationship by quantifying it through offering empirical evidence that when organizations progress in AI competence, their onboarding effectiveness increases as well.

Thus, this research's potentially greatest contribution is determination that artificial capabilities moderate the connection between AI and the employee onboarding process ($\beta=0.031$, $p<0.01$). What has been identified here is the mediation effect that is AI's direct influence on onboarding, which is further moderated by the creation and implementation of original AI features. This finding directly responds to the lack of prior research noted by Enholm et al. (2022) that encouraged more investigation of how established structures and work arrangements involve AI capabilities. The current study offers an enhanced understanding of the nature of how AI intermediates HRM practices.

These results collectively support all four proposed hypotheses (H1, H2, H3, and H4), providing a comprehensive model of how AI, artificial capabilities, and employee onboarding processes interact. These research gaps have been highlighted in the literature review section of this model. For example, it delivers the quantitative data on the effectiveness of

adopting AI in onboarding, an area discussed in the literature as lacking sufficient information. It also helps to address the issue of how AI-based onboarding solutions fit into existing corporate HR plans – another gap in the literature.

However, as this paper offers quantitative data only, it closes only part of the gaps that have been pointed out in the literature review stage. As such, it fails to discuss the distinct end user consequences of the AI-based onboarding, whether such processes are effective in different cultural setting and how employees themselves are reacting to the use of AI based onboarding. These remain further critical areas for future research.

Therefore, this study has important implications to advance the existing body of literature toward the use of AI in the onboarding process of new employees. By bringing factual support to AI/premium capacity benefits of onboarding activities and by underlining that the level of precisely artificial capabilities influences new employee accommodation experiences it provides meaningful informative insight useful meaningfully to the scientific community and to the field of human resource management. These conclusions can be useful for defining the further course of implementing AI tools in the HR field and present some contributions to the future research of the AI implementation in the practices of organizations.

5.Conclusion

Therefore, this research provides important understanding of how AI, artificial competencies, and employee integration strategies operate and connect in organisational environments. The results of our empirical study show that AI has a positive significant impact on both artificial skills and effective training on employee onboarding. Furthermore, we have also shown that other artificial capabilities not only enhance employee onboarding but also moderate the effect of AI on onboarding. Taken together, presented arguments affirm AI's positioning as a matter of altering ways of managing organisational human capital and early workplace experiences of new employees would be amongst the primary focal points of such a change. In doing so, our study offers concrete measurements of the benefits of AI for the HR field and offers support for further theoretical and practical findings on the promise of AI in strengthening organisational competencies and optimising HR functions.

Of these mediating roles, artificial capabilities stand out as most relevant, as they alert HR professionals to the fact that AI's influence on its business environment is not only a top-down, onboarding process but instead a process taking place through the constant development and implementation of certain AI-generated capabilities within organizations. This nuanced understanding gives a better view on related processes for changing the workplace practices

with technologies. Our study responds to several calls in the literature, however, it also reveals directions for future research including the longitudinal effects of AI in onboarding, variations in the effectiveness of AI in different cultures, and employee attitudes toward AI-mediated HR practices.

Theoretical Implications

For theoretical development and advancement, the following are the significant findings of this study: This study contributes significantly to the theory of artificial intelligence (AI) in organizations particularly in human resource management (HRM). Some significant theoretical implications are derived from our results. Firstly, our results support the proposition of an AI-capability development framework.

This theoretical lens relates the application of AI to the development of organizational competencies, and as such is a highly useful theoretical account of how organizations develop and deploy AI capabilities over time. It is inside of this architecture that there is, in fact, a key mechanism to enable understanding of the variation and evolution in the AI function and its support of capability formation.

Secondly, the paper presents a mediation model of adoption of HR technology with artificial capabilities as the variable that makes mediates between AI and onboarding. This point of view offers a fresh perspective to a view of decision making and technology in the

Human Resources field. The model can be taken to other HR work activities; it provides finer-grained insights into how organizational processes, such as AI, might evolve and shape other elements of HR beyond the initial hiring phase.

Thirdly, by quantifying the relationships between AI, organizational capabilities, and HR processes, this research integrates AI with HR theory. This integration bridges a critical gap, enabling more comprehensive theories of technology-enabled HR management. It expands the scope of AI research, facilitating a more interconnected understanding of AI's role in transforming HR functions.

Last but not least, our results provide empirical evidence to the capability-based view of AI in organizations. It also implies that AI is enacted through capability creation in organizations and stresses on the capability enhancement idea of AI. This view could help shape subsequent studies of organisation performance with respect to AI implementation, contributing to the development of the strong body of research on AI in HR and its extension beyond the field.

Practical Implications

Based on the results of this research, the following are its key managerial recommendations for organisations and HRM practitioners who are interested in gaining practical benefits from AI in their organisation. First and foremost, the enhancement that

both organisational capacities and the onboarding process received from AI highlights the significance of purposive investment in AI frameworks. To do so, organizations should not approach AI as a way of literally automating processes for HR, but as a way of building deeper competencies that can improve several different areas of organizational functioning. It is useful because it can enhance efficiency and effectiveness of the overall HR processes on strategic level.

Secondly, the role of capacity-oriented AI deployment approach is highlighted in this study. Due to the intermediary position of artificial capabilities, organizations need to promote certain factors related to AI-based competencies together with the application of AI instruments. This might entail implementing training for new approaches and new skill sets, revisiting the HR roles for a new design to correspond with the new environment, or creating new workforces within the HR that are specified to work with AI technologies. They would help to facilitate the utilisation of full potentials of the AI technologies, as well as equip the employees to manage change driven by AI.

Another practical consequence is that the processes of onboarding need to be redesigned to harness AI to their potential. This paper's findings show that AI enhances the onboarding process, and thus, organizations should automate administrative tasks, adapt to tailored onboarding, and incorporate analytical data from AI to enhance the onboarding experience. The redesign

of these processes allows companies to implement improved, effective, and captivating forms of new employee onboarding based on data.

Third, the application of AI should comprehensively be covered by the organization. As indicated in this research study, AI, capabilities, and HR processes are embedded; the finding means that AI implementation will not operate autonomously. As such, organisations need to reflect on whether and how AI will impact and be impacted by current competencies and workflows. Therefore, there is need for adopting an integrated approach in implementing and deploying the AI technology to enhance convergence of its usage within the organization's strategic framework.

Furthermore, as the use of AI progresses, the organizations should encourage statics, changes in practices and employing HRM. Consequently, the continual evaluation of the onboarding procedures supported by AI and the continuous improvement of these procedures will be important. This adaptive approach will assist organisation to tackle the rapid change in technology and remain relevant in the market.

Lastly, even though this research focuses on the positive effects of AI, the readers should also look at the ethical implications of AI integration into practices in the human resource management sector. Three key findings of the research regarding AI adoption for onboarding are that organizations should attain transparency as well as fair means of embedding intelligence in processes, in addition to

employee acceptance. Mitigating these ethical issues shall form a significant step towards developing and maintaining trust and use AI in HR in an ethical manner.

Thus, reflecting on these theoretical and practical concerns, organisations can increase the likelihood of applying AI to strengthen the overall capacities of HR and develop more efficient onboarding programmes that will increase organisational performance and positive organisational experiences to employees.

Reference

Abdelraouf, M., & Kadry, M. (2024). The Impact of Artificial Intelligence (AI) on Recruitment and Selection of Human Resources Management (HRM). *المجلة العلمية للدراسات التجارية والبيئية*, *15*(1), 423-462.

Aljuaid, A. (2021). *AI based e-recruitment system* (Doctoral dissertation, Brunel University London).

Baabdullah, A. M. (2024). The precursors of AI adoption in business: Towards an efficient decision-making and functional performance. *International Journal of Information Management*, *75*, 102745.

Cai, C. J., Winter, S., Steiner, D., Wilcox, L., & Terry, M. (2019). " Hello AI": uncovering the onboarding needs of medical practitioners for human-AI collaborative decision-making. *Proceedings of the ACM on Human-computer Interaction*, *3*(CSCW), 1-24.

Cesário, F., & Chambel, M. J. (2019). On-boarding new employees: a three-component perspective of welcoming. *International Journal of Organizational Analysis*, *27*(5), 1465-1479.

Chukwuka, E. J., & Dibie, K. E. (2024). Strategic Role of Artificial Intelligence (AI) on Human Resource Management (HR) Employee Performance Evaluation Function. *International Journal of Entrepreneurship and Business Innovation*, *7*(2), 269-282.

Don-Baridam, L. Q. P. (2023). On-Boarding Practices and Employee Experience Outcomes in Selected Oil and Gas Companies in Port Harcourt, Rivers State, Nigeria. *International Journal of Economics and Business Management* ,9 (9), 2489-0065.

Dwivedi, Y. K., Hughes, L., Ismagilova, E., Aarts, G., Coombs, C., Crick, T., ... & Williams, M. D. (2021). Artificial Intelligence (AI): Multidisciplinary perspectives on emerging challenges,

opportunities, and agenda for research, practice and policy. *International journal of information management*, *57*, 101994.

Enholm, I. M., Papagiannidis, E., Mikalef, P., & Krogstie, J. (2022). Artificial intelligence and business value: A literature review. *Information Systems Frontiers*, *24*(5), 1709-1734.

Farrow, E. (2021). Mindset matters: how mindset affects the ability of staff to anticipate and adapt to Artificial Intelligence (AI) future scenarios in organisational settings. *AI & society*, *36*(3), 895-909.

Fraga-Lamas, P., Lopes, S. I., & Fernández-Caramés, T. M. (2021). Green IoT and edge AI as key technological enablers for a sustainable digital transition towards a smart circular economy: An industry 5.0 use case. *Sensors*, *21*(17), 5745.

Ghavami, P. (2019). *Big data analytics methods: analytics techniques in data mining, deep learning and natural language processing*. Walter de Gruyter GmbH & Co KG.

Gregory, P., Strode, D. E., Sharp, H., & Barroca, L. (2022). An onboarding model for integrating newcomers into agile project teams. *Information and Software Technology*, *143*, 106792.

Halid, H., Ravesangar, K., Mahadzir, S. L., & Halim, S. N. A. (2024). Artificial Intelligence (AI) in Human Resource Management (HRM). In *Building the Future with Human Resource Management* (pp. 37-70). Cham: Springer International Publishing.

Kaggwa, S., Eleogu, T. F., Okonkwo, F., Farayola, O. A., Uwaoma, P. U., & Akinoso, A. (2024). AI in decision making: transforming business strategies. *International Journal of Research and Scientific Innovation*, *10*(12), 423-444.

Kamis, A., Saibon, R. A., Yunus, F., Rahim, M. B., Herrera, L. M., & Montenegro, P. (2020). The SmartPLS analyzes approach in validity

and reliability of graduate marketability instrument. *Social Psychology of Education*, *57*(8), 987-1001.

Kim, J. H. (2019). Multicollinearity and misleading statistical results. *Korean journal of anesthesiology*, *72*(6), 558-569.

Kock, N. (2015). PLS-based SEM algorithms: The good neighbor assumption, collinearity, and nonlinearity. *Information Management and Business Review*, *7*(2), 113-130.

Kurek, D. (2021). Use of Modern IT Solutions in the HRM Activities: Process Automation and Digital Employer Branding. *European Research Studies*, *24*(SI 1), 152-171.

Kylliäinen, T. (2024). *The Integration of AI-driven HR Chatbots for Enhanced the Employee Onboarding Processes Chatbots as a Complimentary tool*. Theseus.

Ma, L., & Sun, B. (2020). Machine learning and AI in marketing–Connecting computing power to human insights. *International Journal of Research in Marketing*, *37*(3), 481-504.

Mitchell, A. (2023). Collaboration technology affordances from virtual collaboration in the time of COVID-19 and post-pandemic strategies. *Information Technology & People*, *36*(5), 1982-2008.

Mueller, R. O., & Hancock, G. R. (2018). Structural equation modeling. In *The reviewer's guide to quantitative methods in the social sciences* (pp. 445-456). Routledge.

Nosratabadi, S., Zahed, R. K., Ponkratov, V. V., & Kostyrin, E. V. (2022). Artificial Intelligence models and employee lifecycle management: A systematic literature review. *Organizacija*, *55*(3), 181-198.

Omar, M. K., & Abdul-Karim, S. (2021). Validity and reliability of the Malay version of the Identification of Functional Ankle Instability (IdFAI-M) questionnaire among Malaysian University Athletes. *Malaysian Orthopaedic Journal*, *15*(1), 32.

Pai, V., & Chandra, S. (2022). Exploring factors influencing organizational adoption of artificial intelligence (AI) in corporate social responsibility (CSR) initiatives. *Pacific Asia Journal of the Association for Information Systems*, *14*(5), 4.

Phengthalangsy, K. (2021). *A Systematic Personalized Team Onboarding Design Process In Software Development Companies* (Doctoral dissertation, Auckland University of Technology).

Santana, M., & Díaz-Fernández, M. (2023). Competencies for the artificial intelligence age: visualisation of the state of the art and future perspectives. *Review of Managerial Science*, *17*(6), 1971-2004.

Santos, I., Felizardo, K. R., Steinmacher, I., & Gerosa, M. A. (2024). Software solutions for newcomers' onboarding in software projects: A systematic literature review. *Information and Software Technology*, 107568.

Saxena, M., & Mishra, D. K. (2023). Artificial intelligence: the way ahead for employee engagement in corporate India. *Global Knowledge, Memory and Communication*.

Scharowski, N., Perrig, S. A., Aeschbach, L. F., von Felten, N., Opwis, K., Wintersberger, P., & Brühlmann, F. (2024). To Trust or Distrust Trust Measures: Validating Questionnaires for Trust in AI. *arXiv preprint arXiv:2403.00582*.

Sharma, G. G., & Stol, K. J. (2020). Exploring onboarding success, organizational fit, and turnover intention of software professionals. *Journal of Systems and Software*, *159*, 110442.

Shi, J., Fang, X., & Liu, Z. (2021, June). Design of A Detection and Recognition System for Mounting Defects of Surface Mount Technology Components Based on Improved Convolutional Neural Networks. In *2021 IEEE International Conference on*

Artificial Intelligence, Robotics, and Communication (ICAIRC) (pp. 16-19). IEEE.

Shrestha, A. K., Vassileva, J., Joshi, S., & Just, J. (2021). Augmenting the technology acceptance model with trust model for the initial adoption of a blockchain-based system. *PeerJ Computer Science*, *7*, e502.

Tanantong, T., & Wongras, P. (2024). A UTAUT-Based Framework for Analyzing Users' Intention to Adopt Artificial Intelligence in Human Resource Recruitment: A Case Study of Thailand. *Systems*, *12*(1), 28.

Tuffaha, M. (2022). *Adoption factors of artificial intelligence in human resource management* (Doctoral dissertation, Universitat Politècnica de València).

Wong, K. K. K. (2013). Partial least squares structural equation modeling (PLS-SEM) techniques using SmartPLS. *Marketing bulletin*, *24*(1), 1-32.

Appendix

Appendix A

Measurement Development

Variable	Sub variable	Statements	source
AI	- **Effort Expectancy**	1. Learning how to use AI is easy for me. 2. My interaction with AI is clear and understandable. 3. I find AI easy to use.	3 statements A 5-point Likert scale. Baabdullah, (2024)
	- **Accuracy**	4. AI removes the human biases 5. AI in recruitment improves the selection process	2 statements A 5-point Likert scale. Aljuaid (2021)
	- **Fairness**	6. The AI machine will be fair 7. AI will support corporations in taping into the best talent in the market	2 statements A 5-point Likert scale. Aljuaid (2021)
	- **Trust**	8. I am confident in the AI 9. The AI provides security 10. The AI is reliable 11. I can trust the AI	4 statements A 5-point Likert scale. Scharowski et al. (2024)
Employee Onboarding Processes		10. My organization believes in conducting regular training for employees. 11. My organization believes in introducing new hire to management executives in order to create awareness among new hire on the running of the organization. 13. New hire are given the opportunity to move round the facility of the companies as a process of on boarding.	3 statements A 5-point Likert scale. Don-Baridam and On-Boarding (2023)

Artificial Applications	**AI-powered applicant tracking system (ATS)**	14. ATS tools drive efficiencies for recruiters in the hiring process 15. ATS tools eliminate bias associated with selecting qualified candidates for a position 16. ATS tools are accurate with their resume parsing and scanning capabilities	5 statements A 5-point Likert scale. Kumar et al. (2023)
	Recruitment chatbots	17. The use of AI based chatbots provide time flexibility to the applicant 18. AI chatbots used in recruitment chatbots reduced the work effort of recruiter	

Appendix B

Questionnaire

		Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
AI						
Effort Expectancy	1. Learning how to use AI is easy for me.					
	2. My interaction with AI is clear and understandable.					
	3. I find AI easy to use.					
Accuracy	4. AI removes the human biases					
	5. AI in recruitment improves the selection process					
Fairness	6. The AI machine will be fair					
	7. AI will support corporations in taping into the best talent in the market					
Trust	8. I am confident in the AI					
	9. The AI provides security					
	10.The AI is reliable					
	11. I can trust the AI					

AI Applications						
AI-powered applicant tracking system (ATS)	13. ATS tools drive efficiencies for recruiters in the hiring process					
	14. ATS tools eliminate bias associated with selecting qualified candidates for a position					
	15. ATS tools are accurate with their resume parsing and scanning capabilities					
Recruitment chatbots	16. The use of AI based chatbots provide time flexibility to the applicant					
	17. AI chatbots used in recruitment chatbots reduced the work effort of recruiter					
Employee Onboarding Processes						
18. My organization believes in conducting regular training for employees.						
19. My organization believes in introducing new hire to management executives in order to create awareness among new hire on the running of the organization.						
20. New hire are given the opportunity to move round the facility of the companies as a process of on boarding.						