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Impact of Artificial Intelligence on HR practices in the UAE

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Social trends and information technology are creating pressure, resulting in organizations being forced to update and recreate themselves. Against this backdrop there is an increasing trend to adopt artificial intelligence technologies. This study aims to explore and investigate the effect of Artificial Intelligence (AI) on Human Resources (HR) practices in UAE companies with the help of mixed-method design. A mixed-method design was applied to explore and test the research questions. Semi-structured interviews and survey were conducted, respectively for both the study designs. AI and HR personnel were approached as sample participants for this study. Thematic analysis and PLS-SEM (Partial least squares path modeling) were used to analyze the data, respectively. Positive and significant effects of planned training and development process (0.231→0.021), tactical performance appraisal and integration of AI (0.719→0.000), and integration of AI and efficient HR practices (0.204→0.131) were shown. The moderating role of ease of use on integration of AI and efficient HR practices was negative and insignificant. AI plays an essential role in shifting the HR functions to enter the digitization era. The types of businesses and abilities require some activities such as training and development due to the increased use of technology.

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Introduction

The staggering speed with which the business context is shifting from big data to machine learning to artificial intelligence is surprising. However, the linkage between the reality and rhetoric is a different approach (Hekkala, 2019). Majority of the firms are confronting to take any initiative in developing data analytics abilities. For instance, 41% of employers indicate that they are not ready for utilizing new data analytic tools. AI traditionally classifies a wider class of technologies that perform activities, requiring human assistance or cognition such as decision-making (Minbaeva, 2020).

The emphasis here is narrower on a sub-class of algorithms throughout AI that depend fundamentally on the availability of data for prediction tasks. In particular, there have been major developments in the domains of natural language processing and pattern recognition recently (Bhardwaj et al., 2020). Using neural networks, deep learning has become progressively usual in some data-rich contexts and has represented the competence of machines for mimicking adaptive human decision-making (Raub, 2018). Nonetheless, few organizations have even entered the big data stage in terms of the employees' management where the potential has been articulated often and loudly in adequate decisions.

The promise of data analytics is easier to explore fields such as marketing. However, there are many questions to be answered as they are able to be differentiated by their comparative clarity, including what forecasts, who will purchase a product, or how modifications influence its sales in its presentation (Tambe et al., 2019). Outcomes are easily estimated as they are usually gathered electronically by the number of observations and sales process of a specific item across the country.

Owing to the limitless capacity and applications of AI, the HR functionalities in organizations and businesses have adopted AI in their processes. Google, IBM, Amazon, Tesla, Apple etc. are using AI in their HR procedures and solving problems of employees related to HR innovatively (Aspan, 2020). Moreover, unwillingness is also observed for the adaptation and investment of AI in businesses who are functioning businesses globally. On the other hand, businesses functioning as marketing, finance and other organizations are adopting it by their own will (Brin and Nehme, 2019).

The explanation of a preferred candidate or employee is challenging as it needs preference of several attainable attributes that make an employee better. This subjective decision opens new platforms to possible issues. In particular, how a better employee can be defined should be explained in different means that link to measurable consequences (Van Esch et al., 2019). On the contrary, the subjective decisions made both by the employer and programmers in previous decisions must be absorbed into the algorithm by means of the data that is utilized and the subjective labels identified on certain attributes. Thereby, the outcomes are skewed, when subjective labels are integrated, along the lines of those labels and data. It is; therefore, likely for artificial intelligence and algorithms to receive previous bias and emphasize on existing biases.

One of the issues, recently, is the complexity of Human Resources (HR) outcomes, including what comprises being a better employee. There are several dynamics to that element, and estimating it with precision for majority of jobs is quite complicated (Eriksson and Pesämaa, 2007). For instance, performance appraisal scores are the most commonly-used metric and are acclaimed for issues of validity and reliability as well as for prejudice, and most of the employers are offering them collectively (Cappelli et al., 2018). Any justifiably difficult job is inter-linked with other jobs and; hence, individual performance is complicated to untie from group performance (Pfeffer and Sutton, 2006).

In human resources, the data sets have tendency to keep low concerning the dynamics of data science. The strength of employees in a large organization is trivial than to the number of purchases made by their customers (Raut et al., 2020). Additionally, most of the preferred consequences are rarely observed, such as employees fired for incompetency. Data science tools and techniques perform adversely when forecasting comparatively rare consequences. These have such critical outcomes for individuals and community that focuses on both distributive and procedural justice (Johansson and Herranen, 2019). Elaborating legal frameworks oblige how employers must go make those decisions. The concern with causation is central to those frameworks, which is often lacking from algorithm-based explorations. Employment decisions are also subjected to complicated socio-psychological issues that are present among employees including perceived fairness, contractual and relational anticipations, and personal worth and status, affecting organizational consequences and individual ones (Reilly, 2018). In particular, it becomes important to explain and justify the practices an employer using as compared to other fields. Lastly, employees are competent to game or negatively react to algorithm-based decisions, but their actions, consequently affect organizational consequences (Bhalgat, 2019).

The objective of this thesis will be to offer a framework for the successful implementation of Artificial Intelligence (AI) into recruitment practices from the applicant and employer perspective. Effective implementation of AI into HR practices is reliant on how the future employees look into its potential specifically in UAE, which is transforming based on Abu Dhabi Economic Vision 2030. The following questions, to guide the problem statement, are adequate to build a framework for the successful implementation of AI into recruitment practices.

1. To what extent employers have implemented AI into HR practices?
2. How do UAE natives perceive the implementation of AI into recruitment?
3. To what extent, AI can be utilized in HR practices in UAE to recruit digital natives?

The rationale behind the first question is to look into how employers already use AI in their HR practices. This offers guidelines to how AI can be integrated, or what has been identified to be useful. Since AI is a comparatively new trend in recruitment, how employers using AI in HR practices is not necessarily a presentation of the maximum potential of AI in recruitment. The second research question will examine the actual scenario of AI from the perspective of digital natives. Lastly, the third question will focus on implementing the findings from the first two research questions. The research objectives, drawing upon the rationale behind the research questions, are a summary of what the research questions will be attempting to answer:

- To determine how employers are utilizing AI in their HR practices
- To investigate how digital natives prefer using AI in HR practices and whether this is like-minded with how employers see its potential.
- To evaluate how AI can be implemented into HR practices from the employee and employer perspective in UAE

Literature review and hypotheses development

Strategic HR planning through AI. Strategic planning is an essential pre-requisite in HRM. HR manager will investigate and

summarize the prior work, and have specific prudence to the prospective development pattern of enterprise when planning strategically (Samarasinghe and Medis, 2020). The evidence of AI is that HR is needed for doing an efficient task of planning, sensibility, and innovation for the managers. AI masters the data differs from person to person and it impact majorly on the proficiency of HR in the conventional HR planning due to the difficulty and complexity of the work content and nature (Upadhyay and Khandelwal, 2018). HR planning usually deviates the precision of planning and prediction of individual demand because of inadequate level of data information and command. Therefore, HR requires time and manpower in the HR planning process (Jia et al., 2018).

Particularly, the attributes of the enterprise, optimization of the data, development pattern of the industry, forecasting future demand of the enterprise are conformed through big data analysis (DiClaudio, 2019). Precision of the current organization's HR can be acquired and thus the respective department can make an instant collection and collation work as well as offers adequate recommendations and data analysis (Jamrog and Overholt, 2004). Predictive analytics is integrated for forecasting unknown events via statistical data modeling, analysis, data mining, and machine learning to examine current and historical data in predicting prospective data.

Predictive algorithms are used for increasing efficiency in order to offer essential resources to HR planning. Similarly, there is rising evidence that AI is not the unbiased rescuer, it is usually signaled to be (Gulliford and Dixon, 2019). The use of algorithms and artificial intelligence, irrespective of responsibility leads to unequal access and discrimination to employment opportunities. If employers prefer to take benefit of the potential effectiveness of using AI in HR practices, they should be aware of selecting a program to stimulate the use of responsible algorithms, and push for lasting modifications in the absence of gender and racial diversity (Rana, 2018).

Smooth recruitment and selection process. HR candidates not merely look on the professional qualities, but are influenced from the words, deeds, and appearance of the candidates in conventional recruitment, which unavoidably influence the objectivity and accuracy of the interview (Pournader et al., 2015). Some enterprises cannot ignore the selection of individuals who are not appropriate for the company and there might be recruitment failure cases even though some of them use the most authoritative and professional quality assessment model. AI will not merely be integrated in the field of HR, but will show its dynamic aspect to human psychology, behavior, and etc. (Wilfred, 2018). Candidates can be judged directly and objectively through a wide range of algorithms and intelligent learning tools for finding the best individuals appropriate for the enterprise, and to investigate the candidates in the quality assessment process. The assessment model is more precise on the basis of AI and big data analysis. AI cannot merely ignore prejudice, discrimination, and emotional constructs, but instantly search resumes and match for personnel (Geetha and Bhanu, 2018).

Information extraction becomes easy with AI as it makes the process of resume scanning and extraction of relevant information automated (Upadhyay and Khandelwal, 2018; Stuart and Norvig, 2016). Automated systems accelerate the recruitment process as the number of job applications have elevated and can even overpower HR departments. HR department often manually carry out the assessment of the received job applications; therefore, applicant ranking systems can make recruiters assessment efficiently with the use of AI (Faliagka et al., 2012). Candidate ranking system works efficiently with the utilization of

AI algorithms and human recruiters offer training data for the AI algorithms, from where they learn the scoring function of applicants.

Chatbots were instigated by Upadhyay and Khandelwal (2018) to facilitate up-to-date and personal connection competencies with candidates through text messages, dialog box, or emails. The workload of recruiters is at ease with several computer-supported job matchmaking tools; for instance, software sorting resumes based on learning-based algorithms and techniques. Similarly, AI-based ranking systems possibly gathers information regarding personality traits of applicants that are extremely essential when accomplishing job positions. On the contrary, these traits are usually observed during job interview, but preliminary data can be obtained via web searches. It is likely to collect information regarding personality traits, emotions, and mood by directing linguistic analysis to blog post or LinkedIn pages (Albert, 2019).

HireVue is another promising tool for conducting an online interview as it allows interpretation and analysis of body language, facial expressions or tone of voice of applicant. The interviewed applicants are compared through this application to the top talent employees in the enterprise and ultimately recommend the best applicants to recruiters. Previously, Hilton, the global hotel chain, experienced numerous advantages to conduct video interviews, while the most significant implication was the reduction in the extent of time spent in recruitment and selection process.

Planned training and development process. Utilizing AI-enabled tools to design training and development opportunities for the employees will aid in improving their job satisfaction. Devising the career development plans leads to improved output and less absenteeism based on employees' requirement (Coley et al., 2019). Similarly, another new type of training and development technique facilitated by AI is the development of individual employee maps. Coaching and mentoring are another important function of HR, which is least possible to be replaced by AI (Kumar, 2017). Mobile coach is the type of software, which aid employees to understand their requirements and develop customized training and development program for the employees. Therefore, the work requirement is evaluated by software for the employees and guide them in their future career paths or team development (Yuldoshev et al., 2018). Readymade access is facilitated by different types of minicourses to coach and mentor opportunities for the employees. On the contrary, some sensitive issues associated to employee attitudes and behavior still need engagement of human being to provide interpretation of the situation.

High costs and investment are costed due to the enterprise personnel training and consequently does not obtain the very good return. In the training process, HR will make the trained personnel generate a lot of judgment and psychological defines due to the behavior, professional knowledge, and appearance manner of training speaker (Sekhri and Cheema, 2019). However, an intelligent machine has better stability to the psychology of local individuals, and it was not easy in producing hostile impact. AI can be via training in the form of keynote speaker of enterprise training. Through AI, a respective person can explore different appropriate models for enterprise training via a large amount of information data, but further can observe and balance the training situation of employees at any time in the organization training (Pandey et al., 2020). The intervention of AI cannot merely replace the trainer as the keynote speaker and enhance the training effect, but can assist HR in training employees. On the contrary, AI can also play a ready, housekeeper, and convenient role; so, that each employee has an AI trainer, with a combination

of private customized trainers. It not merely saves the cost majorly, but also enhances the training effect.

Tactical performance appraisal. Conventional performance management has the impact of attitude and the presence of informal organization among employees due to the subjective emotional exchange between individuals; so, that the performance appraisal work cannot be completely objective (Younis, and Adel, 2020). AI accurately and objectively record data to mitigate the daily performance appraisal errors caused by the psychological employees' loss. In addition, the investigation of enterprise development status data, urban development status, and industry performance data can make artificial intelligence to develop a fair and objective performance appraisal system to formulate performance standards (Haenlein and Kaplan, 2019). Furthermore, it can be fitted practically via data analysis so that the performance of the entire organization is no longer coagulated, more comfortable for employees, more beneficial, enhance the enthusiasm of employees, and mitigate the irrelevant cost of enterprise waste (Anagnoste, 2018).

The conventional employee association is more encompassed in repetitive work including leave procedures, social security payment, process processing, and employee contract disputes. AI not merely eases but enables the work via machine learning algorithms and tools (Pathak and Solanki, 2021). It further assists in selecting the best scheme directly, offer the employee and enterprise, and make both sides develop justifiable labor associations under the fair and objective conditions. AI has made more positive recommendations and integration for the development of organizations and employees' career planning (Bothma, 2018). The healthy culture of employee labor relations cannot merely facilitate organizations in reducing the cost tolerated by labor disputes. It can further ascertain an integrated employees' corporate culture, so that the corporate culture can play a cultural role with the help of AI.

Ease of use and efficient HR practices. Organizations continue to explore approaches for enhancing decision-making, performance, and prediction (Dulebohn and Johnson, 2013; Von Krogh, 2018). The use of AI is the core to these developments in decision-making abilities, which the Society of Human Resource Management (SHRM) has considered as one of its top trends (Wright, 2017). On the contrary, the service sector needs to understand both their industry for leveraging AI entirely to support HR as well as how statistics and technology can enhance decision-making (Maurath, 2014).

AI offers abilities that encourage three different business functioning areas (Davenport and Ronanki, 2018). Firstly, business process automation can be improved using AI by offering cognitive abilities throughout the software. For instance, organizations using AI increase automated decision-intensive tasks including supply chain management and loan processing, as well as offer cognitive insights regarding customer-purchasing behavior. The National Aeronautics and Space Administration (NASA), in support of HRM, revealed that the use of AI-improved HR procedures enabled them to complete most of the HR activities irrespective of human intervention (Davenport and Ronanki, 2018).

Moreover, AI can offer cognitive insights that enables decision-making. This type of AI uses machine learning and algorithms for interpreting huge amounts of data, exploring for hidden trends not previously identified by firms. AI is embedded within organizations to forecast customer-purchasing behavior, develop customized advertisements, and identify fraud. For instance, candidates used AI for targeting messages to diversified groups of

individuals to maximize the effect of each advertisement and reduce costs. Additionally, AI was competent for accurately diagnosing cancer patients in a fraction of time. AI has also helped assess the link job characteristics to employee satisfaction (Tian and Pu, 2008). In this regard, the software algorithmically makes and integrates decisions with minimal human intervention based on AI-enabled process automation. AI-enabled HRM would not simply suggest a series of advantages from which employees can select, but would select such advantages for employees, considering that researchers have found that AI-based expert systems can imitate the decision suggestions of employee benefits experts.

Methods

Study design. Owing to the nature of this study, a mixed-method study design was applied comprising of both qualitative and quantitative designs. The focus of quantitative study design was to investigate research objectives 1 and 3 and research objective 2, respectively. On the contrary, the qualitative study design had focused on the observations and insights associated to UAE natives about the implementation of AI into recruitment. Moreover, qualitative exploration was based on the perspectives of employer too.

This study, with the help of mixed-method design, identified the critical aspects associated to AI and HR practices. Both designs allowed the researcher in shedding light on the existing issues of HR practices; therefore, a conclusive solution can be offered to the employers planning to integrate AI in their HR practices. Additionally, the critical variables of this study were discussed by the researcher for adapting innovative concepts in developing strategies for integrating AI in their recruitment process. However, exploratory research (qualitative research design) can merely assess the research topic and does not offer a conclusive statement, which was not beneficial for this study. Therefore, explanatory research, along with exploratory research, will be relevant since there is requirement of cause-and-effect process.

Sample selection/data size. The companies were selected on the basis of their work throughout the area of AI in the HR practices. Companies/participants were reached who were actively using AI software/techniques throughout their recruitment process, or firms who are developers of AI software for firms to integrate in their HR practices. In this regard, a wide range of information will be collected from different insights. There was no restriction fundamentally to UAE since integrating AI throughout HRM was comparatively a new subject. This shows that there is confined number of firms, specifically throughout UAE, who actually integrate AI in HR practices.

For quantitative design, the data needed were collected using a survey. The sample comprises of 248 HR employees and AI staff from different companies selected. Registered contact persons were initially approached, in all of the selected companies, by telephone or e-mail for asking them if they or other more adequate individuals were willing for participating in the study to represent their company. Therefore, it was up to the contact person to select the most appropriate person, considering that the survey encompassed on HRM and procurement processes.

Data collection

Qualitative. The data were initially gathered by selecting the type of companies preferred, reaching out, and was to set up a date for an interview. Thereafter, the planned structure was taken for the interviews. The questions were determined on the basis of three different elements. The first section comprises of general questions of

the interviewed professionals and other two sections were based on questions associated to integration of AI in HR practices and questions associated to challenges and potential of AI in hiring process.

The data collection takes ~2 months. The data collection process ensures that the concepts from prior studies throughout the line of research were covered and established what research could expand on. All interviews were commenced by asking each interviewee if they allow to record the interview for capturing what was being discussed. All the data were later transcribed and investigated using the selected method for data analysis, which complete the data collection.

A total of 8 semi-structured interviews were conducted as the objective was to gather insights and experience about the effect of AI in HR practices. All the interviews were conducted via Skype due to COVID-19 restrictions. Majority of the companies in UAE are practicing work from home, so it was not possible to collect data physically. All interviews were conducted in Arabic and then were translated into English.

Quantitative. This quantitative design used secondary data to complement the findings and conclusion of this study. All factors were measured from the perspectives of HR experts working in HR domain via close-ended questionnaire.

Measures. All items under each factor were obtained from the previous literature and will be recommended by the professionals from HR field. These variables were measured using a 5-point Likert scale varying from 5 (strongly agree) to 1 (strongly disagree). Convenience sampling technique was used to collect 248 responses.

Data analysis

Qualitative. Thematic analysis was selected to analyze the data. This method was selected on the basis of interpretivism paradigm since thematic is a well-balanced method for this paradigm. The qualitative data was narrowed down via thematic approach; for instance, by coding the interviews, which was conducted to obtain the themes out of it. A thematic analysis was very flexible in its nature and; hence, is applicable to different research areas.

Quantitative. PLS-SEM was used in this study for testing the associations among factors in the proposed conceptual framework (Fig. 1). PLS-SEM was useful for prediction-oriented complex model with numerous variables and factors. Additionally, large sample size was not required to execute PLS-SEM. Validity and reliability were checked in the initial step via measurement model and then hypotheses were tested using structural model and path analysis.

Results

Qualitative

HR process. All eight HR professionals agreed on a few aspects, which conventional recruitment has to provide with respect to advantages. In particular, some aspects that every expert agreed on was that human touch was reflected from the value of conventional recruitment. This indicates that there is always an individual who can engage with candidates and have a respective association with them. Some of the interviewees claimed that it is easier to communicate irrespective of misunderstandings by having human-to-human interactions in recruitment process. Furthermore, it makes possible to discuss perceptions, both between job applicant and recruiter.

“The human feeling is something which can never be ignored as we are satisfied with the elements they know”
(Participant 1)

Conventional recruitment; according to six out of eight professionals, was an already tested measure. For instance, formal interview with job applicants has been conducted in a similar pattern throughout recruitment process for several years along with other selection methods. This shows that these practices have a support of existing theories and research underlying to it, conforming their findings. Thereby, recruiters should draw on and be firm in the findings they get at the end of recruitment. Conventional recruitment has been majorly successful for enterprises and do not feel satisfied in making any changes from what is already proven to work. As a whole, majority of the participants agreed that it has lasting perspective to implement AI strategically although it is a promising new technology.

“I still think that it is a beginning and we have to learn a lot”
(Participant 4)

AI software was used by six out of eight participants in the pre-screening and pre-selection process of their recruitment procedure. AI technology relies itself on the job descriptions offered by the firm and monitors for potential job applicants. This was carried-out by not just embedding specific keywords, but also via language and other characteristics utilized in the submissions of applicant. The pre-screening for the professionals was done through social media platforms such as Facebook or LinkedIn. Moreover, screening was based on applications sent on a job posting directly. Some software also performs pre-screening with the application of personality traits. The personality tests were integrated to explore whether the candidate has the appropriate qualities and abilities, which the job needs.

Strategy development. Recruiters take a decision in the strategy development process on how to reach out to the participants and

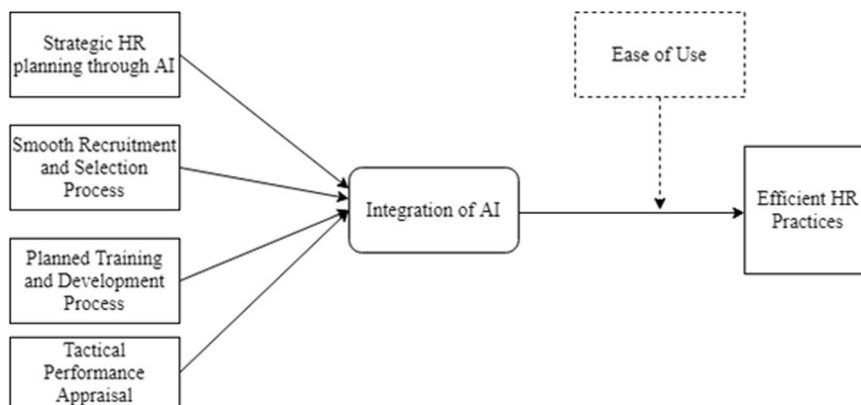


Fig. 1 Proposed Conceptual framework.

who exactly these participants are. It fundamentally addresses the inquiries of who to be recruited, where, when, how, what message to address, and through what sources to reach out to the candidates. In general, the recruitment comprises to achieve applicants, retain the applicants, and to examine the decision for taking the job. This majorly relates to each firm for making decisions on who it truly was they want to recruit and the attributes this individual should behold to be the best fit recruitment for the job position.

The strategy development must be synchronized with objectives fulfilled by an organization. It was visible that the strategy development was another aspect where there is an essential requirement for the capabilities and skill sets essential in individuals, which cannot essentially be directly replaced by AI. None of the interviewees placed any in-depth emphasis on discussing the strategy as a likely region for implementing the AI software in terms of strategy development. This does not have to indicate that it cannot bring likely advantages by automating effective strategies relied on online searches for fitting the predefined objectives of the enterprise.

Benefits and challenges. Most of the participants agreed that recruiters are benefitted through AI when it comes to reduce administrative and routine tasks. Therefore, recruiters have additional time to emphasize on the effective matches. AI is used in recruitment for aiding recruiters specifically in the assessment, ranking, and qualification procedures with the most likely job applicants directly by interviewing them. Most of the participants would not appreciate whether the communication took place with the assistance of AI or human. In similar perspective, five out of eight experts indicated that it is likely to pace up the recruitment process, with the assistance of AI and; therefore, the recruitment procedures become time efficient.

“The recruitment process can be paced up through AI and create an effective candidate experience, whereas it mitigates the cost. It is likely to explore the silent job applicants, with the assistance of AI, and there is additional time for focusing on the best fit” (Participant 3).

It was further reported that equivalent chance was allowed by AI to all job applicants for being chosen for the position because of lesser human bias. With the assistance of AI, it was easy to explore culturally-fit job candidates and silent job candidates. The adaptation of new technology throughout AI and lack of trust are some identified challenges brought by AI. It becomes essential to have an appropriate adaptability toward AI and to have adequate tools for using AI since it should be known how to use AI in the organization.

Quantitative. Cronbach Alpha measures the reliability statistics all the questionnaire variables (Table 1). From the findings, the Cronbach alpha value for all the factors was fulfilling the standard benchmark of 0.70. Moreover, participants profile was shown in Table 2. Out of 248 participants, 191 were female (77.0%), 110 were 40–49 years old (44.4%), and had an experience of 1–3 years in current organization. Tables 3–5 shows the baseline values for the structural equation modeling, which fully satisfies the benchmark.

Table 6 presents path analysis based on the role of independent and moderating-mediating variables on dependent variable. The findings have shown positive and significant effects of planned training and development process (0.231→0.021), tactical performance appraisal and integration of AI (0.719→0.000), and integration of AI and efficient HR practices (0.204→0.131). The moderating role of Ease of use on integration of AI and efficient HR practices was negative and insignificant.

Table 1 Pilot study.

Variable names	N Items	Cronbach's Alpha
Strategic HR planning through AI	5	0.861
Smooth recruitment and selection process	3	0.614
Planned training and development process	3	0.899
Tactical performance appraisal	3	0.880
Integration of AI	5	0.776
Efficient HR practices	5	0.872

Table 2 Descriptive statistics (n = 248).

	Frequency	Percent
Gender		
Male	191	77.0
Female	57	23.0
Age (years)		
<30	57	23.0
30–39	58	23.4
40–49	110	44.4
50+	23	9.3
Experience in current firm		
<1 year	17	6.9
1–3 years	88	35.5
4–7 years	63	25.4
7+ years	80	32.3

Discussion and implications

There is a dire need for embracing the human resources in terms of the effect of AI and automation, as there is a substantial effect on the facilities and their work that encourage human resources digitization, and HR workers should be prepared for supporting the digital transformation throughout their facilities. This study explains the effect of AI on human resources and presents a mixed-method evidence on this topic. It further answers how the AI can assist in enhancing the assumption of a transformation and design a new application experience.

The main conclusion is clear after carrying out this study. It will be progressively essential to adhere to these changes within the activities and employees should dispense specifically simple skills of owners and routine work. Thereby, the HR must have fundamental information ascertained on the basis of computer services to address the challenge that large organizations are experiencing and elevate their competence for offering significant information to management in making informed decisions regarding HR. Organizations should have to explore at approaches for incorporating conversational AI for HR transactions in their decision-making process if they desire to remain competitive in today's era. Organizations must depend on AI in performing administrative responsibilities so that HR departments might become more efficient.

HR professionals should be competent for emphasizing on strategic planning. UAE will be able to emphasize on strategic planning on an organizational level. This has facilitated to a change in the structure of the workforce throughout the organization considering the IT facilities in business management. It allows men and women to compete in many jobs, and this will place a new stress on HR as an outcome of the demand for gender equality, allowing the great integration of the feminist aspect. This allows senior management to prepare their plans, so that the HR department must be ready for responding to the employment of the opposite gender. The AI function will influence employees in

Table 3 Outer loadings.

	Strategic HR planning through AI	Smooth recruitment and selection process	Planned training and development process	Tactical performance appraisal	Integration of AI	Ease of use
PLA1	0.851					
PLA2	0.836					
REC1		0.891				
REC2		0.904				
T&D1			0.723			
T&D 3			0.930			
T&D 4			0.853			
PER1				0.692		
PER2				0.854		
PER3				0.679		
INT2					0.843	
INT3					0.834	
EOU1						0.824
EOU2						0.841
EOU3						0.768

Table 4 Convergent validity.

Constructs	Composite reliability	Average variance extracted (AVE)
Strategic HR planning through AI	0.831	0.711
Smooth recruitment and selection process	0.892	0.805
Planned training and development process	0.876	0.705
Tactical performance appraisal	0.788	0.556
Integration of AI	0.826	0.703
Ease of use	0.853	0.659

Table 5 Fornell and Larcker (1981) criterion.

	CRA	EE	ENG	ER	JS	TD
Strategic HR planning through AI	0.84					
Smooth recruitment and selection process	0.59	0.897				
Planned training and development process	-0.68	-0.47	0.83			
Tactical performance appraisal	-0.59	-0.55	0.71	0.74		
Integration of AI	-0.49	-0.53	0.20	0.55	0.83	
Ease of use	-0.57	-0.69	0.23	0.45	0.71	0.81

Table 6 Path analysis.

	Estimate	S.D.	T-Stats	Prob.
Strategic HR planning through AI→Integration of AI	-0.575	0.061	9.422	0.000
Smooth recruitment and selection process→Integration of AI	-0.693	0.032	21.872	0.000
Planned training and development process→Integration of AI	0.231	0.100	2.317	0.021
Tactical performance appraisal→Integration of AI	0.719	0.029	24.655	0.000
Integration of AI→Efficient HR practices	0.104	0.069	1.510	0.131
Integration of AI→Ease of Use→Efficient HR practices	-0.093	0.051	1.837	0.066

several different approaches, so it is essential for emphasizing on employee requirements and potential outcomes.

Conclusion

In conclusion, the findings have shown that removal of routine tasks and speeded quality were the main benefits brought by AI. Similarly, lack of training and technological readiness were the main challenges. Due to AI, certain limitations make it less implementable in the overall recruitment process and can make questionable outcomes with respect to its validity. AI is assumed to replace

administrative tasks in both the recruitment process and HRM in the recruitment activities, which will intervene job applicable factor, and the recruitment outcomes. AI would extend on the conventional recruitment process and be competent for offering a more extensive options for both the job applicants and company.

Data availability

The data underpinning the study can be made available on a reasonable request from the corresponding author. The data analyzed are presented in the paper.

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References

- Albert EA (2019) AI in talent acquisition: a review of AI-applications used in recruitment and selection. *Strateg. HR Rev.* 18(5):215–221
- Anagnoste S (2018) Robotic automation process—the operating system for the digital enterprise. In: *Proceedings of the International Conference on Business Excellence* 12(5):54–69
- Aspan H (2020) Individual characteristics and job characteristics on work effectiveness in the state-owned company: the moderating effect of emotional intelligence. *Int J Innov Creat Chang (IJICC)* 13(6):761–774
- Bhalgat KH (2019) An exploration of how Artificial Intelligence is impacting Recruitment and Selection process (Doctoral dissertation, Dublin Business School)
- Bhardwaj G, Singh SV, Kumar V (2020) An empirical study of artificial intelligence and its impact on human resource functions. In: *2020 International Conference on Computation, Automation and Knowledge Management (ICCAKM)*, IEEE, p 47–51
- Bothma R (2018) Evolution of the HR team: HR tech. *HR Fut* 2018(2018):40–41
- Brin PV, Nehme MN (2019) Corporate social responsibility: analysis of theories and models
- Cappelli P, Tavis A, Burrell L et al. (2018) The new rules of talent management. *Harvard Bus Rev.* <https://hbsp.harvard.edu/product/R1802B-PDF-ENG>
- Coley CW, Thomas DA, Lummiss JA et al. (2019) A robotic platform for flow synthesis of organic compounds informed by AI planning. *Science* 365:6453
- Davenport TH, Ronanki R (2018) Artificial intelligence for the real world. *Harvard Bus Rev* 96(1):108–116
- DiClaudio M (2019) People analytics and the rise of HR: how data, analytics and emerging technology can transform human resources (HR) into a profit center. *Strateg. HR Rev.* 18:42–46. <https://doi.org/10.1108/SHR-11-2018-0096>
- Dulebohn JH, Johnson RD (2013) Human resource metrics and decision support: a classification framework. *Hum Resour Manag Rev* 23(1):71–83
- Eriksson PE, Pesämaa O (2007) Modelling procurement effects on cooperation. *Constr Manag Econ* 25(8):893–901
- Faliagka E, Tsakalidis A, Tzimas G (2012) An integrated e-recruitment system for automated personality mining and applicant ranking. *Internet research*
- Geetha R, Bhanu SRD (2018) Recruitment through artificial intelligence: a conceptual study. *Int J Mech Eng Technol* 9(7):63–70
- Gulliford F, Parker Dixon, A (2019) AI: the HR revolution. *Strategic HR Review.* Available at: <https://www.emerald.com/insight/content/doi/10.1108/SHR-12-2018-0104/full/htm>
- Haenlein M, Kaplan A (2019) A brief history of artificial intelligence: On the past, present, and future of artificial intelligence. *Calif Manag Rev* 61(4):5–14
- Hekkala S (2019) Integration of artificial intelligence into recruiting digital natives in Finland: the perceptions of 20–23-year-old students. *Aalto University, School of Business, thesis*, available on https://aaltooc.aalto.fi/bitstream/handle/123456789/40654/bachelor_Hekkala_Sara_2019.pdf?isAllowed=y&sequence=1
- Jamrog JJ, Overholt MH (2004) Building a strategic HR function: Continuing the evolution. *Hum Resour Plan* 27:1
- Jia Q, Guo Y, Li R, Li YR, Chen YW (2018) A conceptual artificial intelligence application framework in human resource management. In *Proceedings of The 18th International Conference on Electronic Business* (pp. 106–114). ICEB, Guilin, China, December 2–6
- Johansson J, Herranen S (2019) The application of Artificial Intelligence (AI) in Human Resource Management: Current state of AI and its impact on the traditional recruitment process. available on [https://www.semanticscholar.org/paper/The-application-of-Artificial-Intelligence-\(AI\)-in-Johansson-Herranen/dae2da2f3c3094dbb6cccd784d6a3908e83cdc65](https://www.semanticscholar.org/paper/The-application-of-Artificial-Intelligence-(AI)-in-Johansson-Herranen/dae2da2f3c3094dbb6cccd784d6a3908e83cdc65)
- Kumar SL (2017) State of the art-intense review on artificial intelligence systems application in process planning and manufacturing. *Eng Appl Artif Intell* 65:294–329
- Maurath D (2014) A critical incident for big data. *Ind–Organ Psychol* 51(3):15–25
- Minbaeva D (2020) Disrupted HR? *Hum Resour Manag Rev.* <https://doi.org/10.1016/j.hrmr.2020.100820> available on <https://www.medst.dk/media/8578/disrupted-hr-minbaeva-hrmr2021.pdf>
- Pandey R, Chitranshi J, Nagendra A et al. (2020) Human resource practices in Indian army and suggest implementation of artificial intelligence for HRM. *Indian J Ecol* 47(spl):22–26
- Pathak S, Solanki VK (2021) Impact of internet of things and artificial intelligence on human resource development. In: Balas VE, Solanki VK, Kumar R (eds) *Further advances in internet of things in biomedical and cyber physical systems*. vol. 193, Springer International Publishing, p 239. <https://scholar.google.com/scholar?oi=bibs&cluster=7436660387766548912&btnI=1&hl=en>
- Pfeffer J, Sutton RI (2006) Evidence-based management. *Harvard Bus Rev* 84(1):62
- Pournader M, Tabassi AA, Baloh P (2015) A three-step design science approach to develop a novel human resource-planning framework in projects: the cases of construction projects in USA, Europe, and Iran. *Int J Proj Manag* 33(2):419–434
- Rana T (2018) The future of HR in the presence of AI: a conceptual study. *SSRN Elect J.* available at <http://ssrn.com/abstract=3335670>
- Raub M (2018) Bots, bias and big data: artificial intelligence, algorithmic bias and disparate impact liability in hiring practices. *Ark L Rev* 71:529
- Raut, R D, Gardas, B, Luthra, S, Narkhede, B, Mangla, S K (2020) Analysing green human resource management indicators of automotive service sector. *Int J Manpow*, 41:925–944, <https://doi.org/10.1108/ijm-09-2019-0435>
- Reilly P (2018) The impact of artificial intelligence on the HR function IES Perspectives, November 2018 Member Paper 142 on HR 2018 available at https://www.employmentstudies.co.uk/system/files/resources/files/mp142_The_impact_of_Artificial_Intelligence_on_the_HR_function-Peter_Reilly.pdf
- Samarasinghe KR, Medis A (2020) Artificial Intelligence based Strategic Human Resource Management (AISHRM) for Industry 4.0. *Glob J Manag Bus Rese* 20(2)
- Sekhri A, Cheema DJ (2019) The new era of HRM: AI reinventing HRM functions. *Int J Sci Res Rev* 7:3
- Stuart R, Norvig P (2016) *Artificial intelligence: a modern approach* (Global edition). Pearson, Harlow
- Tambe P, Cappelli P, Yakubovich V (2019) Artificial intelligence in human resources management: challenges and a path forward. *Calif Manag Rev* 61(4):15–42
- Tian X, Pu Y (2008) An artificial neural network approach to hotel employee satisfaction: The case of China. *Soc Behav Person: Int J* 36(4):467–482
- Upadhyay, A.K., Khandelwal, K.: Applying artificial intelligence: implications for recruitment. *Strateg. HR Rev.* 17(5), 255–258 (2018).
- Van Esch P, Black JS, Ferolie J (2019) Marketing AI recruitment: the next phase in job application and selection. *Comput Hum Behav* 90:215–222
- Von Krogh G (2018) Artificial intelligence in organizations: New opportunities for phenomenon-based theorizing. *AMD*, 4, 404–409, <https://doi.org/10.5465/amd.2018.0084>
- Wilfred D (2018) AI in recruitment. *NHRD Netw J* 11(2):15–18
- Wright AD (2017) Friending colleagues on social media sites now less taboo, available on <https://www.shrm.org/resourcesandtools/hr-topics/technology/pages/friending-colleagues-on-social-sites-now-less-taboo.aspx>
- Younis RAA, Adel HM (2020) Artificial intelligence strategy, creativity-oriented HRM and knowledge-sharing quality: empirical analysis of individual and organisational performance of AI-powered businesses. In: *Proceedings of The British Academy of Management (BAM) 2020 Annual International Conference: Innovating for a Sustainable Future*, London, United Kingdom
- Yuldoshev N, Tursumov B, Qozoqov S (2018) Use of artificial intelligence methods in operational planning of textile production. *J Process Manag. New Technol* 6(2):41–51
- Fornell, C., & Larcker, D. F. (1981). Evaluating structural equation models with unobservable variables and measurement error. *J Mar Res*, 18(1):39–50. <https://doi.org/10.2307/3151312>

Competing interests

The authors declare no competing interests.

Ethical approval

The study's ethical approval was obtained from American University in the Emirates ethical review board verbally.

Informed consent

Written consent was signed by all the participants of the study before commencing the study.

Additional information

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