THE APPLICATION OF ARTIFICIAL INTELLIGENCE IN HUMAN RESOURCE MANAGEMENT: EMERGING CHALLENGES AND STRATEGIC PATHWAYS

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Abstract

The application of Artificial Intelligence (AI) in Human Resource Management (HRM) is reshaping traditional practices by enhancing efficiency in recruitment, performance appraisal, employee engagement, and decision-making. However, the integration of AI technologies presents emerging challenges such as ethical concerns, algorithmic bias, data privacy risks, workforce resistance, and skill gaps among HR professionals. These issues raise critical questions about fairness, transparency, and accountability in HR processes. To fully harness the potential of AI, organizations must adopt strategic pathways that include developing ethical frameworks, investing in digital literacy, strengthening data governance policies, and fostering human–AI collaboration. Exploring these dynamics is essential to ensure that AI adoption in HRM not only drives organizational competitiveness but also promotes equity, trust, and sustainable workforce development. The study which concluded that the idea of implementing AI-based technologies in the HR management system was revolutionary and has brought so many changes that have benefited the system. The present research work focused on the study of the impact of implementing AI tools in the HR management system. It also recommended that organizations should establish comprehensive policies that address ethical concerns such as fairness, transparency, and accountability in AI-driven HR processes, ensuring compliance with labor laws and data protection regulations.

Keywords: Artificial Intelligence, Human Resource Management, Emerging Challenges and Strategic Pathways

Background to the Study

The new paradigms in Human Resource Management (HRM) have become increasingly prevalent over the last few years, reshaping complex, time-consuming processes through mechanisation and smart systems (SHRM, 2025). HR processes have also attempted

to be tech-savvy—using electronic systems and online platforms in order to increase efficiency, cost savings, and competitive superiority in a dynamic market (Deloitte, 2024). The volume of organizational, task-level, and employee data processed by HR has grown exponentially, further justifying AI's growing strategic place in HR work, and therefore facilitating more enduring business models (Business Inysider, 2025).

Work practices, conditions, and strategic implementation remain among the most challenging domains of HRM. Processes such as employee management, training and development, health monitoring, performance management, and employee relations are particularly challenging. AI-based HRM systems deliver sophisticated solutions (Wired, 2025), with scalable automation and data-driven insights that can reduce administrative burdens while enabling more personalized and timely employee support.

Nearly all organizations have begun to install the IT in business by embracing the new machine learning, artificial intelligence, and automation technology as this is also useful in human resource management (Arisekola, & Rufus, 2022). Automatization of repetitive and complex operations performed by the HRM tasks has put the AI-based solutions as well as the HRM in the limelight. The new HRM revolution has been credited to a greater extent by the IT advancements. The aforementioned HR Information System (HRIS) and electronicHR (e-HR) technologies have aided the organizations to process the activities electronically, store the processed digitized information, and lastly, release the information to the organization's stakeholders. But the use of AI-based solutions, automation, and connectivity for processing the HR activity, i.e., attracting talents, is becoming more popular and is on a rapid rate of speed (Hmoud, 2021).

Managerial HRIS recognizes that the motivation strategy must be augmented towards the employees for the improvement of the intrapersonal and interpersonal work relationship between the organization and the employees (Cregan et al., 2021). Managerial HRIS module facilitates the technological innovation that enlarges the organizational capacity to establish and maintain with professional and capable intrapersonal and interpersonal relationship. Technical HRIS practice, in contrast to managerial HRIS, is a depiction of past awareness that is consistent with technical and data-based abilities and competencies in the organization (Laker & Powell, 2011; Eubanks, 2022). Managerial function-based HRIS is one of the HR technologies in a manner that facilitates intrapersonal or interpersonal relationship within the organization. However, technical functionality HRIS consists of information technology and periodic volumes of information systems that define periodic technical competence, data analysis, and ease in defining the job (Votto et al., 2021). With the help of AI, the companies can create some aspect of complex language translation and pattern recognition by disparate independent algorithms in an effort to implement some business globally.

Some research studies have been conducted to study the use of AI in business activities such as marketing, supply chain and operations management, and HRM activities have been touched upon briefly in some research studies (Kot et al., 2021). IT-based applications have enabled various business processes like recruitment, marketing and finance to be automated (Nawaz, 2019). Deployment of the AI technology in the HR management system has also increased the productivity, accuracy and pace of various business processes. Organizational change therefore becomes cost-effective by mechanizing the machine, human resources and

strategies through the intelligent technologies (Bhardwaj et al., 2020). I4.0 transformation has also contributed to mass scale of developments in the industry era.

The development of artificial intelligence is also among the new I4.0 technologies (Kong et al., 2021). Its adoption by the majority of companies in the HR management system is not a straightforward process because it automates all activities (Vrontis et al., 2022). Although it is known to the employees that the need for the utilization of AI so that the HR management processes may be improved, the employees still understand that such problems will be an obstacle to its utilization and implementation. Therefore, this is just telling us that the change of AI-reliant HR management system is already in the development phase and requires additional efforts and emphasis on the change itself (Palos-Sánchez et al., 2022). These AI and AI-technology-imagined concepts are being implemented in most companies in the HRM section for managing people. The past decade has witnessed the growth in the use of AI technology in HRM building and thus here lies room for study on most of the issues at hand like social impacts of AI and robots, impacts of AI application at the organizational and performance level of a worker, and measuring AI-enabled HRM activities (Budhwar et al., 2022).

As IBM (2020) has noted, this AI is referred to as the most advanced addition to the HRM system. These AI technologies enable the HRM system to include machine learning, deep learning and big data analytics, and thereby enhance its performance (McGovern et al., 2018). It is already sufficiently proven on the basis of the past research studies that usage of AI-based HRM can lead to generating suspicion among the employees and damaging (Presbitero & Teng-Calleja, 2022; Suseno et al., 2022) or improving employees' and organizational performance (Malik et al., 2021; Malik et al., 2022). Scientists have been investigating (Bersin & Chamorro-Premuzic, 2019; de Kervenoael et al., 2020; Malik et al., 2021) benefits of AI based HRM system such as growth, retention, recruitment and talent measurement of high-tech multinational corporations. For this current research, however, noticed was the way HRM process prior to and subsequent to the use of AI were disparate from each other.
Some of the other areas are financial transactions, employees' activity complexity when planning to avoid work-life balance, employees' complaint and compensation management. The issues mentioned above can, however, be redesigned by the application of AI-based HRM. Irrespective of the best research, the advantages of utilizing the AI based HRM process in the company were achieved. They did not, however, uncover the typical HRM issues that the company is facing and the workers' performance of work (Garg et al., 2021).

The literature reviews have suggested different technologies to be adopted in designing the HRM but no feasibility studies have been undertaken for the transition of the whole system. Hence, the current study is focused on bridging the gaps of the earlier study and specifying the boundaries of the HRM process in the absence of intervention of AI. Subsequently, the current research is devoted to different aspects of application of AI technology in HRM. Empirical research is conducted for analyzing the extent of impact on other organizations by conducting a survey of sample population under quantitative research.

Survey result is assumed and statistical analysis and evidence in direction of goal feasibility

and given hypotheses are performed. Section 2 present research literatures available for AI-based HRM systems. Section 3 provides research design and research methodology proposed. Section 4 presents interpretation of demographic and statistical analysis result. Total empirical study finding is presented in the Section 5.

Literature Review

Human simulation of human communication with technologically mediated systems has also been studied by Pratt and his associates (Wolfe et al., 2025). The model developed in the study provided an insight into employee job performance and satisfaction going beyond motivational and cultural dynamics, communication styles and job employee functions, separately. The model possessed what needs to be taken into account for the AI-based communication tools and how they influence one another. Employee satisfaction through motivation and direct impact is challenging for the AI-based communication tools as it is less effective compared to the Face-to-face. Thus, in this present research study, it was ensured that the strategic action of staff management and creating an interface was difficult for the AI-based systems (Van Quaquebeke & Gerpott, 2024).

Garg and other authors (Sadeghi, 2024) in their other study built a model of employee satisfaction of freight and logistic forwarders by following a new approach that was trying to gauge the employee's satisfaction and feedback on the basis of AI-based algorithms. The algorithms also allow the employees to conduct a climate-based survey against their experience, thereby putting the respondent through a response test and providing the company's stakeholders with an insight towards enhancing employee performance, commitment, and retention. Through this, researchers are able to get an academic and practitioner insight of the effective effect that deployment of AI has on the employees and their companies. These settings of the AI are helpful to the employees in the way that they can provide their opinion and concern regarding the organization without hesitation (Gulbrandsen & Just, 2024).

As per the result of what Malik and others' study (Sadeghi, 2024) has achieved, cost-effectiveness of the HR and overall employee experience are enhanced by the AI-based algorithm, hence leading to, thus, employee commitment and satisfaction in an organization. Two groups of employees X and Y and how these respond to the AI-type of social networking technologies are suggested recommendations by Van Quaquebeke & Gerpott (2024). Effects of the AI on the employee performance appraisal, cognition dimension mapping with the quality of the rating and personality dimension changes within the HRM practices were examined in depth by Gulbrandsen & Just (2024).

Bilal H (Gulbrandsen & Just, 2024) offers IT diffusion in human resource management theory. It proposed that the HR chiefs and top managers would be ready to be positively prejudiced regarding the application of AI in their efforts to enhance the quality and performance of HRM. Involvement of employers in utilising the AI technology to manage human resources and the readiness of employees to participate in the utilisation of such technology have contributed to the implementation of the research findings. The e-recruitment technology has been used intensively in the recent past and most organisations have embraced it. It enables the organizations to finish the recruitment process with high speed by reducing the cost of the process and hence, it invites high potential candidates from across the globe. Organization websites of an organization have the information about various vacancies and opportunities

of an organization for making the recruitment process simple. Different websites like careerbuild.com, mosnster.com, naukri.com etc. enable the recruiters to find out the potential job seekers for the required position, and enable the job seekers to find out the links of the different available positions in an organization (Nawaz, 2019). The era of internet infrastructure has made a significant contribution in designing different applications, where different organizations have been able to conduct their business-related tasks at the managerial level. Those include decision-making power in terms of coordination with interaction with the stakeholders using AI-based technologies, i.e., e-commerce (Hu et al., 2019). With the application of various technologies, human intervention has been removed since the high-tech machines are accompanied with human-equivalent function-based AI software (Van der Aalst, Bichler, & Heinzl, 2018). S Kot and others (Kot et al., 2021) tested empirically the function of AI-based recruitment process and quality in building the employer reputation with AI technology implementation.

The success of AI adoption in AI-driven recruitment was examined in the Indonesian pharmaceutical industry. Statistical significance of AI adoption and quality of AI to employer reputation were found in the study. Endogenous and exogenous expression of the effect of the study showed evidence favoring the mediation effect due to AI adoption. Briefly, all mediating as well as direct hypothesis relations turned out to be statistical, and Indonesian drug industries were recommended to adopt the AI-based technologies for successful identification of business procedures. The technological, socio-economic and, most importantly, the political revolutions has granted a strategic popularity to the HRM in organizations (Jatobá et al., 2019).

Research in AI and its application in HRM activities in the recent years has been increasing. For instance, according to different scholars, contemporary AI-driven HRM systems improve development, employee turnover, talent acquisition, and performance appraisal in technology multinational enterprises (Bersin & Chamorro-Premuzic, 2019; de Kervenoael et al., 2020; Malik et al., 2021). The AI system facilitates the HRM function from recruitment to selection, interviewing, and screening applicants (Torres & Mejia, 2017; Van Esch, Black, & Ferolie, 2019), designing I4.0 job advertisements for new positions (Meško & Krstić, 2020), and measuring employees' training effectiveness (Sitzmann & Weinhardt, 2019). And yet, in all of the wealth of things presented within the realm of possessing the new technologies of human resource management, the human humans can accomplish an amazing number of things that the machines are not able to (Agrawal, Gans, & Goldfarb, 2017; Maedche et al., 2019). Thus, the majority of researchers' view is that, instead of substitution entirely, a blend of human and AI support works best for the company in the most appropriate manner (Wilson, Daugherty, & Bianzino, 2017). The recent empirical studies also support the reality that the convergence of human and AI-based technologies to execute HRM processes will improve the effectiveness of the collection of information, maintenance, and verification by the management (Bhardwaj, Singh, & Kumar, 2020). Adoption of the AI technologies grants the HRM authority to conduct the interview of the candidates in video mode using the internet facilities with the right candidates, through the assessment of the candidate's interaction, attitude, and behavior, and select the future candidate who would be an ideal candidate for the organization's requirement (Vinichenko et al., 2019). Out of all these jobs might have been performed without the intervention of human.

3. Methodology

The current study used a quantitative research methodology for the assessment of aggregated data. The quantitative approach illustrates events by gathering immutable numerical facts that have been evaluated by mathematical procedures. This method answers questions about how, where, when, how much, what, and how many. The quantitative method encompasses a logical framework and an objective, numerical perspective (Baur, 2019). This research used an empirical investigation using a semi-structured questionnaire to gather data from participants across various age demographics and professional fields. The questionnaire was designed according to the research factors, and the results were evaluated using purposive sampling methods. The hypothesis for the empirical study is formulated based on the research goals and elucidated via quantitative analysis. Figure 1 provides a concise summary of the expected study design. The demographics of the study population were examined, and their replies were evaluated accordingly.

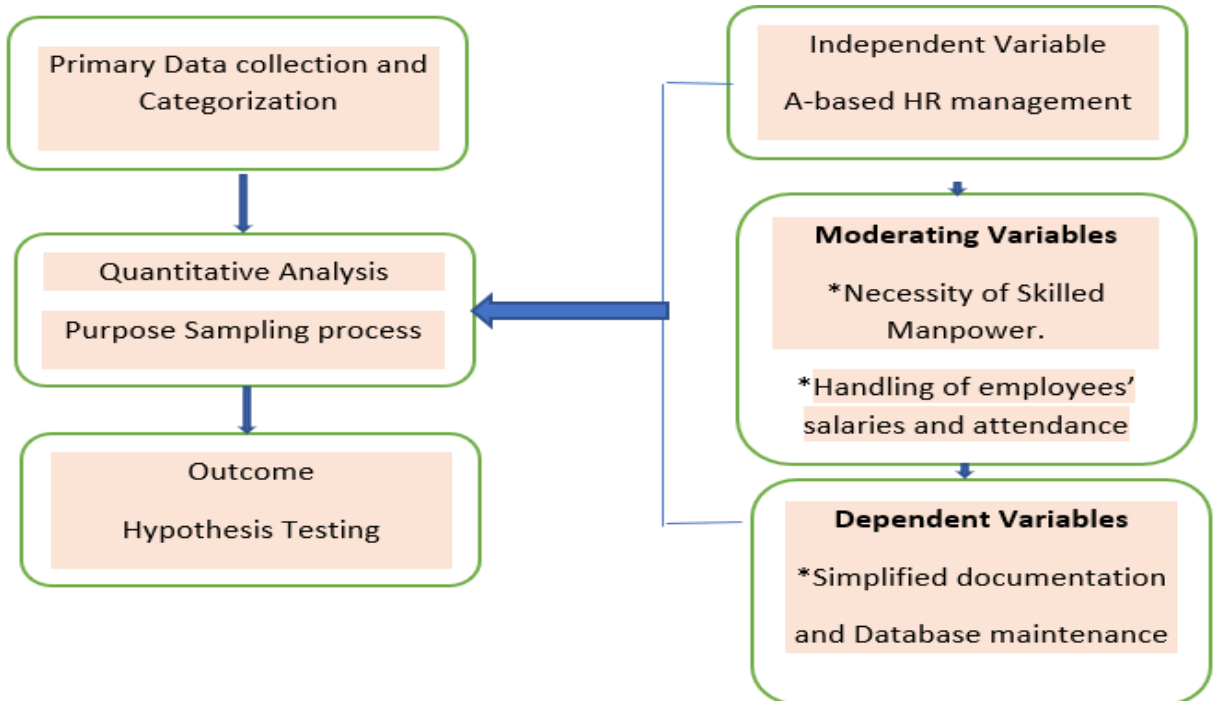

Figure 1. Research Design

The present study seeks to: • Investigate the main challenges in human resource management across several sectors within an organisation. • To examine the impact of AI-driven HR management on the improvement of various HR procedures.

The study questions are: • What problems do existing HR management methods have? • How has AI improved and simplified HR management?

The present study's hypotheses are:

H1: The implementation and functioning of an AI-driven HR management system are associated with difficulties in existing HR management practices.

• H10: There is a strong correlation between the use and implementation of an AI-driven HR management system and issues with current HR management methods.

• H11: The current HR problems have little to do with the creation and use of an AI-based HR management system.

H2: Setting up an AI-based HR management system is connected

d to better and more effective methods of handling HR.

• H2O: Using an AI-based HR management system has a big impact on how well and effectively HR is run.

• H21: The use of an AI-driven HR management system does not have a strong relationship with making HR management operations more efficient and streamlined.

The research population consists of individuals from several organisations located in the Hyderabad region of Andhra Pradesh, India. The research included individuals from several professions and sectors. The study clarified the perspectives and preferences of individuals about the implementation of the AI-driven HR management system.

The study population was generalised, yielding a total of 126 respondents to the questionnaire. As was noted before, the people who took the survey worked for different firms that employed the AI-powered HR management system. But everyone who answered knew about both AI-based technology for completing HR chores and conventional HR management systems. The people who were chosen for the survey were not only those with HR management designations. People from other departments and jobs were also included.

Sample

To get data from a given group instead of the whole population, one has to to use a sampling method (Stratton, 2021).

Thus, it is very important to choose an appropriate sample size that is appropriate for the research.

The sample size enables the inferences to be drawn from the data which is collected from the sample population (Lakens, 2022). Accordingly, the data were collected, and a statistical quantitative analysis was utilised with purposive sampling. Anyone could fill out the survey in accordance with their job title, industry, occupation, or age. After the data collection for the study was done, the questionnaires were grouped according to the research variables.

Primary data is very helpful since it directly come from the individuals who were asked to give a response to it.

Structured questionnaires, questionnaires, polls, and so on are all part of this technique of collecting data (Mazhar et al., 2021).

Semi-structured questionnaire is taken up in order to collect the necessary primary data which is vital for the analysis of the study. Individuals working in various companies and performing various things responded to the survey.

The researcher carefully checked each questionnaire response for completeness.

The primary data analysis was a pre-tested semi-structured questionnaire on a five-point Likert scale. There are five locations on the scale of rating:

1 – Strongly Agree, 2 – Agree, 3 – Don't Agree or Disagree, 4 – Disagree, and 5 – Strongly Disagree.

The SPSS program converts the questionnaire responses into a Likert scale so that it can be viewed.

We placed the information we obtained within a spreadsheet so it would be simple to view.

The statistical method views the data in a way based on quantity. One needs the Statistical Package for Social Sciences (SPSS) software to accomplish this. To see who answered the questions, we look at the data on the spreadsheet as a graph.

We code the survey questionnaire with the correct settings and put it in the SPSS software.

The software analyses the study variables and shows us the results. The study's input variables are analysed using three independent methods: one-way ANOVA and correlation.

4. Results

The data from the survey questionnaires are processed using SPSS software and examined for their findings based on the study variables. The research design achieved the study's objectives. Additionally, a thorough examination of the responses classified by various demographic characteristics is performed.

4.1. Demographic data and inferences

The age range of the respondents who filled out the questionnaire is shown in Figure 2. The statistics reveals that just 13% of persons are older than 55. Since the AI-based HR management system was put in place, it has had a stronger influence on workers who are younger or middle-aged. About 28% of the respondents who replied are younger than 35, 28% are between 36 and 45, and 31% are between 46 and 55. People over 55 have been using and practicing the standard HR management methods and processes for a long time, therefore they find them simpler than the AI-based HR management system.

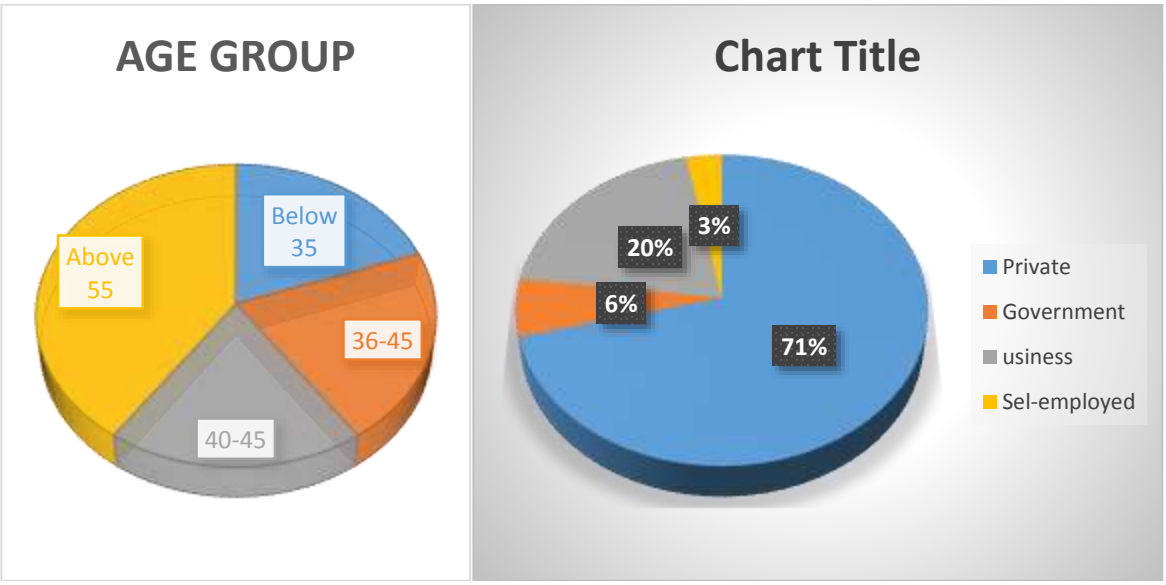

Figure 2. Age Group

Figure 3. Occupation

The figure in Figure 3 shows what jobs the people who took the survey had. None of the people who answered the question are self-employed (0%). In some manner, they all work for a company. Seventy-four percent of the people who answered work for private companies, twenty-three percent run their own firms, and just three percent work for the government. Most of the time, private businesses set up and utilise the AI-based HR management system. This is because private companies aim to get as much done as they can with as few employees as they can. So, AI-based technology makes it easier and more accurate for these kinds of businesses to do their jobs. The AI-based HR management system has also been used by the firms where the youthful and middle-aged individuals work. This helps them run their company and get more done. The statistic also shows that not many of the people who answered are government workers and that they don't know much about the AI-based HR management system. Most government agencies and groups still utilise old-fashioned approaches and haven't learnt how to get the most out of new technology. The government owns a lot of old records, some of which are 100 years old. It's not simple to move the information to digital platforms and maintain it up to date and in good shape. But just a few government agencies have done what they need to do to digitise part of their data and work processes. This is still a long way from turning the HR management system into a digital one.

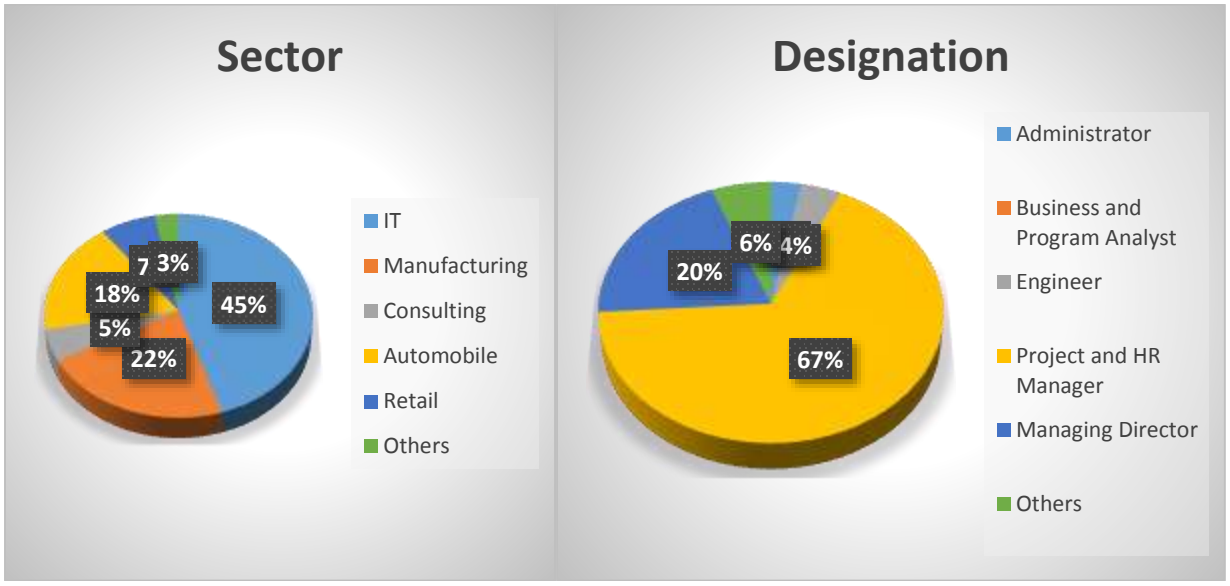

Figure 4. Sector

Figure 5. Designation

The responses came from diverse parts of the industry (Figure 4). The goal was to find out how knowledgeable people in diverse fields are of AI-based HR management, not only those in the IT field. But over half of the people who answered (45%) worked in IT. 22% of the people who answered were from the manufacturing sector, 6% were from the consultancy sector, 18% were from the automobile sector, 9% were from the retail sector, and just 3% were

from another industry. Even if people from other fields knew enough about how AI might be used in HR management and how it could help, they still wanted to do things the old-fashioned way. This is because most of the industrial and automotive industries had a lot of workers, and it wasn't viable to manage all of them with only an AI system. Most of the time, the staff operate with machinery and tools, not computers or laptops. The IT sector personnel solely use their computers and laptops, therefore it's typically easier for the HR department to use AI-based solutions to deal with them.

Figure 5 shows a chart with the replies depending on the participants' job titles. Most organisations have a dedicated HR management department, but a handful do not. Instead, other department heads and executives handle HR duties. Consequently, this research has expanded its scope to include more departments. Figure 5 shows that 4% of the people who answered the question work as administrators, 2% work as engineers, 67% work as project managers and HR managers, 20% work as managing directors, and 6% work in other roles. It is also mentioned that none of the people who answered work as business and program analysts. Managing HR is hard and time-consuming in big companies. When someone works with a separate department but is in charge of HR management in an organisation like this, an AI-based HR management system would be easier to use. The AI is easy to use since it automates operations and needs fewer documentation. An employee from any field may use it.

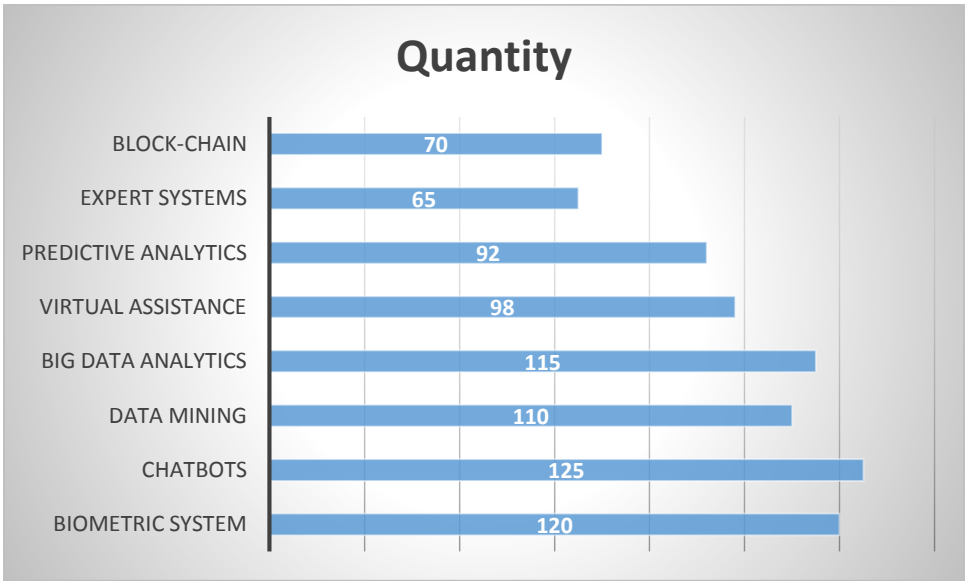

Figure 6. AI-based Tools

Many organisations in many fields are switching to AI-based solutions to make things easier and more accurate. AI can accomplish a lot of the same things that people do, but it still needs people to help it and keep an eye on it so it can become better and better. Most businesses have only partly incorporated AI-based tools into their HR management activities. Figure 6 shows that the participants who answered the poll claimed their firms utilise different kinds of AI-based technology. Everyone who took the poll works for a company that has a system that uses biometrics and facial recognition to keep track of who is at work. Chatbots are the automatic messages that show up on a company's website to aid you. The Chatbots help

people learn more about the firm and answer simple questions. Data mining and big data analytics are two of the most important and prevalent AI methods. People may get help from virtual assistants and chatbots when they visit the organisation's website. HR managers also employ expert systems, blockchain technology, and predictive analytics to assist them in making choices. Many businesses want to utilise man-machine integrated systems for a lot of their work because they make it easier for people to complete their jobs and help them do them more accurately and on time.

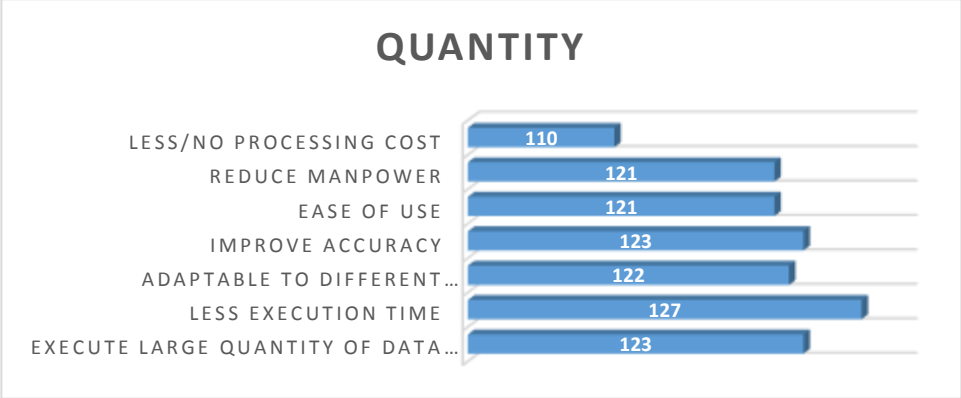

Figure 7. Preference for AI

A lot of companies in a lot of different areas are migrating to AI-based solutions to make things simpler and more precise. AI can perform a lot of the same tasks that humans do, but it still requires people to support it and watch over it so it can become better and better. Most companies have only partially integrated AI-based solutions into their human resources management tasks. According to Figure 6, the people who completed the survey said that their companies use various types of AI-based technologies. Everyone who completed the survey works for a corporation that employs face recognition and biometrics to keep track of who is at work. Chatbots are the automated messages that pop up on a business's website to help you. The Chatbots let consumers find out more about the company and answer basic queries. Data mining and big data analytics are two of the most common and useful AI techniques. When people go to the organization's website, they may obtain advice via virtual assistants and chatbots. HR managers also use blockchain technology, expert systems, and predictive analytics to help them make decisions. A lot of companies desire to employ man-machine integrated systems for a lot of their work because they make it simpler for people to execute their tasks and help them do them more precisely and on time.

4.2. Statistical analysis of the data

We utilised SPSS to look at the survey data we acquired. The statistical analysis makes it clear how the research variables and the goals are related. This association supports the hypothesis and helps us understand how essential goals are. This research examined statistics using two distinct methodologies: the one-way ANOVA test and the correlation test.

4.2.1. ANOVA test

You may use the one-way ANOVA test to find out how the independent and dependent variables are related. The test's significance level was below 0.05, which is the lowest threshold that shows the hypothesis is significantly connected to the aim. The analysis in Table 1 indicates that the study variables—simplified finance-oriented tasks, challenges in planning activities for employees to attain work-life balance, managing employee attendance and salaries, and AI-based training and development programs—exhibit a significant dependence on the independent variable of AI-based HR management, with a significance level of less than 0.05. As a consequence, the one-way ANOVA test results have shown a strong correlation between the study variables and the research objectives, thereby confirming the research hypothesis.

Table 1. One-way ANOVA Test

		Sum Squares	of df	Mean Square	F	Sig.
Being more specific and working less time will help you get your finances in order.	Between Groups	62.433	4	13.944	23.8821	.000
	Within Groups	56.342	122	.613		
	Total	114.342	131			
Planning HR activities for workers to assist them cope with stress at work is challenging and requires a lot of effort.	Between Groups	53.654	4	15.302	37.332	.000
	Within Groups	63.032	122	.533		
	Total	113.657	132			
AI keeps track of when workers are at work and makes sure they are paid accurately every time.	Between Groups	41.852	5	9.461	31.222	.000
	Within Groups	32.661	121	.302		
	Total	56.502	125			
Training and development programs that use AI are better than those that do not.	Between Groups	62.433	4	15.433	14.335	.000
	Within Groups	113.331	121	.555		
	Total	163.244	125			

4.2.2. Correlation test

The correlation test is used to check whether the variables are related and to find out how strong the link is. This correlation test looks at how the dependent, independent, and

moderating factors are related and puts the results in Table 2. This test has once again shown that the hypotheses are important. The significance level remained below 0.05 over the whole study. We tested the significance of the correlation by looking at the possibility of mistakes and delays in managing attendance and pay without AI help, the replacement of manual HR management with AI-based apps, and the use of AI-based systems to plan activities for employees to help them balance work and life. The significant correlation among the variables was noted to be at the level of 0, therefore fulfilling the 2-tailed significance criterion of the bivariate correlation test. Consequently, the correlation test has shown that the independent, dependent, and moderating factors exhibit considerable intercorrelation.

Table 2. Correlation Test

	Without AI help, HR management work may be done wrong or late.	Artificial intellect has taken the role of manual labour in HR management and made it easier.	An AI-based solution lets HR plan online activities for workers to help them deal with job stress.
Without AI help, HR management work may be done wrong or late.	1	.234**	.554**
		.000	.000
	126	126	126
Artificial intellect has taken the role of manual labour in HR management and made it easier.	.234**	1	.532**
	.000		.000
	126	126	126
An AI-based solution lets HR plan online activities for workers to help them deal with job stress.	.554**	.532**	1
	.000	.000	
	126	126	126

5. Discussion

The current study focused on the various dimensions of the implementation of AI in the HRM. It evaluated the impact of AI-based HRM on the HR process. Also, it demonstrated the challenges of HRM process. The effective HRM process after the implementation of AI has also been evaluated. The outcome of the study identified that the possibility of errors and delay in attendance and salary management without AI assistance, replacement of manual work of HR management with AI-based applications has made the work simpler, and organizing activities for employees to maintain work-life balance through AI-based systems. The study was focused on the impact of AI-based tools on the HR management system, and hence it was

identified as the independent variable. The dependent variables were the tasks which were made simpler on implementing the AI-based tools (Arisekola, 2023). From the statistical analysis, the significance of the various dependent parameter with reference to the independent variable was established. The one-way ANOVA test revealed that the dependent variables and the moderating variables proved the hypotheses to be significant with the objectives and thus, validated the independent variable. The outcomes of the test established a dependency of the dependent and moderating variables on the independent variable. On the other hand, the correlation test was performed to establish the significance among the various study variables. The independent variable AI, has replaced manual work process of HR management and has made work simpler, moderating variable, Errors and delay in attendance and salary management work is possible without AI assistance, and the dependent variable were used for establishing the significance of correlation. The significance level among all the variables were observed to be well below the marginal level ($P<0.05$). Hence, the correlation test also validated the hypotheses.

The existing study (Hmoud, 2021) investigated dissemination of IT especially AI in the HRM. The study revealed that the leaders and executives of HR possess a positive attitude towards the implementation of AI to enhance the quality and efficiency of HRM. Meanwhile, the current study inferred that simplified finance-oriented tasks, difficulty in planning activities for employees to maintain work-life balance, employee attendance and salary management, and AI-based training and development programs are the prevailing challenges in HRM process. Nonetheless, these challenges can be rectified through the implementation of AI-based HRM system. The prevailing study (Nankervis, 2021) illustrated the significance of implementing AI technologies is to enhance the effectiveness and performance efficiency of the HR-oriented operations to make different processes of management to be accurate and agile. Similarly, the current study depicted the possibility of errors and delay in attendance and salary management without AI assistance, replacement of manual work of HR management with AI-based applications has made the work simpler, and organizing activities for employees to maintain work-life balance through AI-based systems.

Many researchers (Bersin & Chamorro-Premuzic, 2019; De Kervenoael, 2020) investigated the benefits of AI oriented HRM system such as development, retention, talent acquisition and assessment in advanced technology multinational enterprises. Meanwhile, the current study investigated the variation between the HRM process before and after the implementation of AI. The issues without AI assistances are finance-oriented tasks, difficulty in planning activities for employees to maintain work-life balance, employee attendance and salary management. Nonetheless, these issues could be rectified with AI-based HRM.

6. Conclusion and limitations

Human resource management plays a significant role in any organisation, and thus needs continuous focus and improvement in its processes. The idea of implementing AI-based technologies in the HR management system was revolutionary and has brought so many changes that have benefited the system. The present research work focused on the study of the impact of implementing AI tools in the HR management system.

The major challenges faced by the HRM are related to working conditions, strategies and

practices. Managing the staff, training and development, health management, performance management and employee relations are considered significant issues faced by the HRM. Salary management, errors and attendance management are also some of the significant issues faced by the HRM. In order to overcome those challenges, the implementation of AI-based HRM practices has been illustrated through the current study. The participants aged above 55 years were dependent on the conventional HR management system and gave very little importance to the AI-based tools for HR management. Moreover, the participants from non-IT industries also preferred the conventional HR management system for most of the HR operations. This is because most non-IT industries function with a large number of employees who do not have direct access to computers or laptops or mobile phones to access the AI-based HR tools. Hence, these industries perform most of their HR task in the conventional methods only. However, some tasks such as attendance monitoring and salary calculation, are done through AI-based tools only. The respondents were not only identified from the HR-oriented designations, but also were from other departments and designations. The AI-based tools made the tasks of individuals who were from other designations than the HR-oriented. This platform gave them the simplicity to understand their work and also helped then to do it with very less or no errors or mistakes. Thus, the study concludes that the implementation of the AI-based tools for the HR management system is preferred and practised by most organisations. This system has also eased human efforts and increased the accuracy of various tasks that were performed. The present study contributes in depicting the significance of AI-driven HRM process in a non-IT organisation. The AI-based HRM system effectively handles the salary and appraisal process of the employees, which in turn simplify the recruitment and documentation process. However, this study has also established certain limitations for the implementation of this system. The AI-based system, however, is automated and possesses improved performance; it still requires human assistance and monitoring at certain stages. The present research has also been conducted for a specific population, and thus, the outcomes of the study are valid only for that population. The upcoming study will keep this study as base to elaborate illustrate the technique of implementing the AI-based HRM system in the organization. Also, the future study will attempt to evaluate the benefits of AI-based HRM process in developed countries to make suggestions for effective implementation of AI in firms in the developing nation.

7. Recommendations

1. Organizations should establish comprehensive policies that address ethical concerns such as fairness, transparency, and accountability in AI-driven HR processes, ensuring compliance with labor laws and data protection regulations
2. Continuous training and reskilling programs should be introduced for HR professionals and employees to enhance their competence in managing and interpreting AI applications, thereby reducing resistance and skill gaps.
3. Organizations should implement AI in HRM gradually, starting with pilot projects, while continuously assessing outcomes, identifying unintended consequences, and scaling up only after proven effectiveness.

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