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HR Professional's Intention to Adopt and Use of Artificial Intelligence in Recruiting Talents within Pharmaceutical Industry of Pakistan

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ABSTRACT

This study aims to investigate HR professional's intentions to use artificial intelligence (AI) for talent recruitment in Pakistan's pharmaceutical industry. The present investigation has been done within the Pakistani setting, employing the Unified Theory of Acceptance and Use of Technology (UTAUT) as a framework. influence, facilitation condition, intention to use and actual use of AI. Drawing upon the understanding of research technique, the study employed a quantitative research approach that stayed faithful to the positivism paradigm. As for now, there is no clear evidence that Pakistan's pharmaceutical industry officially planning to implement AI in its recruitment process. Thus, this study happens to investigate the HR Professional's Intention to Adopt and Use of Artificial Intelligence in Recruiting Talents within the pharmaceutical industry of Pakistan. Moreover, the research opts for convenience sampling where the target population has been defined as HR professionals practicing in the pharmaceutical organizations such as Martin Dow, AGP Limited and PharmEvo Private Limited. An online questionnaire survey has been used to get 100 responses from the users. In addition to SPSS for analysing the demographic data, the researcher employed SmartPLS and select PLS-SEM as model type for assessing the constructs. Moreover, the results validated that Effort Expectancy, Facilitating Conditions, and Social Influence have a strong impact on Intention to Use, organizations need to concentrate on these aspects to promote AI. These results correspond with prior studies that also identified such associations in other settings including ERP systems, mobile banking, m-health services. The verification of most of the hypothesis concerning AI adoption in the domain of HR recruitment shows the usefulness of the UTAUT model and its appropriateness to predict technology acceptance patterns in various fields. However, the major limitation is the collection of data via HR professionals who belongs to Karachi in majority.

Introduction

In pharmaceutical industry of Pakistan, artificial intelligence (AI) is transforming the hiring process by significantly increasing the efficacy and efficiency of finding qualified candidates. AI releases recruiters to concentrate on more strategic and innovative parts of hiring by automating repetitive processes like resume screening and initial applicant engagement (Bajwa, 2022). This change improves the accuracy of finding the greatest people for the company while also saving time.

The capacity of AI to reduce unconscious bias in hiring is one of its most important benefits (Mishra et al., 2023). Certain demographics are frequently unintentionally favoured by traditional recruiting practices due to factors including gender, ethnicity, age, name, education level, and religion. On the other hand, the unique characteristic of the many AI-powered systems being used in today's society is that they are designed to disregard the previously stated factors and concentrate solely on a candidate's credentials, work history, and fit for a certain position. The concept of objectivity fosters a more varied and welcoming work environment by emphasising impartial treatment and bias-free decision-making. Opinions are formed based on available facts rather than preconceived notions (Zaman et al., 2024). AI is also a good idea for recruiting as it offers pertinent data that improves hiring choices. These technologies might make use of big data to spot potential patterns among eligible candidates who would be better fit for a certain role. According to Nesar et al. (2024), the HR profession requires analytical ability, particularly for the goal of making appropriate staffing decisions that can lower employee turnover and raise organisational satisfaction levels accordingly.

However, the previously mentioned overcoming methods suggest that the recruitment industry still confronts massive challenges, the most important of which is the lack of qualified human resources. Artificial intelligence technologies must be included in order to close this gap since they will improve the employment process's efficiency (Hasan et al., 2024). Finding and interacting with these passive candidates who might be qualified for a certain position but are unlikely to be actively seeking employment can also be aided by it. Applicants in addition talent pools may be reached by recruiters using AI to increase reach for potential candidates.

Problem Statement

Pakistan and other similar regions are adopting AI more slowly, according to study by Naqvi et al. (2023), due to a variety of issues such as a lack of trained personnel, privacy concerns, maintenance requirements, integration capabilities, and a lack of proven applications. It is more challenging to successfully integrate AI into HR operations as a result of these issues. Emerging countries like Pakistan need to identify and apply AI fast in order to compete in the global economy.

This study will focus on developing methods that can narrow the talent gap, address privacy issues, and enhance integration abilities in order to address the problem of underprivileged country's delayed adoption of AI. Effective use of AI may reduce bias in HR decision-making, reduce administrative workloads, relieve pressure on help desks and shared service centres, speed up the hiring and retention process, and provide demonstrable return on investment (Rafique & Mujawinkindi, 2023). To fully use their competitiveness in the global economy, rising nations must understand these dynamics.

Gap Analysis

Previous studies in pharmaceutical sector indicate a severe lack of study on the use of AI in the Human Resource (HR) domain, particularly in relation to hiring skilled workers for Pakistani pharmaceutical organizations such as Martin Dow, AGP Limited and PharmEvo Private Limited. It has been observed prior that these particular organisations are effectively opting Power-BI which helps in their monthly sales analysis. However, the above-mentioned organisations are not currently opting for AI use in recruiting talents due to their specific reasoning.

When it comes to Martin Dow, it has been observed that their extensive headcount has been the core reasoning for the fear of AI implementation in HR procedures. Although, it has been witnessed that digitization and automation bring benefits and enhances overall department work. Likewise, AGP Limited holds an extensive headcount where most of the personnels are aged more than 40 with less understanding of AI practices. Lastly, PharmEvo Private Limited hesitates to implement AI in the HR department due to the risks associated with data protection issues and ambiguity concerning compliance with the regulatory standards. Therefore, they use differently platforms and technologies for recruiting talent their initiatives such as EvoTalks and ILE program for building corporate capacity, and affiliations with institutions such as NEDUET, DUHS, SZABIST and IBA supplement to their broader human resource strategies which favors the potential candidate's progress and networking opportunity.

Therefore, this study tries to close the observed gap in the literature by concentrating on the particular challenges and predictions of AI deployment in HR recruitment within the framework of Pakistan's pharmaceutical industry. By addressing their particular issues, this study will support the growth of future investigations and provide accurate information on the potential applications of AI in HR procedures.

Research Objective

1. To examine the important predictors of adopting Artificial Intelligence in recruiting talents by HR professionals in pharmaceutical industry of Pakistan?

2. To analyse the significance of unified theory of acceptance and use of technology (UTAUT) in the adoption of Artificial Intelligence in recruiting talents?

Research Question

1. What are the important predictors of adopting Artificial Intelligence in recruiting talents by HR professionals in pharmaceutical industry of Pakistan?
2. What significance does unified theory of acceptance and use of technology (UTAUT) have in the adoption of Artificial Intelligence in recruiting talents?

Significance of the Study

The significance of this particular research has been observant in terms of the fact that AI is changing the recruiting practice by improving productivity, lowering bias, and offering insightful data. Even while there are still difficulties, especially in finding qualified experts, the ongoing use of AI in hiring procedures could help to get beyond these obstacles and create a more diverse and dynamic workforce.

Moreover, it is important to note that even while wealthy nations have conducted a great deal of study on the use of AI in talent recruitment, there are still a lot of unresolved problems about how

AI is really implemented at the organisational level, particularly in developing countries. Research by Ahmed & Williams, (2023) emphasises the advancements made in developed areas, but according to Waheed et al., (2024) 59% of organisations are still collecting data, and only 6% have completely used AI. There is still uncertainty on the best strategy for businesses to strategically develop and apply AI. Thus, the proposed research aims to explore the HR Professional's Intention to Adopt and Use of Artificial Intelligence in Recruiting Talents within the pharmaceutical industry of Pakistan.

Literature Review

AI and Performance Expectancy

Artificial Intelligence (AI) is revolutionizing Human Resource Management by enhancing talent recruitment and addressing diversity issues (Yadav et al., 2024). It offers a new building block for attracting qualified employees and enhancing workplace efficiency, thereby enhancing overall productivity and effectiveness. Artificial intelligence (AI) systems may be set up to ignore these factors and focus just on a candidate's credentials, experience, and suitability for the role. By providing data-driven insights that facilitate better decision-making, AI also enhance recruiting while focusing on individual's performance expectancy (Husnain et al., 2023). It means the degree of perceived utility that an end-user has with reference to the conviction that the use of any particular application will improve the level of her/his job performance or output. This idea is similar with perceived usefulness and trust, perceived job-fit, perceived relative advantage, and perceived outcome from the technology.

In 2016, Buzko, Dyachenko, Petrova, Nenkov, Tuleninova, & Koeva published an article titled "Artificial Intelligence technologies in human resource development." This particular research work looks into the application of AI in human resource development with Europe which mainly focuses on the use of AI technologies and computer modeling. It is noteworthy that the authors analysed the personnel training at ALC "Severodonetsk factory of chemical nonstandard equipment" using the cognitive system IBM Watson Analytics to assess the performance of the business using pertinent indicators for labour costs, labour costs per person, income, profit, and profit per person.

Buzko et al. (2016) are likely examining the correlation between the use of AI technologies and HRD practices. The research investigates the relationship between the quantity of training offered and the company's net profits from the prior year. Given the findings of this study, it is possible to condition choices for HRD financing such that they take the company's historical income into account. Therefore, it can be said that by examining these connections, the research provides insightful information on how artificial intelligence (AI) might change human resource development across a range of industries and organisational contexts.

The authors Chatterjee & Bhattacharjee had recently in their cross-sectional survey published in Education and Information Technologies in 2020 focused on the application of artificial intelligence in higher education in India. This paper adopts quantitative research where structural equation modeling will be used to establish the factors affecting the use of AI technologies in the higher education sector in India. In Chatterjee & Bhattacharjee (2020), the authors aim at examining extends of AI integration in higher education in India as well as factors influencing it. As observed, the variables under study have been well chosen as a basis for identification, as the study focuses on the possibilities of stakeholders' acceptance of AI in higher education. Therefore,

the research study has used various adoption theories and models such and the "Unified Theory of Acceptance and Use of Technology" (UTAUT) to help in this task.

The authors Chatterjee and Bhattacharjee, 2020, may be studying on how and/or when the use & application of Artificial Intelligence (AI) in Indian higher education has opened up new opportunities and complexities. Essentially, this study presents a quantitative approach to analyse the interrelationships that exist between various factors that affect the integration of AI in higher learning institutions. Consequently, it improves the knowledge of an individual on the dynamic process of the implementation of technological advancement in learning institutions. However, one should note that the set of assumptions and the author's conceptual model was validated through a survey with 329 usable responses. According to Chatterjee & Bhattacharjee (2020), through the use of the presented model, policymakers will be in a position to effectively integrate AI in higher education.

The authors of Synergizing Innovation in HR & Performance: Navigating the Interplay of Employee Innovative-Work Behaviour & Capabilities within the Context of Pakistani Pharmaceutical Industry: A Study on Dynamics of Innovation in Human Resources and Performance, Shoaib & Waseem, study the interplay between innovative work behaviour and capabilities in Pakistani context to draw light on the dynamics of innovation in HR and performance in the pharmaceutical sector. The purpose of the current research is to understand how in a dynamic context, promoting creativity of the employees can enhance the organisational performance in general. The study is explained relative to Pakistan's pharmaceutical industry. It highlights how the execution of HR techniques could be synchronized so as to facilitate the creativity of the worker, therefore increasing productivity in the pharmaceutical firms and gain a unique selling point in the market.

The major factors in the study are worker's innovative work habits and skills. Employee's innovative work behaviour is defined as the activities and actions they do to introduce new concepts, methods, or items into their workplace. Capabilities are the talents, knowledge, and skills that enable employees to engage in creative activity. Additional components may include a supportive organisational culture, performance incentives, training and development programmes, and other human resource processes that promote creativity.

In their study, Shoaib & Waseem focus on the linkage between the kind of work practices and the skills of the employees used by the organization, in addition to its impact and the overall organizational performance in the pharmaceutical industry. The study focuses on ways by which it is possible to manipulate the existing HR practice in a bid to enhance the readiness of personnel to display innovation. Employees can be motivated to engage in creative activities depending on the creativity training programmes that are offered whereby skills and capabilities are installed in them, and through performance incentives that accommodate ideas. The study may also focus on the ability of leadership as well as the overall company culture in encouraging innovation. It provides HR manager's initiative on the strategies that may foster the innovation and performance convergence thus helping the Pakistani pharmaceutical industries to succeed, by establishing such linkages.

AI and Effort Expectancy

Even with expansion, the recruiting professionals still faces challenges, such as a shortage of skilled personnel and a lack of willingness among the necessary workforce to put in long hours of labour. Research by Rawat et al., (2023) shown that people's contentment with the services they

receive from companies is positively impacted by a system's increased user friendliness. This in turn influences user's intentions towards a certain system. Thus, it is accurate to say that effort expectation is a strong and reliable predictor of AI adoption.

In their Australian study that was published in Research and Practice in Technology Enhanced Learning, Popenici & Kerr (2017) found. The goal of the research project was to look at how AI is affecting university teaching and learning environments. The purpose of this study emphasis is to investigate how AI solutions affect learning processes and paradigms in educational institutions. Popenici & Kerr (2017) focuses on the AI, Teacherbots, ML, and Augmentation in Higher Education Seminar. This essay aims to examine how these new technologies affect both the general teaching procedures used in institutions and the learning outcomes of students.

Thus, it probably investigates how the introduction of the concept of AI technology impacts the performance of HEIs. Also, Popenici & Kerr (2017) aim to identify how one teacher's effective implementation of flexible teaching approaches to improve student's outcome can be backed by the use of artificial intelligence technology. Therefore, regarding this piece of research, it is evident that AI is currently being employed in the context of higher learning to transform the approaches that are applied in imparting knowledge as well as improving the performances of students.

Upadhyay & Khandelwal offered a study in Strategic HR Review in 2018 that claimed to discuss the application of AI in recruitment. The research deals with changes in the recruiting industry specific in the shift towards the application of AI. Wording of variables This paper's variables, identified by Upadhyay and Khandelwal, incorporate AI application in recruitment and its effect on the scope and relevance of HR activity. The paper also encompasses broad useful suggestions on how to apply AI within the sphere of recruiting.

Further, it specifies the general information concerning the hiring process automation and outlines the initial approach to AI of Candidate Hiring. Upadhyay & Khandelwal, (2018) seek to establish the relationship between the use of artificial intelligence (AI) in the recruitment process and the human resource management practices. However, the study also seeks to also challenge what the advancement in technology such as artificial intelligence in carrying out the recruitment processes means to the sector and those who seek its services. The report offers insightful conclusions on the potential of AI to change hiring practices and other HRM activities across many sectors by extensively examining these links.

Wrycza, Marcinkowski, and Gajda, (2017)'s research, Information Systems Management within the Polish setting, made a direct attempt to look at the acceptance of software engineering tools in higher education. This research offers an enhanced UTAUT to investigate factors influencing instructor's and student's use of software in educational settings. It is important to note that two new variables were discovered that are specific to the domain (Professional Training Diffusion and Model Interchange).

According to Lundvall (2022), the survey done by the Confederation of Swedish Enterprise reveals a high failure rate in recruitment efforts attributed to senior manager's failure to locate ideal talent. Such rarity for the suitable candidates puts a lot of pressure on both the recruiters and the organizations to find the best ways of optimizing their recruitment strategies in the given competitions the document proceeds to the discussion section in which the findings of the literature review and the interview study shall be discussed and compared.

The conclusions made by the Lundvall (2022)'s study reveal the compatibility, as well as the inconsistencies between the results of the study and literature evaluation in terms of the shifting purpose of AI in recruitment. As such, the flowing discussion is based on major issues like the obstacles relative to the recruitment procedures and the feasibility of implementing AI, along with specifics regarding roles of actors, roles of AI, strategies for adoption and risks of AI application.

AI and Social Influence

The social influence can be used to provide an insight of an individual's level of interaction with technology. It has been established that people undergo social pressure from their environments, friends, relatives or supervisors which in turn affects one's intentions and behavior (Zaman et al., 2024). As per the research by Wrycza, Marcinkowski, & Gajda (2017), an analysis was performed to validate the proposed model and examine how different variables impact student's intention to use specific tools. This analysis helps users choose the best software for their real life projects. The author's investigation focused on university student's behavioral intention to accept the CASE tool. Their goal was to expand on the UTAUT model by including newly introduced and classic variables that influence the degree of acceptance of CASE tools, such as MI and PTD. Through the incorporation of established connections between different variables and building upon existing research, the study successfully developed a domain-specific UTAUT model. The findings of this study, which utilizes the enhanced domain-specific UTAUT model, highlight the strength of the newly proposed independent variable, MI, as confirmed by the Omega coefficient.

The scholarly work by Vedapradha, Hariharan, Praveenraj, Sudha & Ashok revealed an investigation of talent acquisition-artificial intelligence to manage recruitment in information technology companies in Bangalore in 2023. The objective of the research was to explore the awareness level, implementation, and consequent effect that AI technology has had on the TM within IT firms. The research method used a mixed research methods approach, thus data collection methods included among others, literature review, Interviews, and questionnaires. Vedapradha et al., (2023) presented that by applying a triangulation method, the study made it possible to guarantee the credibility of the findings and facilitated the variety of perspectives on the results of the investigation. The technique that was used in the sampling process included the cluster sampling technique at the same time with simple random sampling which in total gave 384 respondent from the IT companies from Bangalore, Mysore, Pune, Chennai and Hyderabad.

In terms of gender distribution and demographic variables, Descriptive statistics revealed a diverse sample of HR and Talent Acquisition managers. Moreover, Vedapradha et al., (2023) mentioned that Cronbach's alpha was used to provide an internal consistency reliability test, while the correlation analysis provided insight on the interdependence between awareness, the level of adoption and active utilization of AI technology, and Talent Acquisition practices. The results from the regression analysis in the current research provided further understanding on the effects of AI technology on Talent Management, whereby it was also observed that as the use and advancement of AI technology increased in the Talent Management process, there would be higher actual usage of AI in Talent Acquisition. The standardized coefficients highlighted the importance of Adoption and Development in the prediction of the AI technology regarding recruitment and management of talents. In 2019, Bagheri Valmohammadi, & Shayan employed all industries in Tehran, Iran in a study titled An Empirical Investigation of the Factors Affecting the Use of Social Networks in Human Resources Recruitment. It is the purpose of this study to examine the factors affecting information use in recruitment and consequently the role played by gender and education with the Iranian culture in mind. In turn, the study aims at contributing to the development of the

given field and expanding the comprehensive view of the recruitment operations as well as the potential role of social networks in the Iranian market.

The primary findings obtained from the Bagheri Valmohammadi, & Shayan (2019)'s study relates to the moderation results of education variable by showing that it can only explain a moderate and insignificant level of the testing relationship between social influence and behavioral intention in recruitment. This means that different aspects beyond education may contribute more to the recruitment behaviors inside Iran.

Also important in the Bagheri Valmohammadi, & Shayan (2019)'s research was the focus toward the problems observed at the organizational level in relation to the recruitment processes, stating that practically all the companies faced certain difficulties and insisting on the application of progressive technologies and approaches in the sphere of search for the personnel. However, it is elemental to understand that this research contained several limitations, even though the methodology used here was quite elaborate. Such limitations include limitations of correlational research design, scarce availability of culture-relevant materials, and challenges in collecting data from the managerial personnel for the surveys.

In 2023, Ahmad, & Hussain published a study in Pakistan Perspective, focusing on the application of artificial intelligence (AI) in cultural diplomacy and the public sector of Pakistan. Cultural diplomacy has been equally defined as cultural relations hence the focus of this research is on how to leverage on AI technologies to make cultural diplomacy and almost all public sector services more efficient. The operational variables analyzed in the present work are AI's use in cultural diplomacy and public sector. AI applications in cultural diplomacy could include data analytics tools, the tools for sentiment analysis, virtual environments, and translators. Thus, the AI utilization in the public sector can include automation of the processes, AI-based tools and services for policy-making, as well as AI-driven provision of public services. Other constructs may also entail the benefits, advantage and outcomes of the AI technologies in these domains.

Ahmad & Hussain (2023)'s examines the link between the use of AI technologies and the improvement of culture diplomacy and public services in Pakistan. The potential of data-based decision making as well as improved communication strategies and new forms of cultural experiences are investigated as to how AI can improve cultural diplomacy. In public sector AI can cut costs, improve efficiency, increase quantity and quality of services delivered and/or inform policy decisions through predictive modeling. It can also explore possible obstacles and trends of AI application in the chosen disciplines, including the requirements for technological platforms, education, and concerning the ethical aspect. Thus, the relationships identified in the study shed light on various ways of AI's ability to enhance cultural diplomacy and the efficiency of the public sector in Pakistan.

AI and Facilitation Condition

The components of the facilitating condition that have been mentioned are the behavioural control and compatibility of the other models. Therefore, the facilitating conditions which make up one of the most essential variables, are also significant in influencing the adoption and utilization of technology by those who need it (Rafique & Mujawinkindi, 2023). Promoting user's awareness about the functioning of the AI systems under conditions of adequate technical support or prior training can significantly assist the processes of user's acceptance of the systems. In 2024, Ahmed & Ramish conducted a study published in the Journal of Development and Social Sciences, which examined the relationship between Artificial Intelligence and Future HRM Practices in the

Pakistan Business Sector. The research investigates into the potential implications of AI adoption for HRM functions and strategies in Pakistani businesses. The main variables in this study focus on the adoption of artificial intelligence (AI) and the potential future practices of HRM.

The implementation of AI driven technologies and algorithms in Pakistan's business sector aims to automate, enhance, and optimize various HRM functions, including recruitment and selection, training and development, performance appraisal, and compensation and benefits. Ahmed & Ramish (2024) examine how the use of AI driven HRM technologies impacts the effectiveness, efficiency, and strategic orientation of HRM practices in Pakistani businesses. It has been found that artificial intelligence technology will have a significant impact on all major HRM practices in the future. Therefore, it can be concluded that through analyzing these relationships, the study adds to the understanding of the transformative power of AI in shaping the future of HRM in the Pakistani business landscape.

In 2019, Nawaz & Gomes published an article Artificial Intelligence Chatbots as New Recruiters challenges in all the industries in Riffah, Bahrain. Since the purpose of the study is to understand how the use of AI chatbots are impacting HR recruiting and increasing effectiveness in candidate interactions. In the context of the current paper, the authors provide a literature review accompanied by the key findings on chatbots in the sphere of recruitment. Among the fundamental objectives of the research, one of the most pressing aims relates to the recognition of chatbot's applicability in terms of the initial stages of recruitment. Some of the uses highlighted include resume parsing, and chatting with the applicants, answering questions, and Gathering information and Data from the applicants; making the screening process easier and even more efficient for the recruiters. Also, the objectives of the research are to highlight the role of chatbots in the improvement of the overall candidate experience.

The main conclusions of the Nawaz & Gomes (2019)'s study include an understanding of the need for constant access to support and chatbot integration into the recruitment process as the means of scheduling interviews, thus, enhancing employer branding efforts are among the key insights, which evidence the value of AI chatbots in recruitment. Thus, chatbots not only help in the first steps in the selection of personnel by translating resumes and communicating with candidates, but also improve the overall process of recruitment since candidates receive personal attention, quick responses, and 24/7 support. In addition, interview scheduling, on-boarding and employer branding becomes easy with the help of chatbots, which increases the efficiency and the level of candidate experience. However, potentials such as time efficiency, cost reduction, and convenience are noted as beneficial prospects of chatbot use in recruitment procedures though there is a realization of certain drawbacks such as technical drawbacks, lack of tact, and data theft as possible setbacks that require consideration when implementing chatbots in recruitment procedures.

In 2022, Arslan, Cooper, Khan, Golgeci & Ali published an article on Artificial intelligence and human workers interaction at team level: an outline of the difficulties that exist in today's organisations, as well as the possible solutions within the framework of the concepts of HRM. It specialises in examining how artificial intelligence (AI) coexists with human workers as teams and addressing the issue of difficulties and approaches in the field of Human Resource Management (HRM).

Arslan et al., (2022) looks into the investigation of challenges that arise in interaction between AI and human employees; secondly, the examination of efficient HRM practices in this synergy; and, thirdly, the identification of future trends in work. Some of the important implications based on the

knowledge gained point to the aspects of trust, communication, and training as critical factors in the management of the relationship between AI and human employees.

Also, Arslan et al., (2022) points to the need for time series, productivity volatility, leadership and organizational impact of using AI in the workplace, and psychosocial effects of adopting technology. The study highlights that more attention should be paid to creating a paradigm for research regarding AI-human collaboration and the presence of multiple industry paradigms to comprehend AI-plus human work, which is essential theoretically and has significant implications for practice in properly functioning organizations today. In the year 2020, LAKSHMI, Sowdamini, & BISWAS published an article on The Rise of Artificial Intelligence in Talent Acquisition in Telangana, India. Due to the research aim, the focus of the study is to establish how the advanced AI technologies are affecting conventional human resources techniques and improving the recruitment process. The goal is to bring awareness to the positive outcomes of using AI in recruitment as well as to outline potential focus areas for enhancing the use of AI in the recruitment process and other HR activities.

Moreover, to candidate experience, LAKSHMI, Sowdamini, & BISWAS (2020)'s study focuses on the promotion of AI for the benefits of candidates during the recruitment process. AI-powered tools present constant updates to the candidates which makes them active and interested in the organizational processes. This is another advantage of the individual approach not only in candidate's experience but also in a positive image of the employer.

Concerning change management, something like AI tendering rationalizes the change process for the HR professionals. This means that with the use of AI for background check, for instance, creating new offer letter templates and all related paperwork takes minimal time of the HR so that they can engage the new employees better (LAKSHMI, Sowdamini, & BISWAS, 2020). Document tracking and e-signature also contribute to new employee's onboarding process, which means that AI enhances the positive perception of the employer-employee relationship.

AI and Intention to Use

Many studies show that behavioral intention is most authoritative determinant of individual's behavior. In 2023, a study was published by Hussain, Mir, Musharaf, & Sajid in the Journal of Future Sustainability. The study, titled "Examining the role of artificial intelligence in determining sustainable competitive advantage: Evidence from the pharmaceutical sector of Karachi Pakistan," explores the impact of artificial intelligence on sustainable competitive advantage in the pharmaceutical sector of Karachi, Pakistan. It looks at the ways in which competition and the future viability of pharmaceutical organizations in Karachi, Pakistan, are interrupted with the application of prescriptive AI.

The primary variables in Hussain et al., (2023)'s study include the acceptance of AI and a sustainable competitive advantage. AI as a strategy is implemented by using modern technologies such as automation, data analysis, and machine learning. Any pharmaceutical firm that has been able to record better results than its counterparts and is in a position to maintain its superiority for a longer time is considered to be having sustainable competitive advantage. They do so due to the application of AI technology in a tactical manner. In their study, Hussain et al., (2023) focused on the interaction between the employment of AI and the capability to sustain competitiveness in Karachi's pharmaceutical sector. The study by Hussain et al., (2023) also revealed the relationship between recruitment and selection and the artificial intelligence application on talent management. This connection has a direct impact on the competitive advantage of the healthcare sector in

Pakistan. Additionally, other aspects of talent development and retention also play a crucial role in maintaining this advantage.

AI and Actual Use

In 2020, Hmoud, & Várallyai published an article on Artificial Intelligence in Human Resources Information Systems: Investigating its Trust and Adoption Determinant on the members of the Jordanian Human Resources Management Association in Jordan. This research proposes to determine factors affecting the integration of AI in HRIS together with the role played by trust in this integration process. Among them, the main goals are to analyze the role of trust in engaging HR professional's behavioral intentions and performance expectations toward AI-based HRIS.

Also, the impact of size of an organization with regards to the IT innovation, especially the incorporation of AI to HR systems is analysed by Hmoud, & Várallyai (2020). Trust was found to have a strong effect on the decision by the HR professionals to use AI HR solutions and their expectations on the performance to be delivered. Organizational size is another factor that is highlighted as another factor that would help determine which organizational structure would adopt IT innovation by pointing out that; extensive organizations will be better placed in the implementation of the above AI technologies due to their larger resource base. The study offers useful recommendations for organizations aspiring to adopt AI in their Human Resource management department, most notably the trust and dimensions of organizational size as the crucial factors that define the AI-based HRIS success.

In 2019, Bibi examined the implementation of artificial intelligence (AI) methods in human resource management (HRM) functions within the context of Pakistan. The paper published in the Sarhad Journal of Management Sciences analyzes the benefits and challenges of employing AI in the context of HRM in Pakistan. The purpose of this study is to establish impacts of employing AI strategies on operations of HRM. Specifically in HRM there are a few main roles that are essential in order to minimize turnover, mistakes, delays and biases within the HR decision making process. These are employee productivity, satisfaction, and turnover. Moreover, researches implementing of the advantages and issue of introducing AI in the HRM processes could be carried out (Bibi, 2019).

That is why in the study by Bibi (2019), organisational advantages of AI usage embrace improving decisions due to the analysis of the data, optimising the processes of the hiring, and the possible existence of the individualised initiatives for the personnel's professional growth. The report does identify some difficulties that exist in the implementation of AI which include automation-phobic, job losing, privacy-concern and human resource management issues to grapple with, that least HR practitioners upgrade their knowledge in handling AI technology. Safely, the study give a clear understanding of all the factors that may be associated with the integration of AI into the HRM activities in the Pakistani context with due consideration to the use of strength and weakness analysis.

The role of artificial intelligence in human resource management of Pakistan's IT industry was the focus of a study that was conducted by Tahira and done in the International Journal of Online and Distance Learning in 2021. The purpose of this research is to explore AI constituent parts and relations of these elements to different areas of human resources management. The primary variables include appraisal system, motivation techniques, training and development, and employee turnover strategies. Tahira (2021)'s research work looks into the relationship between the role of AI and its impact on HRM practices. This incorporates the use of AI-based data and

analysis for performance enhancement, automation and digitization of employment process. The adoption of AI and its effects on work satisfaction, employee experiences, and organizational outcomes are also examined in the context of IT sector.

Mumtaz, Makhdoom, Hassan, Malokani, Zehra, and Chandio examine the research on Artificial intelligence and its impact on HRM functions of Pakistani airlines published within the Journal of Positive School Psychology in the year 2022. In the field of HRM, the implementation of AI can have a significant impact on various functions including recruitment, training, performance management, employee relations, knowledge sharing, service quality, and innovation within the airline industry. Mumtaz et al., (2022)'s study utilizes a moderated mediation model to gain insights into the intricate connections between AI and HRM functions within Pakistani airlines. The investigation likely explores how the adoption of AI influences the impact of specific HRM functions on organizational outcomes. It provides valuable insights into the connection between technology and human resources management practices in the airline industry.

In 2024, research has been published namely Short Empirical Insight: Leadership and Artificial Intelligence in the Pharmaceutical Industry in Engineering, Technology & Applied Science Research by Hu, Din & Zhang. The study examines the interactions between artificial intelligence (AI) and leadership in the pharmaceutical industry. This study provides a brief empirical examination of how AI technology adoption in pharmaceutical organisations is both impacted by and influenced by leadership practices. The study focuses on Pakistan's pharmaceutical sector and looks at companies who are using AI more and more to improve their operations. Thus, it discusses the issues of how technology and leadership push efficiency and innovation in the constantly evolving industry of the pharmaceutical sector.

Hu, Din, & Zhang (2024)'s study likely explores the correlation between using artificial intelligence technology and leadership behaviors in the pharmaceutical sector. The study may examine how various the leadership philosophies that exists like transformational leadership and other philosophies, affects the manner in which implementation and utilization of AI is done. It may also examine the impact on leadership tasks which is done through the deployment of the use of artificial intelligence whereby leaders are forced to adapt new skills on account of the shift of the organization's operations towards the artificial intelligence systems. From the view of these relations, the study provides a number of practical findings on the role of leadership in the pharmaceutical industry to overcome the prospects and challenges of AI to enhance organizational outcomes and innovation.

An article that Lundvall published in 2022 was on Artificial Intelligence in Recruitment Opportunities and the Challenges of Implementing Artificial Intelligence in today's Recruitment Processes in industries in Sweden only. The investigation is initiated with a literature review through which the background for comprehending the existing context of recruitment is determined. Some of the difficulties that have been pointed out in the course of the research are considered in the context of e-recruitment, which is seen as a major innovation in the sphere of recruitment. The critical techniques used in the Lundvall (2022)'s study include semi-structured interviews where the use of follow-up questions is central in probing the respondent's responses. Lundvall especially noted the significance of ensuring flexibility in the case of the interview conducted so that one is able to make important discoveries that would otherwise not have been ascertained. Since the interviews were carried out in Swedish, a translation of the transcriptions was done and incorporated in the study from English. The two sources of information which are the literature review and the interviews yielded the following common themes; the problem of scarcity of qualified candidates in current recruitment models.

Conceptual Development and Hypothesis

Performance Expectancy & Intention to Use

According to the UTAUT model, Performance Expectancy (PE) accounts for the user's behavioral intention (Husnain et al., 2023). Previous works have established that the performance expectancy impacts the behavioral intention highly in different fields including health care and ERP system. Thus, performance expectancy could influence an individual's behavioural intention to utilise new technology; for instance, AI for recruitment of talents.

H1: Based on the analysis done, performance expectancy has a positive relation with intention to use.

Effort Expectancy & Intention to Use

Effort Expectancy as put in the context of the model is defined as "the degree of ease in using the system" (Waheed et al., 2024). The ease that comes with the usage of certain technology assures the users hence making their willingness to adopt high. Research work which are done in past have indicated positive and significant findings concerning effort expectancy in different domains. For instance, a study conducted concerning the mobile banking services of a particular firm revealed that users intention to use technology became more positive if the system's operating mechanism was not complex. On the same note, a study by Ahmed & Williams, (2023) on the use of smartphone for mobile learning established that there was a significant influence of effort expectancy and user intention. In this respect, the studies further indicated that effort expectancy is directly related to the user's intention to adopt the technology.

H2: As per the research, there is a positive relationship of effort expectancy with the intention to use.

Social influence & Intention to Use

Social influence is defined as the extent to which the extension user perceives that influential people in his/her environment affect his/her decision to use the new systems (Bajwa, 2022). Thus, adoption of innovations is very much bounded by an individual's perceived usefulness and even more greatly influenced by the perceived influence of other people. These social factors include affiliation and perception of the new technology as popular among users as some of the most powerful determinants of an individual's choice to adopt it or not.

In the case of adoption of AI, intention is a function of perceived factors such as subjective norms and positive word of mouth regarding the community's intention (Zaman et al., 2024). Some scholars have discovered that social influence significantly and positively influences the behavioural intention to use a technology. It may even revealed sometimes negative effect or stated no effect of social influence on consumers' behavioral intention to use the technology for realising the AI sometimes, but, there is no doubt that strong evidence in the literature show that social influence is one of the most important factors influencing the level of adopting technologies such as the AI.

H3: Social influence has a positive influence on the intention to use.

Facilitating Conditions & Intention to Use

Facilitating conditions are an additional factor that influences people's behavioural intention to utilise technology. "The extent to which an individual feels that there is organisation and technical support for the use of the system" (Naqvi et al., 2023). Namely, as the facilitating conditions increase, the behavioral intention is also expected to increase.

Based on the literature by Nesar et al., (2024), facilitating conditions are found to have an influence on behavioral intention towards the adoption of ERP systems. As noted above also, the quantitative studies revealed that facilitating conditions impact the behavioral intention of US taxpayers regarding the e-filing systems considerably. Therefore, it is evident that behavioural intention to utilise m-health services is directly impacted by facilitating conditions.

H4: The findings revealed that facilitating conditions have a positive effect on intention to use.

Intention to Use & Actual Use of AI

The intention to use AI relates to the model measuring the strength of an individual's intention to engage in a particular behaviour. It also predicts the actual behavioural undertaking that is related to the particular intention a person has (Husnain et al., 2023). Therefore, intention is assumed to moderate the completion of behaviors related to the actual use of AI as intended. Research evidence has also supported the fact that the level of AI-intention where the idea of using AI in higher learning institutions is well embraced has a positive influence on the amount of AI used in the practice. For this reason, in the proposed UTAUT model, perceived behavioral attitude plays a crucial role in an individual's decision to embrace AI.

H5: In other words, intention to use has a positive influence on actual use.

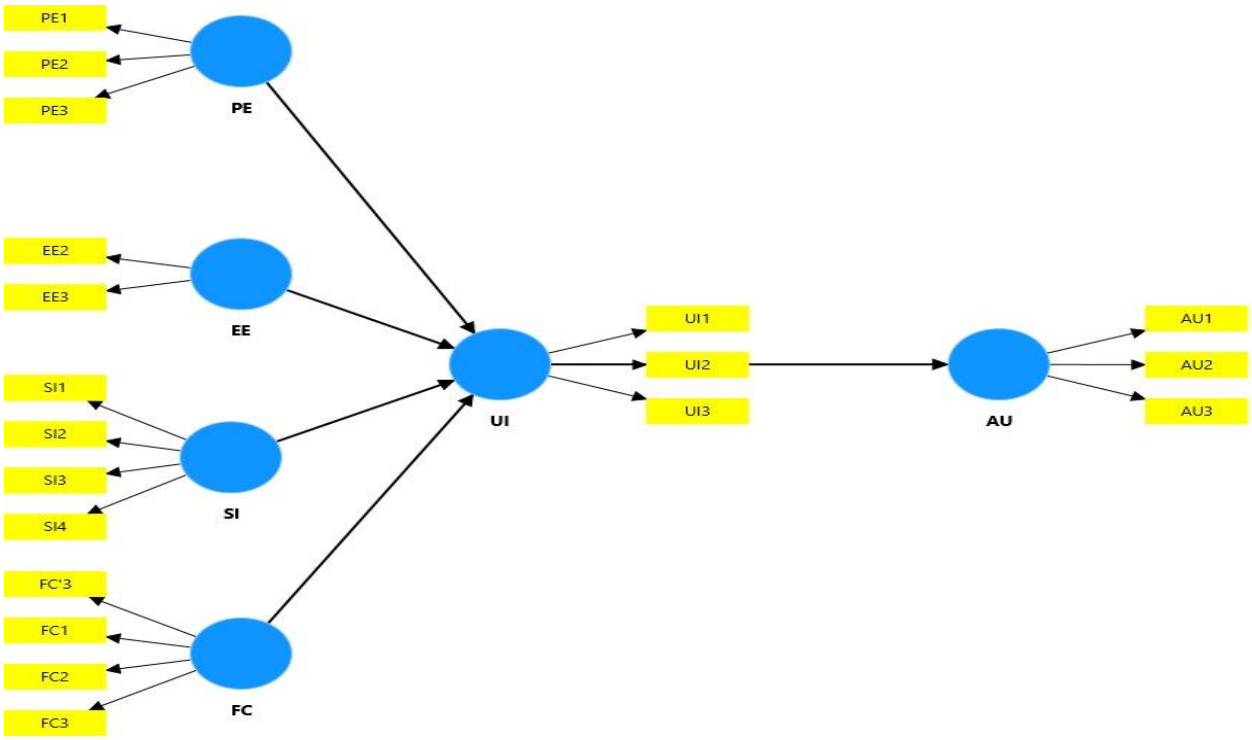

Figure 1 Conceptual Framework

Research Methodology

Research Paradigm

The research paradigm that has been chosen for this study is positivism since this approach assumes that the reality is measurable. This paradigm corresponds with the objectives of the proposed study; to conduct a quantitative analysis of the factors that relate to the HR professional's intention to adopt and use AI in recruiting talents in pharmaceutical industry of Pakistan. Thus, using quantitative approach to survey data the study aims at identifying general conclusions that would advance the theoretical knowledge regarding the patterns of AI usage in the HR domain.

Research Design

This study is a descriptive research since it seeks to describe the current situation or status of the variables of interest; and the data collection method used in this research is the cross-sectional survey. This survey aims to obtain quantitative usable data from the HR professional members of the pharmaceutical industry of Pakistan in relation to their perception and willingness to undertake the use of Artificial Intelligence in recruitment. Casting the theoretical background of the survey instrument, the Unified Theory of Acceptance and Use of Technology (UTAUT) was used. It helps assess the studies concerning the level of performance expectancy, effort expectancy, social influence, and facilitating conditions influencing behavioral intention and usage behavior.

CFA (Confirmatory Factor Analysis)

CFA is used in testing the hypothesis that there is an association between variables that are observed and other variables that can be considered as latent (Widaman & Helm, 2023). CFA is employed by the researcher in order to check how well the data match to the hypothesized measurement model where a relationship between observed variables can be developed depending on theoretical premises or research findings. The procedure involves fixing the number of the factor and identifying which variables belong to each factor and assessing the overall fitness of the model by using statistics such as Chi-square. A good fit indicates that the number of postulated factors truly captures the nature of the data. CFA is very important in confirming that the measures employed in any psychological, social and behavioral investigations are accurate or valid reflections of the theoretical constructs being under investigation (Widaman & Helm, 2023).

Pilot Testing

To validate the survey instrument, a pilot test was processed before proceeding to the collection of the main study data. In the pilot study, 30 HR professionals were asked to participate. Based on the following research objectives, the main aims of the pilot test were: To explore any sources of confusion in the completed questionnaire; to determine the clarity of the questions posed; to estimate the amount of time it would take to accomplish the study. Specifically, the pilot participant's feedback was employed for the improvement of the survey items, so that they would effectively measure the constructs of interest and would be easily understand by the respondents.

Normality Test

The normality tests are critical as they help the researcher to establish whether or not the data, in question, conforms to normality which is usually a crucial and standard requirement particularly when using most of the statistical tests (Castro, Henriques & Prata, 2024). In this study, a test was conducted to check the normality of the data using Shapiro Wilk test, Q-Q plot and histogram.

Therefore, the Shapiro-Wilk test results confirmed the data normality since the p-values mean was greater than 0. 05 level of significance for all the variables. These were several, but with the prevalence of normality confirmed, use of parametric statistical tests was used in subsequent data analyses.

Instruments for Data Collection

The data collection technique was a structured questionnaire developed and informed by the UTAUT model. The questionnaire consisted of several sections:

1. Demographic Information: This section required to identify the respondent's age, gender, level of education, the number of years they have been practicing in the field of HR and size of the organization they represent.

2. Performance Expectancy (PE): Items to determine the level of understanding of the respondents about the positive impact of using AI in recruitment towards his/her performance of tasks. Example item: Because AI is quite effective in the recruitment process, I believe that incorporating it into my work will increase my efficiency.

3. Effort Expectancy (EE): Items that relate to the usability connected with AI in recruitment. Example item: They are easy to use; therefore, I like AI tools in recruitment.

4. Social Influence (SI): Items assessing the perceived social norms to integrate AI in the recruitment process. Example item: Some people close to me believe that AI applications should or could be applied during the recruitment process.

5. Facilitating Conditions (FC): Items assessing the extent of organisational and technical resources in the utilisation of AI in the recruitment process. Example item: Regarding AI tools I have stated that, 'I have the necessary resources to use AI tools in recruitment.'

6. Intention to Use (IU): Items concerning the respondent's intention to implement AI in the process of recruitment. Example item: Looking at the future, then it is my intention to incorporate the use of artificial intelligence in recruitment.

7. Actual Use (AU): Items reflecting the deployment of AI products in the recruitment processes. Example item: 'I quite often apply artificial intelligence in the recruitment processes.'

According to the recommendation of previous studies, the reliability and validity of the questionnaire were measure on 5-point Likert scale that range from strongly disagree (1) to strongly agree (5) because it was used to measure the perception of the participant toward the statement use in the questionnaire. The internal consistency reliability of the scales was computed using Cronbach's alpha coefficient, and the results revealed superior reliability (alpha > 0.70) of all the constructs. A set of questions was developed, and an online survey was conducted during one month.

Table 1: Measure Utilize

Construct	**Code**	**No. of Items**	**Scholar**
Performance Expectancy	PE	4	Venkatesh et al., 2003
Effort Expectancy	EE	4	Venkatesh et al., 2003

Social Influence	SI	4	Venkatesh et al., 2003; Venkatesh, Thong, et al., 2012
Facilitating Conditions	FC	4	Venkatesh, Chan, et al., 2012; Venkatesh et al., 2003
Intention To Use	UI	3	Venkatesh, Chan, et al., 2012
Actual Use	AU	3	Rajan & Baral, 2015

Sampling

Regarding the sampling technique used in this study, the researcher utilized convenience approach to target participants who have been working as HR professionals in the pharmaceutical organizations such as Martin Dow, AGP Limited and Pharm Evo Private Limited. The justification for using this approach is time efficiency and cost effectiveness since convenience sampling is method of signifying practicality and effectiveness in obtaining valuable data for this particular research work. Main inclusion criteria have been defined in order to make sure that the participants had necessary background and experience dealing with AI technologies in the context of recruitment.

The number of participants in the study was based on the power analysis method for establishing the relationships between the variables. The target population was the HR professionals who fill the survey questionnaire; the sample size has been about 100 practitioners that include possible non-respondents and partially-completed questionnaires. The reasoning highlights the fact that based on other similar studies that have been conducted; such a sample size is adequate when a similar approach and framework is implemented.

Data Collection

Data collection was conducted by using online survey to target a large number cross-section of HR professionals within pharmaceutical industry of Pakistan. The survey was shared with the participants through professional communities on social networks as well as via HR associations. A brief message was sent along with the link containing the survey; the message included information on the nature of the study, the anonymity of participants, and a request for participation.

The survey consisted of several sections, including demographic information, and items measuring the key constructs of the UTAUT model: The specific constructs surveyed include perceived ‘performance expectancy, effort expectancy, social influence, facilitating conditions, intention to use, and actual use’. The total of questionnaires were measured by a five Likert scale, from 1= strongly disagree to 5=strongly agree.

The data collection period was one month, and follow-ups were sent to encourage the respondents to fill the questionnaires. The answers given were also observed to determine the validity of the data gathered and a number of questionable or partly filled responses were not subjected to further assessment. The data collected were then encoded onto statistical software and then analyzed. We employed SPSS and SmartPLS3 for generating required statistical analysis estimating the validity and reliability issues of the measures in this study.

In conclusion, this strongly structured and systematic approach to sampling and data collection ensured that the study acquired a good pool of data to analyze the factors that support the HR

professional's willingness to adopt and implement AI in the process of recruiting talents for the pharmaceutical industry of Pakistan.

Descriptive Head

Measurement Model Assessment

Assessment of measurement model is a technique that determines the reliability and validity of the variables used in a research to determine the relations between them (Aburumman et al., 2022). This indicates assessment of construct reliability through alpha coefficients such as Cronbach's alpha and the composite reliability (CR), and convergent validity to Average Variance Extracted (AVE). Discriminant validity is also conducted to ensure that the constructs are significantly different from each other, this test is usually performed by Fornell and Lacker criterion or Heterotrait-Monotrait (HTMT) ratio (Aburumman et al., 2022). A good fit of the measurement model demonstrates that the constructs are being measured, which allows going to the next step namely the analysis of the structural model.

Structural Model Assessment

Structural model assessment deals with the level of significance of the hypothesized relationships between the latent variables. These include the examination of the total effects with regards to the path coefficients in the path diagrams as a form of quantifying the strength and importance of the relationships. The Chi-square test, CFI and TLI are commonly used fit indices in testing the fitness of the overall model (Aburumman et al., 2022). Also, researcher can check the mediating or moderating role of a variable in the model, if any. A statistically significant structural model indicates that the postulated relationships are real and valid, thus, confidence in the theoretical model under consideration is reinforced.

Data Analysis and Result

Demographic Profile

When it comes to the demographic profile analysis, the frequency table plays a vital role which helps the researcher to elaborate the statistical analysis in a descriptive manner.

Table 2: Distribution of Respondents with respect to Age

Age		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	30 to 40 Years	12	12.2	12.2	12.2
	Less than 30 Years	66	67.3	67.3	79.6
	More than 40 Years	20	20.4	20.4	100.0
	Total	98	100.0	100.0	

The above-mentioned frequency table highlights the fact that 67.3% of the respondents belong to the age bracket of less than 30 years. Moreover, only 20.4% of the respondents belong to the age bracket of more than 40 years. However, it is important to note that the remaining 12.2% respondents belong to the age bracket of 30 to 40 years. Thus, it has been analysed that majority of the respondents are middle age people with moderate knowledge and understanding of AI.

Table 3: Distribution of Respondents with respect to Tenure

Tenure		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	5 to 10 Years	17	17.3	17.3	17.3
	Less than 5 Years	58	59.2	59.2	76.5
	More than 10 Years	23	23.5	23.5	100.0
	Total	98	100.0	100.0	

The above-mentioned frequency table mentioned that 59.2% of the respondents hold the tenure of less than 5 years. On the other hand, only 23.5% of the respondents have the longest tenure of more than 10 years. However, it has been observed that the remaining 17.3% respondents have the duration of 5 to 10 years work experience. Thus, it can be stated that majority of the respondents hold the tenure of less than 5 years which is quite less as compared to others.

Table 4: Distribution of Respondents with respect to Education

Education		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Bachelor	50	51.0	51.0	51.0
	Masters	32	32.7	32.7	83.7
	Others	16	16.3	16.3	100.0
	Total	98	100.0	100.0	

The above-mentioned frequency table highlights the fact that 51% of the respondents have bachelor level of education. However, 32.7% of the respondents hold the masters degree. It is important to note that the remaining 16.3% respondents have other level of education. Thus, it has been analysed that majority of the respondents have bachelor level of education.

Table 5: Distribution of Respondents with respect to Firm Size

Firms Size		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Large	42	42.9	42.9	42.9
	Medium	33	33.7	33.7	76.5
	Small	23	23.5	23.5	100.0
	Total	98	100.0	100.0	

The above-mentioned frequency table mentioned that 42.9% of the respondents belong to the large firm size. In contrast, 33.7% of the respondents belong to the medium firm size and around 23.5% of the respondents belong to the small firm size. Thus, it can be stated that majority of the respondents belong to the large firm size.

Table 6: Distribution of Respondents with respect to Gender

Gender		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Female	37	37.8	37.8	37.8
	Male	51	52.0	52.0	89.8
	Prefer not to say	10	10.2	10.2	100.0
	Total	98	100.0	100.0	

The above-mentioned frequency table highlights the fact that 52% of the respondents are males. However, 37% of the respondents are females and remaining 10.2% respondents prefer not to say. Thus, it has been analysed that majority of the respondents are males.

Table 7: Distribution of Respondents with respect to Firm Type

Firm Type		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Manufacturing	10	10.2	10.2	10.2
	Others	23	23.5	23.5	33.7
	Service	65	66.3	66.3	100.0
	Total	98	100.0	100.0	

The above-mentioned frequency table mentioned that 66.3% of the respondents belong to the service firm type. In contrast, only 10.2% of the respondents belong to the manufacturing firm type and around 23.5% of the respondents belong to the other firm type. Thus, it can be stated that majority of the respondents belong to the service firm type.

Descriptive Statistics Analysis

Table 8: Descriptive Analysis

	Mean	Observed Min	Observed Max	SD	Kurtosis	Skewness
AU	0.000	-3.888	2.034	1.000	1.075	-0.283
EE	0.000	-4.440	2.158	1.000	2.795	-0.576
FC	0.000	-1.624	2.355	1.000	-0.704	0.417
PE	0.000	-4.938	1.741	1.000	5.033	-0.904
SI	0.000	-1.770	2.809	1.000	0.064	0.619
UI	0.000	-1.975	2.123	1.000	-0.602	0.289

The provided table presents descriptive statistics for six variables related to the adoption of Artificial Intelligence (AI) in recruiting: AU, EE, FC, PE, SI and UI. Mean and average are also calculated followed by minimum and maximum values observed, standard deviation (SD), the measure of relative uniformity of the probability distribution of a real-valued random variable known as kurtosis and; the degree of asymmetry of the probability distribution of a real-valued random variable around the mean, known as the measure of skewness.

Overview of Descriptive Statistics

1. Mean:

They also center all the variables at mean is equal to 0. 000 which represents the mean of all the responses. This makes it difficult for one to conclude that participants hold one extreme of the two possibilities regarding the role of AI in recruitment.

2. Observed Range:

These findings reveal that the minimum and maximum scores are prompts that observed variations within the participant's scores. For example, PE has a minimum of -4.938, meaning there is a part of respondents, who have severe doubts concerning the superior's gains from the use of AI. On the other hand, the maximum for FC (Facilitating Conditions) was at 2.355 shows that some of the participants feel that there is huge support towards AI implementation.

3. Standard Deviation:

It's worth to note that the value SD does not change its form and stays equal to 1.000 in regard to all of the variables indicating that the spread of the responses is similar to the other six sessions. This has a moderate variance around the mean suggesting that there is variation in the perceiver's attitudes, beliefs and behaviour towards each of the investigated constructs.

4. Kurtosis:

Kurtosis tends to measure the uniformity of the distribution or, in other words, the degree of the distribution's tailedness (Demir, 2022). For instance, PE has kurtosis of 5.033, this point to a distribution with a high kurtosis, this means that more values are depicted as being more extreme (more of them will be perceived as either being very high or very low as opposed to a normal distribution). This may indicate that although the overall perception towards AI's effectiveness is neutral, there is a large population of people who either fully support or oppose the use of AI.

Similarly, EE has moderate kurtosis of 2.795. In addition, it also implies that the distribution is slightly drawn, which may point towards more respondents who feel rather strongly about the effort that is entailed by using AI.

5. Skewness:

Skewness tends to inform on the direction and degree of the asymmetry of the distribution (Papadopoulos & Parmeter, 2024). For instance, it reveals that PE has negative skewness (-0.904) indicating that longer or fatter tail is on the left side of the figure, which alludes to more number of respondents view negatively about the first factor. This agrees with the high kurtosis which was observed and this is an area of concern.

Turning to the skewness coefficients, SI shows positive skewness of 0.619 meaning that the general population has more people who perceive the social influence in a positive manner thus implying that social encouragement is a factor towards the intention to use AI even though they feel neutrally influenced.

Specific Variable Insights

AU (Actual Use): AU anonymity is evident from these results, as respondent's answers do not indicate all-or-nothing AI application frequency, which can be attributed to early or undecided AI implementation.

EE (Expectancy of Effort): The profit margin turned to negative territory with -4.440 According to the statistics, the respondents stated that the use of AI in their organisations could be slightly hampered although many of them do not know that they need AI since it could involve a lot of work thus indicating that the true usage might not happen. This shows a thin kurtosis, suggesting that while most people are mid-level, the level of intensity of feelings towards effort requirements is rather high.

FC (Facilitating Conditions): The positive skewness of 0.417 of the data denotes that while there may be an attitude of perceived existence of support systems for AI use the median implies a neutral response towards perceived adequacy of such systems.

PE (Performance Expectancy): The negative skew at a value of -0.755 mean that the graphs standard deviation is shifted considerably to the left – this draws the impression that while some users at least imagine Artificial Intelligence as a positive driving force in space exploration, a large number of users are skeptical about its efficiency.

SI (Social Influence): The positive skewness also suggests that social influence might support intentions towards AI adoption, meaning that this might be increased by the recommendation from friends and other people.

UI (Intention to Use): The mean stays stable, but the variable's skewness and kurtosis might mean that there can be both positive and negative attitudes toward the future of AI use, thus, call attention to concerns to ease the process of AI integration.

To sum up, the performed descriptive analysis presents the respondent's views on the AI application in recruiting. When it comes to over attitudes the fluctuations and the very nature of the answers reveal several important concerns, notably the fairly low PER for performance expectancy and effort. Awareness of such a trend allows designing strategies to increase AI integration in organizations, countering negative attitudes and using related social factors.

Measurement Model Analysis

This part presents all of the analysis and findings from the measurement model, including an evaluation of the model's overall fit, validity, and reliability. Structural equation modeling- Partial Least Squares (PLS) were used in testing the measurement model.

Table 9: Reliability and Validity

Outer loadings	**AU**	**EE**	**FC**	**PE**	**SI**	**UI**
AU1	0.931					
AU2	0.873					
AU3	0.900					
EE2		0.921				
EE3		0.842				
FC'3			0.816			
FC1			0.832			
FC2			0.838			
FC3			0.733			
PE1				0.776		
PE2				0.886		
PE3				0.801		
SI1					0.767	
SI2					0.851	
SI3					0.746	
SI4					0.816	
UI1						0.704
UI2						0.892
UI3						0.896

The loadings of the observable variables on the corresponding latent constructs namely Expectancy of Effort (EE), Actual Use (AU), Facilitating Conditions (FC), Performance Expectancy (PE), Social Influence (SI), and Intention to Use (UI) are shown in the outer loadings table. The load values display a range of 0.704 to 0.931, beyond the widely recognised cutoff point of 0.7. This suggests strong connections between the indicators and their corresponding constructs.

Additionally, by guaranteeing that the measurement model faithfully reflects the relevant theoretical notions, these loadings support the overall construct validity.

Table 10: Construct reliability and validity

	Cronbach's alpha	Composite reliability (rho_a)	Composite reliability (rho_c)	Average variance extracted (AVE)
AU	0.885	0.894	0.929	0.813
EE	0.722	0.775	0.875	0.778
FC	0.823	0.843	0.881	0.649
PE	0.761	0.783	0.862	0.676
SI	0.808	0.820	0.874	0.634
UI	0.781	0.818	0.872	0.698

Cronbach's Alpha and component reliability of each construct were established utilising composite reliability (CR). Values above 0.70 for both CR and Cronbach's Alpha show that the reliability of the designed questionnaire is acceptable. In each of the constructs, the values of Composite Reliability and Cronbach's Alpha are above 0.70, thus portraying the internal consistency reliability. Convergent validity was established by examining the Average Variance Extracted (AVE) which reflects the proportion of a construct's variance that is explained by all other constructs. AVE values above 0.5 means that the construct accounts for more than 50 percent of the variation of the indicators of the construct. It is also evident that every construct has its AVE value greater than 0.50, showing a good convergent validity.

The HTMT ratio and the Fornell-Larcker criterion were both used to assess the construct's discriminating validity. The square root of AVE for each construct should be greater than the absolute value of the construct's link to the other constructs, according to the Fornell-Larcker criterion. When the HTMT value is less than 0.85, discriminant validity is found to be quite remarkable.

Table 11: Fornell-Larcker criterion

	AU	EE	FC	PE	SI	UI
AU	0.902					
EE	0.568	0.882				
FC	0.758	0.385	0.806			
PE	0.649	0.563	0.520	0.822		
SI	0.648	0.493	0.787	0.490	0.796	
UI	0.701	0.521	0.760	0.504	0.713	0.835

The value of the square root of the AVE for each individual construct is higher than the construct's correlation with other measures, indicating that the majority of the constructs in the research display adequate discriminant validity when the Fornell-Larcker criterion is used. Despite that, the ranges of the coefficients are still relatively high for the relations between FC and AU: 0.758, and between FC and SI: 0.787, which might indicate some overlap between these factors. This might mean that Facilitating Conditions (FC) is common variance with Actual Use (AU) and Social Influence (SI), which vary in the same direction and may be caused by many factors or measures. Thus, it can be stated that discriminant validity of these constructs would require different items to

be developed or needed to be tested and compared in discriminant validity study to ensure clearer distinctions between them.

Table 12: Heterotrait-monotrait ratio (HTMT) – Matrix

		AU	**EE**	**FC**	**PE**	**SI**	**UI**
	AU						
	EE	0.690					
	FC	0.866	0.455				
	PE	0.777	0.726	0.625			
	SI	0.747	0.619	0.936	0.607		
	UI	0.828	0.698	0.901	0.623	0.863	

The analysis of HTMT matrix shows that majority of the construct presents acceptable discriminant validity as indicated by the HTMT values of less than 0.85 threshold. Therefore, the values ranging from FC to AU (0.866) and from SI to FC (0.936); indicating that discriminant validity seems to be questionable. These values suggest that the constructs may not be as distinct as wanted; this might be because of the conceptual overlap or measurement problems. The cross-loading values showed that discriminant validity might be an issue as an item or two may need to be dropped on the constructs that it participates in the present study for additional research and refinement on the measurement items is required.

Overall Model Fit

The fit of the overall model was done using the Standardized Root Mean Square Residual (SRMR). It is widely recommended that the SRMR value should lie below 0.8.

Table 13: Model Fit Summary

	Saturated model	**Estimated model**
SRMR	0.100	0.123
d_ULS	1.908	2.864
d_G	1.071	1.225
Chi-square	531.388	572.695
NFI	0.630	0.601

The SRMR is also an estimate of the difference between the correlation matrix of the data gathered and the model-implied correlation matrix. The preferred SRMR value is less than 0.8, it means that to be more specific, the SRMR values derived here are 0.100 for the saturated model and 0.123 for the estimated model. While these values are somewhat greater than the recommended figure which stands at 0.8 they suggest that the observed data is reasonable approximation and well fitted by the model.

Hypothesis Testing: Path Coefficients

The following table illustrates the path coefficients to the proposed hypothesis between the constructs. Each coefficient shows the regression weight of the respective predictor independent variable with the outcome or dependent variable.

Table 14: Path Coefficients

Hypothesis	Path coefficients
EE -> UI	0.218
FC -> UI	0.518
PE -> UI	0.020
SI -> UI	0.188
UI -> AU	0.701

EE (Effort Expectancy) -> UI (Intention to Use): 0.218

In the case of Effort Expectancy, the given value of path coefficient equaled 0.218 indicates a positive and moderate correlation towards Intention to Use. This means that intention to use AI system increases when the system is supposed as easy to use by the users.

FC (Facilitating Conditions) -> UI (Intention to Use): 0.518

The value of 0.518 highlight that Facilitating Conditions have a strong positive correlation with the Intention to Use. From this it can be inferred that if the users feel that there is good support and practice concerning the utilization of the AI system, then their tendency to use this system will be high.

PE (Performance Expectancy) -> UI (Intention to Use): 0.020

The mentioned path coefficient is equal to 0.020, the results point to a very low and insignificant correlation between Performance Expectancy and Intention to Use. This means that user's perceptions of the AI system's potential to enhance their job performance have minimal impact on their intention to utilize it.

SI (Social Influence) -> UI (Intention to Use): 0.188

The path coefficient as estimated in the model was 0.188 shows that there is a positive correlation between Social Influence and Intention to Use but the magnitude is moderate. This therefore suggests that the social factors like, recommendation by co-workers or supervisors, influence the user's perception and moderate the likelihood of them to use the AI system.

UI (Intention to Use) -> AU (Actual Use): 0.701

The path coefficient of 0.701 indicates that Intention to Use has a very high correlation with Actual Use. This indicates that Intention to Use works as a Moderator in the Framework as user's attitude towards the use of the AI system is a relevant factor explaining user's actual behaviour.

Therefore, it has been analysed that hypothesis testing sheds a light on a different level of relationship between the constructs. In turn, the empirical results state that the Intention to Use (UI) is most significantly and positively affected by Facilitating Conditions (FC), to be followed by Effort Expectancy (EE) and Social Influence (SI). Performance expectancy indicates a very low influence on Intention to Use. As discussed above, Intention to Use is the most powerful factor influencing Actual Use (AU), and works as a moderator in the framework. It plays a significant role in actual use with regard to the implementation of AI in recruiting talent within pharmaceutical industry of Pakistan.

Structural Model Analysis

According to the Structural Model Analysis of the data presented, there is an analysis of the paths/interconnections between the constructs involved in adoption/usage of AI in processes of recruitment in the HR field within the pharmaceutical industry of Pakistan. The investigated relationships consist of Expectancy of Effort (EE) to Intention to Use (UI), Facilitating Conditions (FC) to Intention to Use (UI), Performance Expectancy (PE) to Intention to Use (UI), Social Influence (SI) to Intention to Use (UI), and Intention to Use (UI) to Actual Use (AU). Below is a detailed analysis of these paths:

Table 15: Path Coefficients and Statistical Significance

	Original Sample	**Sample Mean**	**Standard Deviation**	**T statistics**	**P values**
EE -> UI	0.218	0.224	0.084	2.586	0.010
FC -> UI	0.518	0.520	0.092	5.609	0.000
PE -> UI	0.020	0.041	0.108	0.186	0.853
SI -> UI	0.188	0.171	0.094	1.995	0.046
UI -> AU	0.701	0.716	0.067	10.481	0.000

1. EE -> UI

The path coefficient is 0. 218 mean a positive association between Expectancy of Effort and Intention to Use. The T-statistic is 2.586, shows that the actual value is greater than the critical value of 1.96 for the significance level of 0.95, thus the p-value is equal to 0.010, which is less than 0.05. This exemplifies the fact that the relationship is significant at the level of probability. Based on the obtained results, it is possible to state that there is a positive relationship between Expectancy of Effort and Intention to Use; therefore, the hypothesis is considered as accepted.

2. FC -> UI

The path coefficient is equal to 0.518 represents a very strong and positive correlation. The T-statistic is 5.609, which is higher than 1.96 and the p-value is 0.000, well below 0.05. This suggests that Facilitating Conditions would sufficiently predict Intention to Use. Thus, it is possible to accept the hypothesis stating that Facilitating Conditions affect Intention to Use in a positive way.

3. PE -> UI

The path coefficient was 0.020 indicates a very low correlation between Performance Expectancy and Intention to Use. The T-statistic of 0.186 is less than 1.96 and as for the p-value it equals 0.853 is significantly larger than 0.05, this suggest that this relationship is not significant at all. Thus, the hypothesis, which postulates the relationship between Performance Expectancy and Intention to Use, has to be rejected.

4. SI -> UI

The path coefficient is equal to 0.188 has shown that Social Influence has a positive, yet moderate, connection with Intention to Use. The T-statistic of 1.995 is just above the threshold of 1.96 and the researcher obtain a p-value of 0.046 is slightly below 0.05, thus indicating that this research

established a very significant relationship declaring that Social Influence has a positive relationship with Intention to Use is accepted.

5. UI -> AU

The path coefficient of 0.701 shows that indeed, there is a very strong and positive correlation between Intention to Use and Actual Use. The T-statistic of 10.481 is well above 1.96 and evidently the p-value of 0.000 shows that this relationship is highly significant. Hence, the research hypothesis linking Intention to Use with Actual Use is accepted.

Accepted Hypothesis:

- EE -> UI: Expectancy of Effort significantly impacts Intention to Use (p = 0.010).
- FC -> UI: Facilitating Conditions significantly impacts Intention to Use (p = 0.000).
- SI -> UI: Social Influence significantly impacts Intention to Use (p = 0.046).
- UI -> AU: Intention to Use significantly impacts Actual Use (p = 0.000).

Rejected Hypothesis:

- PE -> UI: The combined result established that Performance Expectancy has no direct impact on Intention to Use (p = 0.853).

Some of the useful insights that come with the findings of the structural model analysis are being highlighted below in relation to the distribution of AI innovation for use in recruitment processes by organizations within pharmaceutical industry of Pakistan. Since Expectancy of Effort, Facilitating Conditions, and Social Influence have a strong impact on Intention to Use, organizations need to concentrate on these aspects to promote AI.

Discussion

New technology called artificial intelligence (AI) has the potential to revolutionise human resource management, especially when it comes to hiring talent. Another great obstacle while operating in the workplace is not only to attract the most qualified employees but also to jointly address the issue of diversity (Rawat et al., 2023). The mentioned challenge can be easily countered by the recruiting industry with the help of using AI for such things as recruiting talents. IT is important to note that with the use of AI, recruiters may focus more on creative and strategic concerns and readily collect information about personality and appropriateness over the Traditional Resume. Hiring will occur at a faster pace recogning to the use of a more productive machine-human partnership (Waheed et al., 2024).

It is important to note that UTAUT is a technology acceptance model formulated in User acceptance of information technology: Towards a unified view. As for UTAUT, its aim is to predict the user's behavioral intention to use an information system and his actual behavior (Zaman et al., 2024). It has become rather common for many researchers to adopt this model with some changes suitable for the area of study and they are received positive outcomes. It was established by Naqvi et al., (2023) that the UTAUT model could predict over 70% of variance as regards to behavior intention. Based on the previous studies authenticity, we adopted the UTAUT model to establish the hypothetical model that measures the HR professional's behavioral intention to implement artificial intelligence in recruiting talent within the pharmaceutical industry of Pakistan. Thus, five hypothesis were considered and all the hypothesis worked out were proved significant except one and similar to the findings of other researchers and authors.

The demographics statistics results highlighted that 67.3% of the respondents belong to the age bracket of less than 30 years and only 20.4% of the respondents belong to the age bracket of more than 40 years. However, it is important to note that the remaining 12.2% respondents belong to the age bracket of 30 to 40 years. Thus, it has been analysed that majority of the respondents are middle age people with moderate knowledge and understanding of AI. Furthermore, 59.2% of the respondents hold the tenure of less than 5 years. On the other hand, only 23.5% of the respondents have the longest tenure of more than 10 years. However, it has been observed that the remaining 17.3% respondents have the duration of 5 to 10 years work experience. Thus, it can be stated that majority of the respondents hold the tenure of less than 5 years which is quite less as compared to others. In addition, 51% of the respondents have bachelor level of education. However, 32.7% of the respondents hold the masters degree. It is important to note that the remaining 16.3% respondents have other level of education. Thus, it has been analysed that majority of the respondents have bachelor level of education. Likewise, it has been observed that around 42.9% of the respondents belong to the large firm size. In contrast, 33.7% of the respondents belong to the medium firm size and around 23.5% of the respondents belong to the small firm size. Thus, it can be stated that majority of the respondents belong to the large firm size. Moreover, the results highlight the fact that 52% of the respondents are males. However, 37% of the respondents are females and remaining 10.2% respondents prefer not to say. Thus, it has been analysed that majority of the respondents are males. Lastly, it has been witnessed that 66.3% of the respondents belong to the service firm type. In contrast, only 10.2% of the respondents belong to the manufacturing firm type and around 23.5% of the respondents belong to the other firm type. Thus, it can be stated that majority of the respondents belong to the service firm type.

The results highlighted that measurement model has good reliability and validity of the constructs in question. The study validated the performance expectancy, effort expectancy, social influence, and facilitating conditions to be items that influence HR professional's behavioral intention to adopt and use AI in recruiting talents. Additionally, behavioral intention is in the list of factors that determine actual usage behavior most strongly. These results correspond with prior studies that also identified such associations in other settings including ERP systems, mobile banking, m-health services. The verification of most of the hypothesis concerning AI adoption in the domain of HR recruitment shows the usefulness of the UTAUT model and its appropriateness to predict technology acceptance patterns in various fields. The high sensitivity of the behavioral intention emphasizes the need to consider the above described aspects to ensure the application and proper employment of AI in the HR industry. Therefore, for organizations in the pharmaceutical industry of Pakistan, increasing the performance expectancy and effort expectancy of the chosen AI tools, addressing social influences, and providing strong facilitating conditions should be adopted in order to help HR professionals successfully implement the discussed AI technologies.

The findings from the structural model analysis would be useful to the organizations that want to increase the level of AI usage in the HR recruitment practices. More specifically, Expectancy of Effort, Facilitating Conditions, and Social Influence having positive significant influence on Intention to Use mean that the organizations should pay more attention to these aspects to improve the AI usage. Thus, the practical implementation suggests that to reduce the observed amount of effort required in the use of AI, organisations should ensure that personnel get enough practice in the use of the technology (Ahmed & Williams, 2023). Furthermore, there must be sufficient resources with organized approaches of encouraging the use of Artificial Intelligence in recruitment. This includes the furnishing of the proper tools, including technical, and the right atmosphere for AI to be implemented (Nesar et al., 2024). Moreover, the use of social influence is also found to be feasible. Another way that organizations can make use of AI is by getting early

adopters and opinion leaders to start using AI so that others will be persuaded to do the same. Finally, there is a remarkably high positive correlation between UI and AU, which thus asserts the need to make sure that the employees have a strong Intention to Use AI. Making sure that the workforce not only understands the utility of AI but also believes that they should implement it can also substantially boost the actual usage levels (Mishra et al., 2023).

Conclusion and Recommendation

In conclusion, the demographics statistics indicated that the majority of respondents have less than five years of experience, which is quite short compared to others, and the majority have completed a bachelor's degree in education. Thus, it can be concluded that middle-aged individuals with an average amount of understanding and expertise about AI make up the majority of the respondents. Similar, it has been observed that the vast majority of responses fall into the category of service firms, with the majority of responders being men and belonging to a large firm size.

In addition, the measurement model analysis, it is possible to gain a clear understanding of the factors that impact HR professional's intention towards the adoption and utilisation of AI in recruiting talents into their organisations. The results in terms of the thorough validation of the selected constructs and the approval of all hypothesis can provide useful information for both theoreticians and practitioners interested in the promotion of AI in the sphere of human resources. The above studies should inspire future research to examine other factors and enlarge the presented model to have better explanatory capability and generalizability.

On the other hand, the analysis of the structural model sheds more light on the important variables that determine the degree of AI implementation and usage in the recruitment of candidates in HR. Thus, by adjusting the attitude towards the perceived effort, improving the facilitating conditions and the attraction to the social influence, the Intention to Use AI technologies and the actual usage increases dramatically in organizations. This allows to avoid common problems in the adoption of AI in HR and thus the adjustment of these processes can occur without significant difficulties.

It is important to note that this research work add value in the research gap in terms of the fact that Martin Dow, AGP Limited and PharmEvo Private Limited are some of the leading organisations in pharmaceutical industry of Pakistan. Therefore, they must opt for AI in recruitment procedures; especially, for data analysis since pharmaceutical industry is known for their extensive headcount. Therefore, AI will allow merit standards against biasness and close room for the aspect of favoritism. Moreover, AI will enable the organisations to consider top young talent with data accuracy which can bring out the sustainable innovation in the pharmaceutical horizon.

Even though this study contributes in several ways to enhance the literature of AI adoption in recruiting talent within the pharmaceutical industry of Pakistan but there are certain limitations such as the data has been collected via HR professionals who are in the middle age with moderate understanding of artificial intelligence adoption and the actual use of it as majority belongs to Karachi solely. In order to obtain a clear representation of the use of AI in talent recruitment within Pakistan's pharmaceutical industry, researchers will probably pursue the inclusion of additional respondents with greater job experience in the future.

Therefore, it has been recommended to future researchers to expand the research work incorporating other countries in South Asia to have a broader perspective regarding the research work. Moreover, the future researcher can go for the comparative analysis amongst develop and under-developed nations in terms of their potential to adopt AI in recruiting talent. As it cannot be

neglected that this particular research study holds the potential to allow the pharmaceutical industry of Pakistan along with the support of government to consider the factors contributing in the adoption of AI and develop the relevant policies and strategies for economic sustainability.

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