Journal of Management Science Research Review
https://jmsrr.com/index.php/Journal/about

Volume 4 Issue No 4 (2025)

Online ISSN: 3006-2047
Print ISSN: 3006-2039

Implementing Automation Of Human Resource Management In Public Sector Universities Of Punjab

Qazi Mazhar Hussain
PhD Scholar, Department of Management Sciences, University of Swabi Anbar Swabi & Department of Management Sciences, University of Swabi Anbar Swabi

Dr. Faisal Khan*
Department of Management Sciences, University of Swabi Anbar Swabi
Email: faisalkhanutm@yahoo.com

Dr. Syeda Urooj Babar
Department of Management Sciences, University of Swabi Anbar Swabi

Abstract
Human Resource Management has not been an exception as technological innovation has revolutionized the working of organizations all over the world. Robotic Process Automation (RPA) and Artificial Intelligence (AI) are becoming more common in the domain of HR practices to increase efficiency, simplify working processes, and decrease the use of manual operations. Although the comprehension of HR automation has been at a fast rate by private organizations, most institutions in the public sector especially in developing countries have remained with the old systems of paper work which restrict efficiency in administration. The current research focuses on the adoption, challenges, and the possible effects of RPA and AI on HRM in the universities of Punjab in the public sector of Pakistan. The study relies on the qualitative design, which was based on the semi-structured interviews with the HR administrators, Registrars, academic Deans, and IT officers. The study explores the perceptions, institutional preparedness, performance expectancy, effort expectancy, and obstacles to automation guided by the Unified Theory of Acceptance and Use of Technology (UTAUT). The results expose such difficulties like resistance to change, financial constraints, lack of proper technological provision, absence of specialized HR systems, and data privacy issues. However, there is a significant potential of enhancing the recruitment, payroll, on-boarding, faculty performance review, and monitoring of compliance. These findings highlight the importance of strategic planning, capacity-building, change management and policy reforms to enable digital transformation. The research paper adds to the scarcity of empirical studies in the area of HR automation in the public education area and suggests a comprehensive approach to the introduction of RPA and AI into HR functions in the public sector universities of Punjab.

Volume 4 Issue No 4 (2025)
Online ISSN: 3006-2047
Print ISSN: 3006-2039

Keywords: Robotic Process Automation; Artificial Intelligence; Human Resource Management; Public Sector Universities; Digital Transformation

Introduction

Human Resource Management (HRM) has experienced immense structural and functional change in the world with organizations adopting the use of digital technologies to enhance efficiency and administrative smoothness(Zhang & Chen, 2023). Robotic Process Automation (RPA) and Artificial Intelligence (AI) are also among the most influential innovations that are changing HRM nowadays. Such technologies are no longer optional innovation tools, but are now critical elements of the contemporary organizational ecosystems. Although AI-based HR tools have become widespread in the case of private organizations and multinational corporations, public sector institutions, especially those in developing countries, have been still experiencing the challenge of old-fashioned administrative practices that undermine performance, transparency, and service delivery(Nigar et al., 2025). HRM continues to use manual operations, paper-based documentation, inefficient approval procedures, and red tape in the context of public sector universities in Punjab, Pakistan. These inefficiencies decrease the satisfaction of employees, institutional productivity, and cause huge administrative costs. Thus, RPA and AI implementation into the HRM are not only a technological enhancement, but also a strategy demand to enhance the progress of institutions, modernize it, and advance the quality of the provided services to the population.

The old HR systems that were in use in the public sector organizations have been long criticized as being time consuming, are liable to errors, and necessitate human intervention in every step. Recruitment, payroll services, promotions of employees, and performance reviews involve procedures, which should be carefully recorded and multi-level checked, which is why they are vulnerable to mistakes, delays, and inconsistencies. Mohan et al. (2021) argue that conventional HR is limited to the use of manual workflow that is inefficient and time-consuming. This is particularly common in the case of the public sector universities where recruitment can take months or even years before a successful conclusion, and payroll irregularities are not uncommon as a result of the old system. As the academic competition in the world is growing and the demand on highly qualified faculty and staff is growing, these delays undermine the overall performance and image of universities.

The implementation of AI and RPA within the context of HRM has proven to be a huge possibility to develop organizational potential. AI mates help with screening of resumes, recruiting talents and matching jobs with them by using machine learning algorithms that compare the candidate profiles to the set parameters(Na, 2024). These will save a substantial amount of time in hiring, and enhance precision, as well as reduce human bias. AI-processing chatbots and virtual assistants also process regular administrative questions, thus decreasing the number of tasks that HR professionals have to complete. Equally, RPA has been useful in automating manual and rule-based tasks including payroll, data entry, document verification, and report creation. Automation of these activities helps organizations to minimize human error, achieve

Volume 4 Issue No 4 (2025)
Online ISSN: 3006-2047
Print ISSN: 3006-2039

consistency and divert human resources towards strategic HR activities. All of these technologies contribute to data-driven decision-making because they give analytics to evaluate the employee performance, turnover, and training requirements.

Problem Statement

Nevertheless, HR automation has not been quickly embraced by the public sector universities in Punjab in spite of these advantages. According to Nawaz et al. (2025), most organizations in the public sector are typically resistant to technological change because of the administrative culture embedded in the organizations, the absence of incentives, and exposure to technology. The culture of public sector universities in Pakistan is usually bureaucratic, based on compliance and procedural correctness rather than on efficiency and innovation. The strictness of the hierarchies, compliance with the procedure, and lack of flexibility contribute to the unwillingness of the administrators and employees to implement new technologies(Hariyani et al., 2024). The faculty and administrative personnel might perceive automation as a threat to their job security, power or routines at work. This opposition is made worse by the lack of training opportunities, low level of digital literacy, and lack of exposure to successful HR automation models.

Financial limitations are also significant factors that are going to impede the implementation of RPA and AI in public sector universities. In comparison to a private institution that is able to use the resources it has flexibly or allow outside funding to upgrade technology, public universities mainlydepend on the government to fund them. They tend to channel these funds on infrastructure development, on academic programs or on student scholarships, thus having minimal budgets to modernize their administrative systems. According to Matei et al. (2024)budgetary limitations tend to reduce the pace of HR changes, particularly in public organizations where the financial decision-making process is massively controlled. RPA and AI implementation demand spending on sophisticated software, infrastructure, maintenance, and training of the staff. The universities do not have a special budget or governmental mandate that emphasizes the digital HR change, so the possibility of implementing such technologies at the rate, at which such change has a tangible impact, is low.

Other than financial and cultural factors, the complexity of HR functions in universities poses additional challenges to automation. The universities in the public sector operate a diverse workforce comprising of full-time faculty employees, contractual employees, researchers, visiting scholars, administrative employees as well as support staff(Noor Ashikin Basarudin et al., 2020). The various categories of employees adhere to varying contract agreements, performance measurement plans, benefit packages and promotional packages. Such diversity is managed by having a specific HR system that can allow handling many workflows at the same time. The HR software that is in use currently in most universities is not flexible enough to support such multifaceted structures(Jr et al., 2025). The solutions to these problems may be provided by AI and RPA that can customize the work process, create templates of the process and integrate the data between the administrative units.

Volume 4 Issue No 4 (2025)
Online ISSN: 3006-2047
Print ISSN: 3006-2039

Nonetheless, the implementation of such systems without effective planning can cripple the current activities and create mix-ups among the employees.

Literature Review

Besides being efficient in operations, HR automation in universities promotes transparency and merit-based processes. Recruitment as a key HRM activity has been accused of long waiting periods, favors and transparency in most public universities(Przytula et al., 2024). Thousands of applications have to be screened manually, which in turn causes longer timeframes and opens the possibilities of administrative anomalies. It is possible to solve these problems through AI-based Applicant Tracking Systems (ATS), which can be used to screen the applicants in a systematic way and remove chances of human biases. Predictive analytics can also be used to develop the most appropriate candidates based on the past data, the needs of the organization, and the demands of the job(Căvescu & Popescu, 2025). This does not only accelerate the hiring process but also increases fairness and institutional credibility.

On the same note, employee management is a major challenge facing government universities because of the number of employees, variations in contracts, tax laws and continuous alterations in the governmental pay levels.(Bhutta et al., 2023). Mistakes that occur during the preparation of salaries can cause dissatisfaction, grievance and financial anomalies among employees. RPA can be used to automate payroll process to calculate employees' salaries, deductions and benefits according to the government policies. It is also capable of producing compliance reports and error/anomaly notifications(Meraj et al., 2022). This decreases the administrative workload and also makes sure that salaries are paid correctly and on time.

Another HR activity that has faced such criticisms is employee performance evaluation because it is subjective, lacks consistency and is outdated in the public sector universities. Most of the institutions continue to use annual reviews that are prone to individual prejudice, inadequate records, and scarcity of actual output. The performance management systems based on AI will be able to monitor real-time performance measures, evaluate teaching load, research output, student responses and contributions to services to allow having a comprehensive assessment of faculty members. Predictive analytics would also be useful to find out skills shortages and offer specific professional development courses to improve employee performance(Muhammed Busari, 2025).

AI HR systems also enhance participation of employees by evaluating feedback, detecting problems at the workplace, and suggesting measures to increase job satisfaction. Problems associated with heavy work load, paper work in the administration, low-recognition, and slow career advancement are common among university employees. Robotic process automation would have the capability of detecting such problems at an early stage and assist administrators to take corrective measures(Yazeed Hamdan Alazmi et al., 2025). To illustrate, the workload distribution can help the public sector universities to carry out the tasks fairly and

Volume 4 Issue No 4 (2025)
Online ISSN: 3006-2047
Print ISSN: 3006-2039

minimize burnout. The chatbots are capable of processing standard complaints and steering the employees towards the process of grieving.

Although RPA and AI have a significant potential, the implementation of the two systems in HRM within public sector universities has to be planned, reformed, and managed. The institutional leadership should be dedicated to digital transformation through the provision of technological infrastructure, financial resources and training programs(Sacavém et al., 2025). The key to this implementation will be to build a digital mindset in the employees and an environment that encourages experimentation, innovation, and continuous improvement. The organizational culture should be changed towards flexibility and receptiveness to change as opposed to rigidity that is characteristic of a bureaucracy. This is more so when it comes to learning institutions where faculty autonomy and traditions of the institutions play a significant role in the administrative practices.

The increased attention to technology-oriented HRM in the world requires the implementation of RPA and AI in public sector universities of Punjab. A lot of universities worldwide have already implemented AI in faculty recruitment, courses scheduling, performance analytics and student management systems. Pakistani universities run the risk of falling behind not only in administrative efficiency but also in admissions to the global academic rankings, foreign relations and retention of its faculty(Fatima et al., 2020). As academic competition, technological progress, and demands of a workforce that is increasingly digital put more pressure on public sector universities, HRM practices there have to be transformed in order to keep them relevant and successful.

Theoretically, the scope of RPA and AI adoption in HRM can be analyzed in respect to Unified Theory of Acceptance and Use of Technology (UTAUT) which focuses on performance expectancy, effort expectancy, social influence, and facilitating conditions as the determinants of technology acceptance. The universities in the public sector should improve facilitating conditions by availing of sufficient technical infrastructure and support system. The social pressure of the top management, IT specialists, and policy analysts is very important in motivating employees to use technologies. The level of performance expectancy is high among those employees who believe that automation decreases workload and enhances precision. The perceived ease of use, or effort expectancy can be enhanced through training programs and simplification of interfaces.

Since the existing problems with administration in the public sector universities of Punjab are real, the introduction of RPA and AI into the HRM is both timely and an essential measure to introduce efficiency, transparency, and strategic realization. Despite the obstacles, long-term advantages of automation, such as the enhancement of recruitment operations, the correct operation of payrolls, the increase of appraisal systems, and more proactive employees outweigh the initial obstacles by far. Automation of HR does not necessarily have a high success rate but rather hinges on the technology, institutional commitment, change management, and long-term strategic planning. The digital revolution in HRM needs to be accepted in public sector universities to be in line with the global practices, which can facilitate the

Volume 4 Issue No 4 (2025)
Online ISSN: 3006-2047
Print ISSN: 3006-2039

excellence of academic services and respond to the needs of the 21st century workforce.

Methodology

Research Design

The proposed research design is qualitative because it seeks to investigate the incorporation of Robotic Process Automation (RPA) and Artificial Intelligence (AI) in Human Resource Management (HRM) among the public sector universities of Punjab. Qualitative research is suitable in the interpretation of complex human experiences, institutional behaviors, and socio-organizational dynamics that influence technological adoption. HR automation cannot be appropriately evaluated through quantitative metrics since it is a perception, attitude, institutional culture and organizational readiness issue. Rather, the qualitative design enables one to explore more deeply the meanings that people attribute to automation and the contextual aspects that determine the implementation of automation. This research follows the interpretivist paradigm that places emphasis on the subjective interpretation and creating social realities, as constructed by individuals in the HR and administrative positions. In this paradigm, the knowledge is based on how the participants understand and interpret their experiences, which is in accordance with the objective of the study to study the barriers, opportunities and institutional contexts of RPA and AI adoption.

Research Population and Sampling.

This paper is based on the example of the public sector universities of Punjab, Pakistan, which has one of the largest higher education systems in the country. There are 46 public sector universities in Punjab with different administrative structures, sizes, academic programs and technological capacity. A purposive sampling was done on this population to take five universities, so as to ensure that the five geographical division and type of institutions were represented. Some of the chosen universities are University of the Punjab (Lahore Division), Bahauddin Zakariya University (Multan Division), Government College University Faisalabad (Faisalabad Division), University of Gujrat (Gujrat Division), and University of Engineering and Technology Taxila (Rawalpindi Division). The institutions are examples of various administrative complexities and technological preparedness.

In these universities, the participants were sampled on a purposive basis on their participation in HRM and administrative processes. This involved Registrars, Deputy Registrars, IT Officers and Faculty Deans. Their job locations placed them at the epicenter of HR services, such as staffing, payroll, personnel management, and enactment of policies. The use of purposive sampling made sure that only those who had the direct experience and relevant insight on the topic were able to contribute to the study and therefore this increases the credibility and relevance of the content in the study.

Volume 4 Issue No 4 (2025)
Online ISSN: 3006-2047
Print ISSN: 3006-2039

Data Collection Methods

Semi-Structured Interviews

The most important data collection method was semi-structured interviews. This format gave the participants the freedom to give their opinions and also provided ensured that they discussed critical research themes. Both interviews had orientation questions regarding the existing HR practices and awareness of RPA and AI resource, perceived benefits of automation, challenges with technology, institutional preparedness, and employee or administrator resistance. Interviews were of about 45-90 minutes and were done face to face or online depending on availability of participants and the schedule of the institution.

The participants were invited to share their lived experience that would enable the researcher to record the descriptions of administrative workflows, the areas of concern, and their expectations of automation. The approach also aided in inquiry questions, thus, giving an opportunity to examine questions that were more in-depth such as bureaucratic restraints, budgetary restraints, and digital skills shortages. The discussions were recorded on audio with the consent of the participants and nonverbal actions and context notes were made using handwritten notes.

Analysis

Triangulation and Validity

In order to increase the credibility, the methodological triangulation was applied through the cross-comparison of data received in interviews and field notes. Triangulation was also done with the role-based approach which involves contrasting the perspectives of various administrative roles like HR officers and IT staff in order to enhance the validity of the interpretations. The checks that were performed on the members involved the few chosen members who viewed the preliminary findings to ensure that, the interpretations suited their interests. Their feedback also made sure that the themes were based on the real experiences of the participants and were not made based on the researcher bias.

This interview analysis was on five public sector universities in Punjab showed that there was a sophisticated and dynamic Human Resource Management (HRM). Respondents invariably reported that their systems of administration were highly reliant on manual records, chain of approval, and the old records keeping standards. In 26 interviews, five key themes were identified: the continuation of manual administrative processes, perception of and desire to use Robotic Process Automation (RPA) and Artificial Intelligence (AI), structural and institutional obstacles, technological change resistance, and perceived benefits of digital transformation. Those themes indicate more than just the practicalities of the functioning of the public sector universities but the cultural, technological, and managerial circumstances that have impacted the implementation of automation. The analysis is based on the interpretivist paradigm and examined with the help of thematic approach, and the voices of participants are interconnected with the help of direct quotations to show the lived experience of stakeholders.

Volume 4 Issue No 4 (2025)
Online ISSN: 3006-2047
Print ISSN: 3006-2039

Thematic Analysis

The qualitative data were analyzed using thematic analysis. This technique is common in interpretive studies to determine common patterns, codes and themes among stories provided by participants. The theoretical starting point of the analysis was the familiarization of the data by repeatedly reading the transcripts of the interviews. The first codes were developed by underlining important statements associated with the automation issues, administrative issues, budgeting issues, technological opposition, and the views on the usefulness of RPA and AI.

These codes were sorted into larger categories using NVivo software. NVivo helped cluster similar responses, plot interactions between concepts, and have an organized store of analysis evidence. During the refinement process, the themes of administrative workload reduction, resistance to change, infrastructure gaps, organizational readiness, and expected benefits of automation came up. These aspects were tested in the five universities to find out similarities and institutional differences.

Theme 1: Existing Administrative Facts and Workload of Manual

Interesting to note, the interviews showed that in the public sector universities, the HR activities are still performing on a paper-based system despite some degree of digital penetration happening. Respondents noted that the HR functions, like recruitment, service book management, salary increases, leave management, and yearly review, are all connected with the physical files and data entry. A Deputy Registrar told me that not everything here is digital in the real sense. One application of a salary adjustment can be a big issue taking days merely due to the fact that the file should be transferred through various offices until the final decision is made. A human resource representative at one university, observed that they would waste a lot of time trying to match the records in two or three independent registers, and when one signature is absent, the file halts completely, which highlights the inflexibility of processes programmed into bureaucracies.

The participants added that data duplication and loss due to manual record keeping is also a factor especially since most of the HR units do not have centralized digital databases. Rather, various systems are running in parallel and this can result in mismatching of payroll records, personnel files and calculations of promotions. Some of the respondents said that they have witnessed cases of errors going unnoticed until late where employees have complained. This has been ascertained by a payroll manager who said that we frequently get a complaint after processing a salary has been made. By that time, it will have to be corrected by use of follow-up letters, memos and hand written approvals. Had the system been automated we would have spotted the error in time before it occurred. These issues were observed in all five chosen universities as they indicated a common administrative fact in the sphere of the public sector universities of the population. These results are in line with previous literature, which argues that the conventional HR systems of developing public organizations are slow, labor-intensive and subject to human error (Sharma and Shalender, 2023).

Volume 4 Issue No 4 (2025)
Online ISSN: 3006-2047
Print ISSN: 3006-2039

Theme 2: RPA and AI awareness and Perceived Usefulness

Although there was a lack of practical exposure, most of the participants demonstrated a strong conceptual knowledge level of the advantages of RPA and AI. A great number of respondents expressed a high degree of hope that automation would be capable of decreasing workload and improving accuracy as well as decision-making. One IT director said that AI and RPA will not interfere with the job of the HR professionals, but they will definitely enable them to concentrate on the areas of work that demand judgment and not paperwork. This feeling is indicative of the assumption that is upheld by the Unified Theory of Acceptance and Use of Technology (Dima et al., 2024)that performance expectancy is the major contributor to technology acceptance. Recruitment was often mentioned as the most difficult HR activity with a large number of applications per vacancy. According to one of the Deans, the process of shortlisting applicants manually is draining and time-consuming and will end with complaints. Had automation prioritized the candidates according to some set criteria, we would be able to provide reasons as to why someone was selected and eliminate needless arguments. The participants mentioned that these systems are highly used abroad but have not been implemented in the public sector universities of Punjab.

In a similar atmosphere, a number of HR employees mentioned that RPA would be especially beneficial in payroll management as it was necessary to perform the same monthly pay adjustments every month in line with governmental policies, taxation alterations, or promotions of employees. It was thought that automated systems had the potential to create employee notices, overtime tracking, missing documentation, and decrease the use of clerical personnel. According to one of the finance officers, at the current time, calculations are done manually by our team on a monthly basis. It is a process that will require a few days. It would take RPA a few minutes and minimize the number of human errors. Participants also stated that automation would not be limited to processing but also included performance monitoring dashboards that generate real-time analytics of teaching workload, student feedback, or research output. Even though not many institutions possessed systems that could be used to conduct such analyses, those who participated had a conceptual grasp of their applicability. In general, the perceptions of the utility of RPA and AI were very positive, even among people who were not that knowledgeable about the technical aspects, which leads to the conclusion that there is the possibility of openness to technological innovation as long as they have sufficient infrastructural support.

Theme 3: Institutional and Technological Barriers

Although the perceived utility of automation was among the most commonly accepted issues, the respondents identified significant institutional obstacles. The most common problem was the lack of technological infrastructure. Most institutions did not have enterprise-level human resource management systems, a secure data server, or cloud-based support and could not support integrated digital workflows. In some universities, simple spreadsheet or department-specific databases were used, which were not able to communicate with each other. One of the IT officers clarified that the

Volume 4 Issue No 4 (2025)
Online ISSN: 3006-2047
Print ISSN: 3006-2039

data are digitized in small bits, however, it is spread in different systems. In order to automate, we require integration, which demands investment. Their divided nature among the HR, finance, attendance, and academic units makes consolidation of the records a challenging task to perform and process automation a painful procedure. These have been observed to be in line with prior studies that indicate that in most cases, public institutions do not have the underlying digital infrastructure that may facilitate successful automation (Wui San Taslim et al., 2024).

Money constraints had also been cited as a significant issue. Public sector universities in Punjab have constrained financial budgets and digitalization of their administration is easily linked to pressing academic demands. Some interviewees indicated that the money is usually spent on physical growth, student initiatives or recruitment and not on administrative refurbishing. A Dean expressed this point of concern by saying that automated HR systems cost now and at the policy level, they have not necessarily been perceived as urgent investments. It is difficult to invest in such projects unless the government requires it to be done. A few of the respondents mentioned that despite the software being purchased, there is always the problem of financial constraint that could limit maintenance, updates or staff training. This is one of the reasons why digital initiatives often fail as they become unserviceable with time without a constant investment.

Also, standardization of the automation policies on provincial or federal level is lacking, which makes things variable across the institutions. All universities operate separately, with their adoption of digital tools being at their own will. In other instances, the institutional strategies were not involved in efforts to digitalize and the efforts were individual and thus, the results were disproportionate. Respondents claimed that the main guidance can be centralized or based on common platforms in public sector universities to facilitate the process and minimize the cost duplication. However, the findings indicate that the existing institutional environment does not have the coordination and significant institutional backing to implement RPA and AI on a large scale.

Theme 4: Change Management Resistance and Change Management challenges

One of the strongest themes that cut across almost all the interviews was human resistance. Most respondents described why employees, particularly those that have long histories of service, are so resistance to new systems, as the digital tools are a danger to existing systems and control that employees have over the administrative procedures. One IT officer stated that people trust files since they can hold them. When it is all transferred to a computer they believe that they are not seen in the process and they lose their control. Others observed that more transparency that has been created due to automation would make decision making process traceable and some employees may be afraid of accountability. Since one participant stated, manual systems provide space of discretion. The automation minimizes that space and exposes the errors. Not all of them desire that change. Such reactions can be echoed by research that revealed that technological change in bureaucracies can cause status, power, or job security-related fears (Davis & Obianuju Okeke-Uzodike, 2024).

Volume 4 Issue No 4 (2025)
Online ISSN: 3006-2047
Print ISSN: 3006-2039

This resistance was facilitated by the lack of digital literacy. A number of respondents admitted that training of staff in public sector universities is in an informal way and is more oriented to the basic use of computers, but not to the specialized HR applications. One of the Registrars claimed that you cannot just give a new system to someone who has not worked outside of Microsoft Word and expect immediate outcomes. The first thing should be the training and building of confidence. This is indicative of the effort expectancy construct of the UTAUT, which points out that the perceived ease of use determines adoption. According to the respondents, the implementation would need to be structured through capacity-building programs, sustained encouragement, and leadership approval to succeed. They also emphasized on the necessity to position the concept of automation not as a source of job loss but as the method of decreasing the volume of repetitive tasks and enhancing the service provision. The respondents had the perception that even digital systems that were well-designed would not work unless there was a well-laid change management structure because the users would not be interested.

Theme 5: Anticipated Benefits and Opportunities of HR Automation

In spite of the obstacles, the participants were very optimistic about the possibilities of RPA and AI to transform the HR of the public sector universities. One of the main areas of improvement was found in recruitment. The respondents explained that the current hiring processes are time-consuming and prone to corruption claims especially through manual sifting of thousands of applications. One of the respondents also said that automation would be able to shortlist candidates in hours and give the score matrices on the basis of qualifications, experience, and research output. It would save on administrative time and enhance transparency in the same. The participants thought that automated ranking systems would go a long way in enhancing merit based selection and enhance institutional credibility.

Financial administration and payroll processing were also found to be appropriate areas where RPA can be applied. The participants reported of existing processes where allowances, tax deductions or arrears had to be recalculated monthly making the workloads high and with frequent mistakes. One of the payroll clerks said that a single wrong computation would at times lead to dozens of correction letters. RPA was also able to compute the salaries in addition to identifying the anomalies prior to the payroll being finalized. The automation of these type of tasks might also help in making government compliance reports, fast tracking internal audit, and increasing accountability.

Digitization of employee records was also another expected advantage. Some of the respondents saw a centralized electronic service book where the history of the employees, their leave balance, past promotions, and past disciplinary records could be monitored in real time. This would get rid of reliance on physical files, and simplify the procedure of confirmations, retirements, or claims of seniority. Participants were of the opinion that such systems would enable the administrators to get information immediately instead of searching files physically, which slows down in decision-making.

Volume 4 Issue No 4 (2025)
Online ISSN: 3006-2047
Print ISSN: 3006-2039

The possibility of AI and its use to assist in evidence-based performance assessment was also noted by senior administrators. They described that through the integrated dashboards, a performance profile could be generated in terms of faculty workload, student satisfaction scores and publication history, professional service, and teaching hours. This would make appraisals less subjective and assist public sector universities to find out areas of skill deficit and training requirements. Responding in line with the predictive analytics literature, some respondents reckoned on the fact that automated systems would be able to come up with recommendations on professional development and be involved in strategic work force planning.

Lastly, participants focused on better employee experience. Some of the interviewees indicated that HR activities were usually overwhelmed with employees who wanted clarifications, approvals, or status updates. They opined that self-service portals or chatbots that employ AI can answer simple questions, help employees navigate processes and ensure that employees are informed about pending tasks. One respondent said that we spend a lot of our time responding to inquiries such as; Has my increment been approved? In the event that automated systems are capable of displaying status updates, we would have more time to work on policy. These characteristics may transform HR personnel into strategic service providers as opposed to being transactional departments.

Theme 6: Disagreement in Levels of Institutional Readiness

Despite having similar perceptions, there was a difference between the public sector universities on how they were prepared to undergo technological change. Organizations that had more developed IT infrastructure and leadership were comparatively developed in terms of partial digitalization of non-HR posts such as admissions or finance. Others did not have underlying systems required to automate and continue to operate in completely manual processes. Such imbalance implies that despite being commonly accepted that the digital transformation is a requirement, universities are not starting on the same level. These differences offer the significance of tailored digital tactics as opposed to a uniform solution. Public sector universities that are not so ready would need under-developed systems to be upgraded to basic systems before proceeding to the higher levels of automation tools, whereas the more prepared ones might proceed to integrated enterprise systems.

In general, the findings indicate that HRM in public sector universities of Punjab is marked by reliance on the manual documentation, delays in procedures, disjointed systems, and underdeveloped digitalization. Meanwhile, the desire to implement RPA and AI is quite high given the reasons of enhanced efficiency, transparency, and accuracy. Technological issues are not the key obstacles but are accompanied by financial limitations, underdeveloped infrastructure, bureaucratic societies, and lack of skills. The respondents felt that through proper commitment of leadership, systematic training and long-term investment, the public sector universities would be able to modernize their HR systems and be in line with the global benchmarks. These results indicate that the integration of automation has more of a cultural and strategic challenge than one of a technological challenge.

Volume 4 Issue No 4 (2025)
Online ISSN: 3006-2047
Print ISSN: 3006-2039

Conclusion and Recommendation

The study concludes that HR operations in public sector universities of Punjab remain largely manual, resulting in delays, inconsistencies, and administrative burdens. Despite this, there is strong institutional awareness that automation is essential as administrative responsibilities continue to expand. The research shows that staff across all levels recognize the benefits of automationparticularly RPA and AIin reducing clerical workload, improving accuracy, and supporting timely decision-making. However, the shift toward automation is hindered primarily by structural barriers such as fragmented digital systems, inadequate infrastructure, limited financial support, and gaps in digital literacy.

To move toward effective digital transformation, universities must prioritize foundational changes. These include standardizing processes, developing centralized and interoperable databases, and securing sustained budgeting for technological development. Addressing human resistance is equally important; change management strategies should focus on communication, skill-building, and reducing anxiety about transparency or shifts in professional identity. Continuous training, user support, and leadership involvement are critical to help employees develop confidence in new tools and adopt them with ease.

Overall, the findings emphasize that successful HR automation in public sector universities of Punjab requires long-term institutional commitment rather than short-term technological fixes. Policymakers and university leadership should adopt phased digitalization roadmaps that reflect each institution's readiness, ranging from basic digitization to advanced AI-supported systems. With coordinated planning, investment, and capacity building, the public universities can transition toward efficient, transparent, and modern HR practices aligned with global standards and capable of supporting the evolving needs of public sector universities.

References

Basarudin, N. A., Yeon, A. L., Yaacob, N., & Abdul-Rahman, R. (2020). Faculty workload and employment benefits in public universities. International Review of Management and Marketing, 6(7),73–82. https://www.researchgate.net/publication/309408537_Faculty_Workload_and_Employment_Benefits_in_Public_Universities

Bhutta, E., Mahmood, K., & Khan, M. I. (2023). Challenges and effects of organizational politics on the performance of employees at public institutions in Pakistan. XIV(December), 114–122. https://www.researchgate.net/publication/376269810_Challenges_and_Effects_of_Organizational_Politics_on_the_Performance_of_Employees_at_Public_Institutions_in_Pakistan

Căvescu, A. M., & Popescu, N. (2025). Predictive analytics in human resources management: Evaluating AIHR's role in talent retention. Applied Math, 5(3), 99. https://doi.org/10.3390/appliedmath5030099

Davis, M. S., & Okeke-Uzodike, O. (2024). Impact of reward system on academic staff engagement (ASE) and organizational performance (OP) in technical

Volume 4 Issue No 4 (2025)
Online ISSN: 3006-2047
Print ISSN: 3006-2039

universities (TUs): A case of Ghana. Journal of Management and Research, 11(2), 28–52. https://doi.org/10.29145/jmr.112.02

Dima, J., Gilbert, M.-H., Dextras-Gauthier, J., & Giraud, L. (2024). The effects of artificial intelligence on human resource activities and the roles of the human resource triad: Opportunities and challenges. Frontiers in Psychology, 15, Article 1360401. https://doi.org/10.3389/fpsyg.2024.1360401

Fatima, N., Ashraf, M. I., & Zehra, S. (2020). Higher education policy & research in Pakistan: Challenges in transformation of the society and the way forward. Universal Journal of Educational Research, 8(7), 2842–2852. https://doi.org/10.13189/ujer.2020.080711

Hariyani, D., Hariyani, P., Mishra, S., & Sharma, M. K. (2024). Causes of organizational failure: A literature review. Social Sciences & Humanities Open, 10, Article 101153. https://doi.org/10.1016/j.ssaho.2024.101153

Jr, R. M., Solatorio, J. D., Franz, E., Mordeno, E. R., & Aung, N. L. (2025). Human resource information systems in higher education institutions: A systematic review. International Journal of Computing and Digital Systems, 18(1), 1–18. https://doi.org/10.12785/ijcds/1571111338

Matei, M.-C., Abrudan, L.-C., & Abrudan, M.-M. (2024). Financial perspectives on human capital: Building sustainable HR strategies. Sustainability, 16(4), Article 1441. https://doi.org/10.3390/su16041441

Meraj, J., Haidar, K., Shamis, G. A., Jan, A., Rahman, A., Baloch, M., Uthal, M., Balochistan, P., & Haider, K. (2022). The impact of work satisfaction on employee's performance in public sectors universities in Balochistan, Pakistan. Natural Science Edition. https://www.xisdxjxsu.asia/V20I01-51.pdf

Mohan, P., Vadlamani, S., Kumar, A., Goel, O., Jain, S., & Agarwal, R. (2021). Automated workflow solutions for HR employee management. Journal of Progressive Research in Engineering Management and Science. https://doi.org/10.58257/IJPREMS21

Muhammed Busari. (2025, March 1). Predictive analytics for identifying skill gaps and future workforce requirements. ResearchGate. https://www.researchgate.net/publication/389859719_Predictive_Analytics_for_Identifying_Skill_Gaps_and_Future_Workforce_Requirements

Na, S. R. (2024). Application of artificial intelligence in recruitment and selection. Academic Journal of Science and Technology, 9(2), 56–58. https://doi.org/10.54097/f4gvxp61

Nawaz, M. K., Eltweri, A., Abbas, K., Al-Karaki, W., Edghiem, F., Foster, S., & Adali, M. (2025). Public sector transformation in emerging economies: Factors affecting change adoption in Pakistan. Administrative Sciences, 15(4), Article 126. https://doi.org/10.3390/admsci15040126

Nigar, M., Juli, J. F., Golder, U., Alam, M. J., & Hossain, M. K. (2025). Artificial intelligence and technological unemployment: Understanding trends, technology's adverse roles, and current mitigation guidelines. Journal of Open Innovation: Technology, Market, and Complexity. Advance online publication. https://doi.org/10.1016/j.joitmc.2025.100607

Volume 4 Issue No 4 (2025)
Online ISSN: 3006-2047
Print ISSN: 3006-2039

Noor Ashikin Basarudin, Asmah Laili Yeon, Nurjalilah Yaacob, & Rohana Abdul-Rahman. (2016). Faculty workload and employment benefits in public universities. International Review of Management and Marketing, 6(7), 73–82. https://www.researchgate.net/publication/309408537_Faculty_Workload_and_Employment_Benefits_in_Public_Universities

Przytula, S., Kulikowski, K., & Sulkowski, L. (2024). Human resource management in higher education institutions. Routledge.

Ranasinghe, N., & Wickramasinghe, N. (2024). Impact of AI based process automation (RPA) on employee job satisfaction. SSRN. https://doi.org/10.2139/ssrn.4801343

Sacavém, A., de A. Santos, Palma-Moreira, A., Belchior-Rocha, H., & Au-Yong-Oliveira, M. (2025). Leading in the digital age: The role of leadership in organizational digital transformation. Administrative Sciences, 15(2), Article 43. https://doi.org/10.3390/admsci15020043

Taslim, W. S., Rosnani, T., & Fauzan, R. (2024). The impact of work automation on human resource decision making: The mediating role of employee performance. International Journal of Social Science and Human Research, 7(12). https://doi.org/10.47191/ijsshr/v7-i12-46

Wui San Taslim, Titik Rosnani, & Rizky Fauzan. (2024). The impact of work automation on human resource decision making: The mediating role of employee performance. International Journal of Social Science and Human Research, 07(12). https://doi.org/10.47191/ijsshr/v7-i12-46

Yazeed Hamdan Alazmi, Al-Zu'bi, M., Al-Kheetan, M. J., & Rabi, M. (2025). A review of robotic applications in the management of structural health monitoring in the Saudi Arabian construction sector. Buildings, 15(16), Article 2965. https://doi.org/10.3390/buildings15162965