

# THE ROLE OF TECHNOLOGY IN TRANSFORMING HUMAN RESOURCE PRACTICES IN AFGHANISTAN'S PUBLIC SECTOR

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## Abstract

Rapid scientific and technological advancements have made digital transformation a powerful force for change in a variety of global industries. One of the most important administrative tasks for efficient governance and service delivery in public sector is human resource management, which is undergoing major changes as a result of the digital wave. An expanding number of digital tools, data systems, and automated workflows are influencing HR procedures as public organizations try to modernize, adopt new technology, and increase efficiency and transparency. In order to provide a thorough analysis and useful suggestions, this essay will examine in detail how digital transformation is changing HR management practices in Afghanistan's public administrations. It will also evaluate the difficulties and obstacles that come with this shift, including inadequate infrastructure, capacity shortages, and change-averseness. In addition, Policymakers, HR specialists, and administrators will get benefits from the insights and advice offered to effectively navigate this transition and fortify the future course of HR practices in Afghanistan's changing public sector.

**Keywords:** Digital Transformation, HR Practices, Public Sector, Afghanistan.

## 1. INTRODUCTION

### 1.1 Digital Transformation in HRM

In recent years it is recognized that Human resource management (HRM) practices are changing significantly as a result of the digital transformation. Through the use of contemporary technologies, this transition is producing better employee experiences, more effective procedures, and better data-driven decision-making (Mohammad et al., 2024).

It is indicated that the combination of human resources and technology is essential for developing responsive, transparent, and high-quality public services. This collaboration helps in more efficient management of public services and enhances them through digital platforms(Gunawan et al., 2023).

The fast growth of technology is driving digital transformation, which is changing public sector HR management. In order to update standard HR procedures and increase their efficacy and efficiency, it presents tech-driven approaches (Liu, 2024). Through the use of tools and data analytics, technology improves HRM by automating processes including hiring, training, and performance monitoring. Businesses become more efficient, productive, and competitive as a result (Prasad, 2024).

The implementation of Information and Communication Technology (ICT) greatly influences the quality of human resources (HR) in the public sector and in addition it is obtained from their studies that ICT enables more streamlined processes for recruiting and selecting employees, optimizing these activities and increasing their effectiveness (Alhassan et al. 2021). Utilizing ICT facilitates better security and integration in managing employee information, improving data reliability and accessibility while safeguarding sensitive data (Markovic et al., 2023).

## **1.2 The Impact of Technology on HRM**

The effective use of HR technology is influenced by a number of important elements, according to research. These include organizational culture, HR competences, technology accessibility, analytics capabilities, leadership support, and employee acceptability. Adoption rates are greatly increased when a company culture that values innovation is paired with technically proficient HR staff and sufficient technology. Another factor that supports long-term digital change in HR practices is strong corporate commitment demonstrated via financing, training, and policy alignment. How well organizations can integrate and profit from HR technology solutions is determined by these factors taken together (Ferdous et al., 2015).

HR administration is made easier by technology such as Computer-Assisted Tests (CAT) and e-Materials, which automate processes, cut down on paperwork, and increase recruiting accuracy. The effectiveness, decision-making, and general dependability of HR procedures are all improved by these instruments (Hasanah & Jauhari, 2024). ICT renders employee training and development more cost-effective and accessible, empowering organizations to elevate their workforce skills without imposing substantial financial strains (Alhassan et al. 2021).

## **1.3 Data Driven Decision Making**

Digital networks, AI, and robotics are revolutionizing human resource management. While robotics facilitates communication, interviewing, and the prevention of harassment, artificial intelligence (AI) expedites recruiting, performance monitoring, and training. Digital networks improve hiring, professional development, and teamwork (Stanley & Aggarwal, 2019). Additionally, by increasing openness, these technologies reduce problems like bias and corruption in conventional recruiting practices (Poshai & Intauno, 2024). However, in Afghanistan, these developments are constrained by a lack of technical expertise and infrastructure (Ojogiwa & Nhari, 2024).

## **1.4 Digital Adaptation and Remote work**

The COVID-19 epidemic accelerated the transition to digital human resource management, compelling companies to use remote work tools (Dluhopolska & Huk, 2021). Digital performance tracking and video interviews are examples of e-HRM tools that have become essential (Milošević et al., n.d.).

Digitalization of the public sector among the difficulties HRM faces are preventing algorithmic bias in automated systems and guaranteeing equity and transparency.

Technology adoption must be managed with strategic planning, teamwork, and flexibility to preserve equal access and employee happiness. Legal compliance is still essential to reducing risks, but strong leadership, transparent communication, and interagency cooperation help get over opposition and expedite implementation (Sani & Mandina, 2024).

## **2. CHALLENGES OF DIGITAL HRM IMPLEMENTATION IN AFGHANISTAN PUBLIC SECTOR**

Adoption of digital HRM is hampered by high installation costs, inadequate internet access, and antiquated systems (Ojogiwa & Nhari, 2024). There are several obstacles to integrating technology into HRM, including hazards to data privacy, employee opposition, expensive expenses, and ethical dilemmas. Resolving these problems is essential to preserving confidence and guaranteeing equity in the workplace (Manekar, A. U. (2024). The digital age presents HR difficulties such as adjusting to automation, operating in a worldwide market, staying up to date with technological developments, and meeting changing skill requirements (Yulianto & Madiistriyatno, 2023). Afghanistan finds it difficult to implement these advancements due to a lack of funds and inadequate technological expertise(Prasad, 2024).

### **a) Resistance to Change and Skills Gaps**

It takes constant observation and organizational flexibility to keep workers happy and keep up with technology changes. In order to close the digital divide and promote inclusion, it is imperative to guarantee fair access to digital resources. Overcoming opposition and enabling a seamless transition need effective change management, which is bolstered by strong leadership, open communication, and cross-departmental cooperation. Furthermore, rigorous attention to legal and regulatory requirements is still necessary to reduce risks and guarantee compliance during the process of digital transformation(Sani & Mandina, 2024).HR personnel are ill-prepared for new systems due to inadequate training, which exacerbates adoption issues. Without enough up skilling, employees are unable to use technology efficiently, which impedes attempts to achieve digital transformation (Sharma, 2023).

### **b) Ethical and Security Concern**

Protecting the privacy of employee data, avoiding algorithmic bias in automated choices, and safeguarding systems from cyber-attacks are the three main obstacles facing HR digitalization. Adoption of technology must be ethical and secure, which calls for comprehensive answers to these interrelated problems (Manekar, A. U. (2024). Data protection in HR systems faces major obstacles due to Afghanistan's poor legal infrastructure.

Without strong laws protecting cybersecurity and data privacy, employee information is susceptible to abuse and breaches. In an already precarious digital world, enterprises find it difficult to use compliant HR solutions in the absence of explicit legal protections or enforcement mechanisms. (Poshai & Intauno, 2024).

### c) Bureaucratic and Cultural Barriers

There are structural inefficiencies in Afghanistan's public sector, such as corruption, nepotism, and bureaucratic hold-ups. Adoption of these changes is nevertheless hampered by ingrained institutional opposition, despite the fact that digital transformation provides possible answers to improve accountability and transparency (Poshai & Intauno, 2024).

Although the transformation of digital HRM has been thoroughly studied in stable, developed countries, there are few studies that concentrate on its application in conflict-affected countries like Afghanistan, according to the current literature review this study examine how technology is currently used in Afghanistan's public sector for human resource management, identifying major obstacles like political unpredictability, inadequate infrastructure, and digital illiteracy, and evaluating the effect of current digital tools on HR effectiveness are the objectives of this study.

## 3. RESEARCH METHODOLOGY

The present study was carried out particularly in Kabul city and for this study the respondents were chosen from a variety of government departments and agencies. This study used both primary and secondary data. Numerous sources, including books, scholarly journals, published research papers, websites, and other pertinent materials, were used to collect secondary data. Employees from various Kabul government offices were given a structured questionnaire via Google Form in order to gather primary data. Based on accessibility and availability the questionnaire was answered by 154 participants in total. In addition, In-depth interview regarding viewpoints on possibilities and difficulties were conducted to obtain the important stakeholders, such as HR managers, IT specialists, and legislators in public sector. This study aims to assist HR Departments of Afghanistan public sector to understand the obstacles implementations of technological facilities in the HR area, the opportunities and the effectiveness of Technological tools for modernizations and decision making of HR process in all Ministries in order to obtain their expected goals in the organizations.

## 4. DATA ANALYSIS AND DISCUSSION

**Table 1: Demographic information of participants**

Age	Frequency	Percentage
Under 25 years	29	18.8
26 to 35 years	63	40.9
36 to 45 years	42	27.0
More than 45 years	20	12.9
<b>Total</b>	<b>154</b>	<b>100.0</b>

Based on the above table, it can be deduced that 18.8% of the total respondents are under 25, 41% are between 26 and 35, 27% are between 36 and 45, and 13% are over 45.

**Table 2: gender of the participants**

Statement	Frequency	Percentage
Male	124	81.0
Female	20	13.0
Did not want to say	10	6.0
<b>Total</b>	<b>154</b>	<b>100.0</b>

Out of the 154 respondents, 124 (76%) identified as male, 20 (13%) as female, and 10 (6%) did not reveal their gender.

**Table 3: Experience of the participants**

Statement	Frequency	Percentage
Less than one year	31	20
1 to 3 years	58	38
4 to 7 years	40	26.0
More than 7 years	20	13
Did not do job in the government.	5	3
<b>Total</b>	<b>154</b>	<b>100.0</b>

According to the table, the majority of respondents (38%) have one to three years of work experience, followed by those with four to seven years (26%), and those with less than a year (20%). Three percent said they had never worked for the government, and thirteen percent had more than seven years of experience

**Table 4: Frequency of Technologies which are implemented by various**

Technology categories	YES-Frequency	YES-Percentage	No-Frequency	No-Percentages	Total frequency	Total percentages
HRMS	76	49%	78	51%	154	100
Biometric attendance	101	66%	53	34%	154	100
E- Recruitment	60	39%	94	61%	154	100
Analytic Use	34	22%	120	78%	154	100
HRIS	43	28%	111	72%	154	100
Payroll administration system.	120	78%	34	22%	154	100
Platforms for the employee training.	42	27%	112	73%	154	100

### Afghanistan's ministries.

The data, which was gathered from 154 participants, demonstrates a wide range of HR technology usage. With 65% of respondents using them, biometric attendance systems had the highest adoption rate. The fact that 49% of responders use HRMS in their organizations. And only 39% use e-recruitment platforms suggests that traditional hiring practices are still in use. Only 22% of participants use analytics tools in their offices,

making them the least popular. It is revealed that 28% of the employees are access to the Human resource information system in their organization and the 72% of the responders are not using this facility.78% of the participations answered that they use Payroll and salary administration system which is highly used in their office while 22% of them do not use this.

**Table 5: Technology’s effectiveness in streamlining human resource procedures**

Item	Frequency	Percentage
Highly effective	74	48
Somewhat effective	68	44
Neutral	12	8
Ineffective	0	0
Not effective at all	0	0
<b>Total</b>	<b>154</b>	<b>100.0</b>

According to the data; 48% responders think it has been highly effective, and 44% think it has been moderately effective. There was a generally positive view of technology's role in HR, with only 8% being neutral and none considering it ineffective.

**Table 6: Areas in which technology has greatest impact on human resource management practices**

Statement	Frequency	Percentage
Recruitment and hiring of employees.	38	25
Training and development of employees.	51	33
Employee Performance Management.	43	28
Employee engagement, collaboration, and teamwork.	22	14
<b>Total</b>	<b>154</b>	<b>100.0</b>

The table shows that 33% of respondents believe digitalization has had a positive impact on employee training and development. Meanwhile, 28% think it has improved employee performance management, and 25% say it has benefited recruitment and hiring processes. Only 14% of respondents feel it has helped enhance employee engagement, collaboration, and teamwork.

**Table 7: Technology effectiveness in the process of hiring new employees in the organization**

Statement	Frequency	Percentage
It has had a significant improvement.	72	47
It has improved to some extent.	55	36
It has little impact.	22	14
No impact	5	3
<b>Total</b>	<b>154</b>	<b>100.0</b>

The table shows that 47% of respondents believe that technology has significantly improved the hiring process, 36% believe that it has improved the hiring process to some extent, 14% believe that it has little effect on the hiring process, and only 3% disagree.

**Table 8: Technology efficiency on employee performance management**

Statement	Frequency	Percentage
Yes, it has improved significantly.	72	47
It has improved to some extent.	68	44
It has little impact.	14	9
No, it has had no impact.	0	0
<b>Total</b>	<b>154</b>	<b>100.0</b>

According to Table 7, 91% of respondents think technology has made employee performance management better, with 47% citing a significant improvement and 44% citing a moderate impact.

**Table 9: The use of technology influences the facilitation of education and the development of employees**

Statement	Frequency	Percentage
Highly influential	94	61
Moderately Influential	51	33
Minimally Influential	9	6
It has had no impact.	0	0
<b>Total</b>	<b>154</b>	<b>100.0</b>

According to Table 8, the majority of respondents (61%) believe that technology is essential for employee development and education, 33% report a moderate impact, and only 6% think that its influence is minimal. Strong general support for its role in career advancement is demonstrated by the fact that none of the respondents felt it had no effect.

**Table 10: Major difficulties in implementing technology in human resource management**

Statement	Frequency	Percentage
Insufficient infrastructure for technology.	77	50
Lack of technical skills among employees .	46	30
Resistance to change from employees	12	8
Budget constraints	19	12
<b>Total</b>	<b>154</b>	<b>100.0</b>

According to the table, the biggest obstacles to implementing HR technology are insufficient infrastructure (50%), a lack of tech skills among employees (30%), financial limitations (12%), and change aversion (8%). In general, the biggest obstacles are a lack of infrastructure and technical capability.

**Table 11: Technical issues disrupt human resources operations in the organization**

Statement	Frequency	Percentage
Frequently	48	31
Occasionally	94	61
Rarely	12	8
Never	0	0
<b>Total</b>	<b>154</b>	<b>100.0</b>

According to the table, 31% of respondents say they encounter technical disruptions in HR procedures frequently, while 61% say they only happen occasionally. Only 8% say these issues are uncommon. Since nobody reported a total lack of problems, the organization's technical infrastructure needs to be upgraded.

**Table 12: Suggestions for enhancing the human resources department's technological usage**

Statement	Frequency	Percentage
Employee Training	59	38
Increasing the budget	32	21
Cooperation with foreign experts	11	7
Investment in technology infrastructure	52	34
<b>Total</b>	<b>154</b>	<b>100.0</b>

According to the table, 38% of participants believe that employee training is the best strategy to improve HR technology use, while 34% place more emphasis on IT infrastructure investment. While less important, budget increases (21%) and cooperation with foreign experts (7%) are also viewed as beneficial. In general, enhancing technology systems and employee competencies are top priorities for improved HR performance.

**Table 13: Types of technology that should be prioritized to improve human resources in Afghanistan's public sector**

Statement	Frequency	Percentage
The use of advanced Human Resource Information Systems (HRIS).	99	64
The use of artificial intelligence (AI) for employee recruitment and data analysis.	38	25
Implementing self-service portals for employees	12	8
The use of any technology that is feasible in Afghanistan.	5	3
<b>Total</b>	<b>154</b>	<b>100.0</b>

According to the table, 64% of respondents said that implementing HRIS is a top priority for enhancing HR management in Afghanistan's public sector, underscoring the necessity of effective, automated systems. 25% support AI for data analysis and hiring, while 8% prefer self-service portals. Just 3% recommend emphasizing any technology that is practical in Afghanistan. HRIS is thought to be the most significant solution overall.

**Table 14: Options considered effective for the efficient use of technology in the human resources department in Afghanistan's Public sector.**

Statement	Frequency	Percentage
Investment in and purchase of advanced technology systems.	68	44
Technical and specialized training for human resources employees.	77	50
Strong leadership and management of organizations.	9	6
<b>Total</b>	<b>154</b>	<b>100.0</b>

According to the table, 50% of respondents think that the best approach to improve technology use in Afghanistan's public sector is to provide technical and specialized training for HR personnel. An additional 44% stress the importance of spending money on contemporary systems to optimize HR operations. Only 6% emphasize how crucial effective management and leadership are to the successful adoption of technology, suggesting that infrastructure and training should come first.

**Table 15: Solutions that are recommended to encourage the public sector human resources department in Afghanistan to use technology more.**

Statement	Frequency	Percentage
Implementation of laws and policies in this sector.	49	32
Allocating sufficient budget for the effective use of technology.	46	30
Providing facilities for technology providers.	35	23
Developing and implementing incentive programs for capacity building of government employees	22	14
In Afghanistan's public sector, training in new technologies is a priority.	2	1
<b>Total</b>	<b>154</b>	<b>100.0</b>

According to the table, 32% of respondents believe that the best approach to encourage technology use in Afghanistan's public HR sector is to enforce laws and policies, while 30% place more emphasis on budget allocation. Although training alone is viewed as less important (1%), support for technology suppliers (23%) and incentive programs for employee skill-building (14%) also play a part. Expert interviews show that although technology reduces bias and costs, it is not widely adopted in rural areas because of a lack of skilled personnel, poor infrastructure, power electricity shortage and lack of access to the internet services and digital illiteracy, particularly in provincial offices that still use manual systems. The Afghan government is no longer receiving the software and technology resources that were previously provided by foreign financial institutions.

## 5. KEY RECOMMENDATIONS FOR MODERNIZING AFGHANISTAN'S HR AND GOVERNMENT SYSTEM

- Obtain foreign funding to supply necessary technology.
- Create a comprehensive e-government master plan that includes objectives, due dates, and accountable parties.
- Prioritize the following areas: national identification, healthcare, education, security, and finance.
- Employees should receive instruction in data management, service delivery, and digital skills.
- Connect digital IDs to essential services like social assistance, healthcare, taxes, and voting.

## 6. CONCLUSION

The primary focus of this study is to explore the effectiveness of technology in human resource (HR) practices within Afghanistan's public sector. It aims to identify the challenges and barriers to implementing cutting-edge technology and provide solutions for adopting and optimizing digital tools in HR management.

The findings of this research highlight the growing influence of technology in transforming HR practices within Afghanistan's public sector. Digital solutions have significantly enhanced payroll administration, recruitment processes, and employee performance monitoring. However, several challenges, including financial constraints, outdated infrastructure, and resistance to change, continue to hinder widespread adoption. Compared to developed nations, Afghanistan's public sector lags in HR technology implementation due to limited digital skills and organizational reluctance.

Currently, technology is moderately used for information management but remains minimally utilized for hiring and employee training. Despite these limitations, the study recognizes that leveraging technology in HR practices is highly effective, particularly in areas such as training and development, performance management, and recruitment. A vast majority of participants acknowledge technology as a crucial factor in career growth and education.

The most pressing issues include a lack of technical expertise and inadequate infrastructure. While occasional technical problems arise, they do not significantly disrupt daily HR operations. To enhance efficiency and capacity, training employees and investing in technology are strongly recommended. Additionally, the adoption of a Human Resource Information System (HRIS) is suggested as a key administrative solution. Providing specialized technical training and investing in cutting-edge technology are essential steps to modernizing HR practices in Afghanistan's public sector.

## References

- 1) Alhassan, M. D., Adam, I. O., Musah, A., & Wahaga, E. (2021). The Effects of ICT Adoption on Public Sector Performance: Does the Mediating Role of HR Quality Matter? *International Journal of E-Adoption*, 13(2), 36–51. <https://doi.org/10.4018/IJEA.2021070103>
- 2) Dluhopolska, T., & Huk, Y. (2021). Digital Transformation in Hr Sphere: Directions, Problems and Opportunities. *Black Sea Economic Studies*, 62, 13–18. <https://doi.org/10.32843/bses.62-2>
- 3) Ferdous, F., Chowdhury, M. M., & Bhuiyan, F. (2015). Barriers to the Implementation of Human Resource Information Systems. *Asian Journal of Management Sciences & Education*, 4(January), 33–42.
- 4) Gunawan, B., Mulyo Ratmono, B., Kurniasih, D., & Setyoko, P. I. (2023). Human Resources and Technology Integration in Effective Public Management. *Policy & Governance Review*, 7(3), 261. <https://doi.org/10.30589/pgr.v7i3.782>
- 5) Hasanah, R. K., & Jauhari, T. (2024). The Application of Technology to Human Resources in The Civil Servant Recruitment Selection Process. 6(2), 269–281.
- 6) Liu, X. (2024). Exploration into the Impact of Digital Transformation on the Human Resource Management Process in the Public Sector. 6(5), 130–137. <https://doi.org/10.22158/ibes.v6n5p130>

- 7) Markovic, B., Roncevic, A., & Gregoric, M. (2023). The Role of Information and Communication Technology in Improving the Financial Performance of Hospitals. *Tehnicki Glasnik*, 17(1), 68–74. <https://doi.org/10.31803/tg-20220701113426>
- 8) (Milošević, K., Katić, I., & Tasić, N. (n.d.). Accelerated digitalization of human resources in the postpandemic era. [https://doi.org/10.24867/is-2023-t6.1-6\\_10741](https://doi.org/10.24867/is-2023-t6.1-6_10741)
- 9) Mohammad, R. A., Abdelkhair, F. Y., & Bindawas, A. M. (2024). Technology Use Momentums by Human : The Potential Outcomes of Integrating Artificial Intelligence into Human Resources Process. 0–17. <https://doi.org/10.20944/preprints202412.0965.v1>
- 10) Ojogiwa, O. T., & Nhari, S. R. (2024). Embracing transformative digital human resource management in the nigerian public sector. *Digital Transformation in Public Sector Human Resource Management*, 2019, 130–144. <https://doi.org/10.4018/979-8-3693-2889-7.ch007>
- 11) Poshai, L., & Intauno, K. (2024). Streamlining public sector human resource recruitment and selection processes through digitalisation: Prospects and challenges for African bureaucracies. *Digital Transformation in Public Sector Human Resource Management*, 1–20. <https://doi.org/10.4018/979-8-3693-2889-7.ch001>
- 12) Prasad, D. B. V. (2024). The Impact of Technology on Human Resource Management: Trends and Challenges. *Educational Administration: Theory and Practice*, 30(5), 9746–9752. <https://doi.org/10.53555/kuey.v30i5.4635>
- 13) Sani, S., & Mandina, S. P. (2024). Examining the challenges of adopting modern technologies in public sector human resource management. In *Digital Transformation in Public Sector Human Resource Management (Issue September)*. <https://doi.org/10.4018/979-8-3693-2889-7.ch004>
- 14) Sharma, A. (2023). Challenges for Human Resource Management in the Era of Dynamically Changing Technology: A Quantitative Investigation. *PsychologyandEducation*, 55(1), 478–485. <https://doi.org/10.48047/pne.2018.55.1.59>
- 15) Stanley, D. S., & Aggarwal, V. (2019). Impact of disruptive technology on human resource management practices. *International Journal of Business Continuity and Risk Management*, 9(4), 350–361. <https://doi.org/10.1504/ijbcm.2019.102608>
- 16) Yulianto, A., & Madiistriyatno, H. (2023). Hr Management in the Digital Era: Integrating Technology for Organizational Success. *Journal Return*, 2(11), 1157–1165. <https://search.ebscohost.com/login.aspx?direct=true&AuthType=ip,shib&db=bth&AN=174835299&site=ehost-live&custid=s4121186>
- 17) (Лю, Б. (2024). Exploration into the Impact of Digital Transformation on the Human Resource Management Process in the Public Sector. *International Business & Economics Studies*, 6(5), p130. <https://doi.org/10.22158/ibes.v6n5p130>)