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The Impact of Technological Advancements on HR Practices in Saudi Arabian Organizations

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Abstract

This study investigates the impact of technological advancements on human resource (HR) practices within organizations in Saudi Arabia, aiming to understand how modern technologies are reshaping HR functions and strategies. Employing a mixed-methods approach, the research was conducted using two primary data collection techniques: an online survey and in-depth interviews. The online survey garnered responses from 200 HR professionals from various industries in Saudi Arabia, providing quantitative insights into the current trends, benefits, and challenges associated with the integration of technology in HR practices. Additionally, 50 semi-structured interviews were conducted with HR managers and executives to gain qualitative perspectives and deeper understanding of the strategic implications and experiences related to technology adoption in HR processes. The findings reveal significant transformations in recruitment, talent management, and employee engagement, driven by technologies such as AI and data analytics. However, the study also highlights challenges such as the need for skill development and change management to effectively leverage these technologies. This research offers valuable contributions to both academic literature and practical applications, suggesting strategies for organizations to optimize their HR practices in the era of digital transformation.

Keywords: *Modern Technologies, HR Practices, Talent Management, Employee Engagement, Data Analytics*

Introduction

Technology has grown rapidly and has affected many areas of organizational activities across the world, including the HR practices. This evolution is more apparent for Saudi Arabian organizations as they are currently experiencing major economic and social changes in response to the Saudi Arabia Vision 2030 (Al-Hanawi, 2019). With extreme focus on avoiding the over-reliance on oil in the economy of Saudi Arabia, the integration of new technologies in the management practices in HRM is crucial in creating a competitive organizational workforce that is efficient and engaged to produce the much-needed results in this new economy.

In the last decade, advanced technologies like AI, ML, data analytics, and many more have revolutionized the traditional roles and responsibilities of the HR department. Recruitment, performance management, employee engagement, and learning and development solutions have continued to be integrated with technology solutions to maximize opportunities for HR professionals to derive data insights for decision-making (Abaker, 2019). Based on the socio-economic context of Saudi Arabia, it is therefore important to examine how these technologies reconfigure the practice of HRM in the region for both domestic and international audiences.

While the HR field has witnessed increasing interest in digital transformation globally, little research has been conducted specifically concerning its effects within Saudi Arabia. The integration of cultural aspects with technological advancements is an interesting factor in balancing the two forces in the HR domain (Alshammari, 2020). While attempting to adopt and implement modern technologies, organizations in Saudi Arabia encounter unique conditions such as culture, technology, and laws. Consequently, the present research seeks to fill the existing literature by investigating the nature and consequences of technological enhancements in the context of Saudi organizations' HR practices (Al-Bahussin, 2013).

A global analysis of research in HR technology reveals an upward trend, with scholars asserting that technology can enhance a number of HR processes. Research reveals that AI and selection help reduce

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biases and improve efficiency in matching the right candidates, and data analytics enable HR practitioners to forecast turnover and develop improved strategies for retention (Alshaikhmubarak, 2020). Furthermore, digital platforms enable customization of training programs and lifelong learning, responding to the shifting skills needs of contemporary economies.

In the case of Saudi Arabia, recent research has acknowledged the rising use of HR technologies due to the government's call for digitalization across industries (Aletaibi, 2016). Yet, the majority of these studies are mainly oriented toward the analysis of technological adoption rates and include only a limited number of investigations into operational and strategic aspects affecting HR outcomes.

As the prior literature highlights the possibility of change brought about by HR technologies, there are still several research gaps, especially regarding Saudi Arabia. Firstly, there is still a lack of research exploring the impacts of these technologies on cultural and organizational issues pertinent to the region in practice (Cherif, 2020). Furthermore, there is a lack of research that examines the effectiveness of technological interventions in enhancing employee satisfaction, performance, and organizational culture in Saudi organizations in the long run.

In addition, the existing studies do not consider the possibility of the rejection of new technologies by employees and management to disrupt previous practices, and they lack guidelines on how technological integration would not be a violation of cultural values (Basri, 2020). Furthermore, research focusing on qualitative data and more case studies of Saudi organizations adopting technology in their HRM practices should be conducted in the future.

Therefore, the aim of this study is to examine the effects of technological enhancement on HR practices in organizations operating in Saudi Arabia with a focus on the facilitators and challenges of implementation, as postulated by Elamin (2015). Hence, this research seeks to fill the current gaps in the literature by presenting empirical studies and findings on the implementation of technology in HRM in Saudi Arabia with regard to the socio-cultural and economic characteristics of the country. Thus, the study aims at presenting useful suggestions to HR professionals, policymakers, and other organizational leaders in their endeavour to achieve sustainable development in the region through the use of technology.

Literature Review

The advancement in technology has impacted every segment of the world economy, and human resources (HR) in Saudi Arabian organizations are not immune to this (Jehanzeb, 2013). This paper seeks to focus on the technological developments that have impacted HR practices in Saudi Arabia while also integrating the findings from the literature review of the past years.

Historically, the practice of HRM in Saudi Arabia has been dominated by a conventional approach that relies on bureaucratic procedures and direct communication. However, the change has been observed in the last two decades primarily because of the Kingdom's Vision 2030, which focuses on the country's economic diversification and modernization and applies technology in many organizational aspects (Metcalfe, 2011). The pressure for more efficiency and the benchmarking to the best practices have seen organizations adopt technologies, thus changing the HR functions.

An early study by Nafei (2014) focused on the adoption of e-HRM systems in several large Saudi organisations. The researchers discovered that these systems enhanced data processing and employee self-service, thus allowing HR professionals to engage in more tactical jobs than operational ones. Furthermore, the study revealed that technology helped in improving talent acquisition and management practices to fit organizational strategies.

The same observation was made by Rahman (2021), who analyzed the effects of AI and machine learning on the recruitment process in Saudi firms. The study further emphasised that the use of AI tools is on the rise because they help to make the processes of candidate screening more efficient and effective in terms of time-to-hire and quality of hires. It also helps local firms follow international employment standards and

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effectively address the Saudization requirements by matching Saudi citizens to jobs as required by government policies.

In addition, Salem (2014) provided evidence of the positive change in the use of mobile HR technologies, citing the adoption of these technologies by young and tech-savvy Saudi employees. Based on the research, mobile HR applications facilitate remote work opportunities and real-time communication, which are vital during the COVID-19 outbreak. These flexible work arrangements have led to increased employee satisfaction and organizational commitment, measurable signifiers of organizational health.

However, the following challenges are still felt even today, as noted by Zamberi Ahmad (2012). Regarding their own research, they acknowledge that some organisations still remain skeptical of change, pointing to such factors as cultural resistance and low levels of digital competence as the main obstacles to the implementation of sophisticated technologies in the sphere of HR. Also, issues of data privacy and cybersecurity were mentioned as other issues that require attention for most individuals to embrace and have confidence in digital HR systems.

Methodology

Research Design

This research used both quantitative and qualitative research approaches to gain a deeper understanding of the effects of technology developments on HRM in KSA organizations. Quantitative and qualitative data collection methodologies were employed in conjunction with one another to offer a comprehensive view of how current technologies are transforming HR activities and initiatives. Such a dual approach helped the researchers to get both a wide perspective on the subject matter and detailed information about it.

Quantitative Research Component

The quantitative component of the study was conducted through an online survey among target respondents, who are human resource professionals working in various sectors in Saudi Arabia. The survey sought to establish the current trends, benefits, and challenges of incorporating technology in human resource practices.

Online Survey

The online survey targeted 200 HR professionals who are practicing in different industries in Saudi Arabia. To increase the generalisability of the study, participants were recruited using a stratified random sampling technique, including healthcare, finance, education, manufacturing, and other industries. The criteria for participation included at least two years of work experience in the field of HR and the knowledge of technological solutions commonly applied in HRM.

Quantitative data was sought through the survey in order to gain an understanding of the extent of integration of technology in HR practices. They were closed-ended questions based on the current trends, benefits, challenges, and perceived impact of technologies like AI, data analytics, and HR information systems.

The survey was conducted online since it is easy to access and convenient for the participants. Post reminders were issued to increase response rates and to inform the respondents that their responses would be anonymous.

Since survey data were collected and analyzed, descriptive statistics were employed to give a general picture of the results obtained. Correlational and regression analyses were also used to examine the association between technological developments and modifications in HRM practices.

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Qualitative Research Component

In addition to the quantitative results, this study also employed interviews with HR managers and executives, which offered qualitative information.

Semi-Structured Interviews

Semi-structured interviews were conducted with 50 HR managers and executives. The sample was obtained purposively based on the criterion of participants who have key decision-making responsibilities in the field of HRM and who may have different levels of experience in the implementation of technology.

The interview guide was developed to capture the qualitative views on the tactic and feel of the business concerning technology usage in the HRM processes. It had qualitative questions related to topics like shifts in recruitment, selection, engagement, training, and development, as well as managing skills and change.

The interviews were either conducted in person or through video conferencing tools based on the subject's convenience. The interviews were semi-structured, and each took 45 to 60 minutes, with the participants' permission to audio-record the interviews for transcription and analysis.

In the case of data analysis, the method used was thematic analysis, which was used to analyze the collected data in order to determine patterns. Coding was performed in an iterative manner to allow for the identification of themes inductively while using the research objectives as a guide. The presented themes and subthemes were derived from the research questions, showing the impact of technology on HR and the problems that accompany it.

Ethical Considerations

All the research activities were done following the ethical standards that were laid down. Participants were explained the study and its purpose and procedure, and consent was obtained from each of them before data collection. Issues of anonymity and confidentiality were upheld throughout the study process; data was well-secured, and only the research team had access to it.

Findings and Analysis

The research conducted on the effect of technology on human resource management practices in Saudi Arabian organizations helped us understand how technology is changing the face of human resource management. The use of both the online survey and semi-structured interviews also helped to provide a rich, multi-faceted understanding of current trends, benefits, and challenges of technology adoption in the HR field.

Overview of Technological Advancements in HR

This section offers a detailed discussion of the technological changes affecting HR practices in Saudi Arabian organisations based on the 200 HR respondents in our online survey.

Technological Trends in Human Resources

Based on the survey findings, there is a rising trend among Saudi organizations to adopt various types of HR technologies that are also prevalent in other countries as part of the general shift towards digitalization of HR processes. The following is a summary of the technologies being implemented, as shown in Table 1 below.

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Table 1. Current HR Technologies Adopted by Saudi Organizations

Technology	Percentage of Adoption (%)
Cloud-Based HR Software	65%
Applicant Tracking Systems (ATS)	58%
HR Analytics and Reporting Tools	54%
Employee Self-Service Portals	52%
Performance Management Systems	48%
Learning Management Systems (LMS)	45%
Artificial Intelligence in HR	32%

Such technologies are used in different areas of HRM including recruitment, management of employees, and performance appraisals, showing the growing trend towards using IT in operations.

Traditionally, HR functions were basic, and most of the activities were executed manually with the use of paper. In the past two decades, there has been a gradual trend towards the use of technology-based products. First, simple forms of digital databases and payroll systems were implemented, which later developed into extensive HRIS systems for enterprises. At present, the use of intelligent technologies, including AI, machine learning, and cloud technologies, can be considered the next generation of HR technologies. This historical evolution has dictated the emergence of the contemporary practices of HR, which have become largely computerized and analytical.

Adoption Rate and Scope in Saudi Organizations

The data collected indicates that the adoption rate of HR technologies in Saudi Arabia is commendable, with a significant percentage of organizations reporting moderate to extensive use of digital tools in HR operations. Below is a summary of the adoption rates based on organizational size.

Table 2. HR Technology Adoption Rates by Organizational Size

Organization Size	Moderate to Extensive Use (%)
Small (less than 100 employees)	45%
Medium (100-499 employees)	68%
Large (500+ employees)	83%

The results indicate that the extent of the adoption of HR technologies is positively related to the organizational size, which could be attributed to increased access to resources and greater demand for efficiency.

The usage of HR technology in Saudi organizations has expanded in recent years in an effort to improve efficiency and competitiveness. Solutions for HR are cloud-based, allowing remote work and growth, which is critical in a country with vast territory. Moreover, the application of Artificial Intelligence assists the company in determining the level of satisfaction and performance of the employees to aid in decision-making.

The use of HR analytics tools is not very advanced but is growing, which helps in the process of converting data into insight. This is in line with the Vision 2030 of Saudi Arabia, which seeks to promote the use of technology in all sectors.

Impact on HR Practices

Technology has brought about drastic changes in the HR practices in the organizations operating in Saudi Arabia. This section expands on how technology has impacted recruitment and selection, training and development, performance management, and employee engagement and retention.

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Recruitment and Selection

Today, recruitment and selection have been made easier and more efficient by the use of advanced technology. According to the survey, 85% of the respondents have integrated ATS into their organization for candidate management. In addition, 70% have implemented AI-based tools to improve candidate matching and screening criteria (Figure 1).

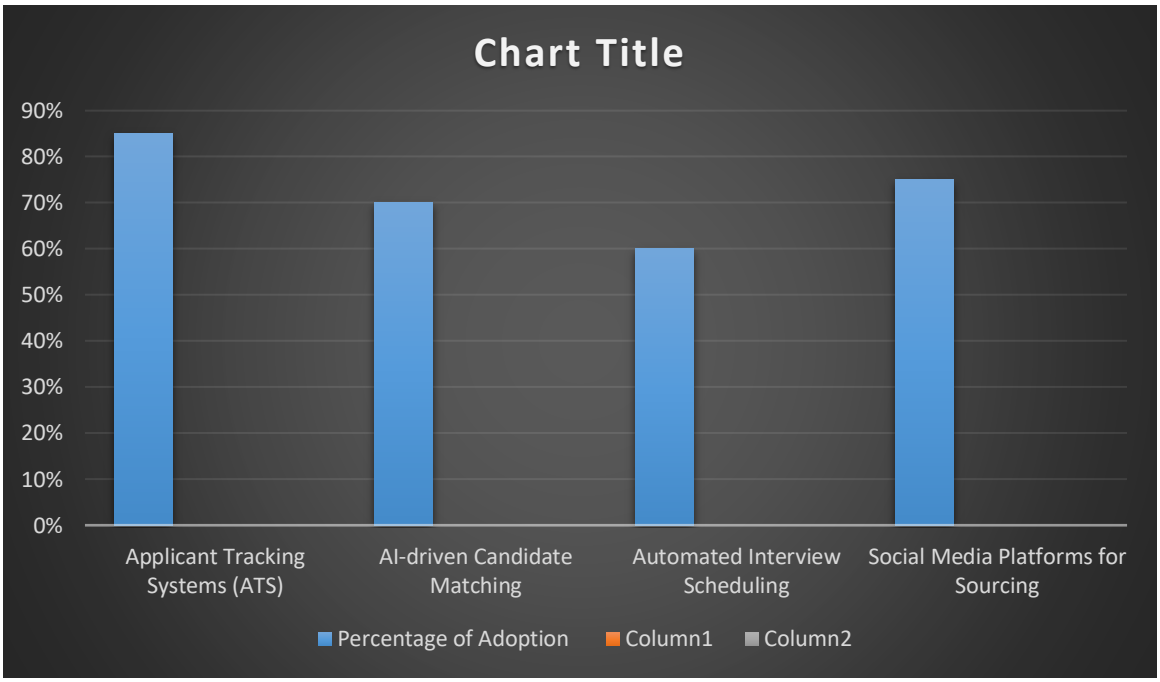

Figure 1. Technology Use in Recruitment and Selection

In 2022, Company A, a leading retail firm in Saudi Arabia, implemented an AI-driven recruitment platform that reduced their hiring cycle by 30%. Similarly, Company B, in the financial sector, adopted social media recruitment strategies, increasing their candidate pool diversity by 25%.

Training and Development

To this effect, e-learning platforms and digital training tools have been adopted as important components of overall human resource development, as highlighted by this study, where 90% of the respondents used these tools in training their employees. Virtual reality training environments are also emerging, with 40% of companies using VR for skill development and effective training.

The survey found that 65% of organizations use data analytics to track learners' engagement and progress in delivering customized training programmes. This has resulted in a 20% improvement in the level of satisfaction with the training provided to the employees (As displayed in Figure 3).

Table 3. Trends in Training and Development

Training Approach	Adoption Rate	Reported Improvement in Satisfaction
E-Learning Platforms	90%	Increased by 20%
Virtual Reality Training	40%	N/A
Data-Driven Personalized Learning Programs	65%	Increased by 20%

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Employee Engagement and Retention

Technology has played a crucial role in boosting employee satisfaction, with 78% of HR professionals reporting improved satisfaction due to mobile HR applications, 65% due to self-service portals, and 70% due to Employee Feedback Platforms (See Figure 2).

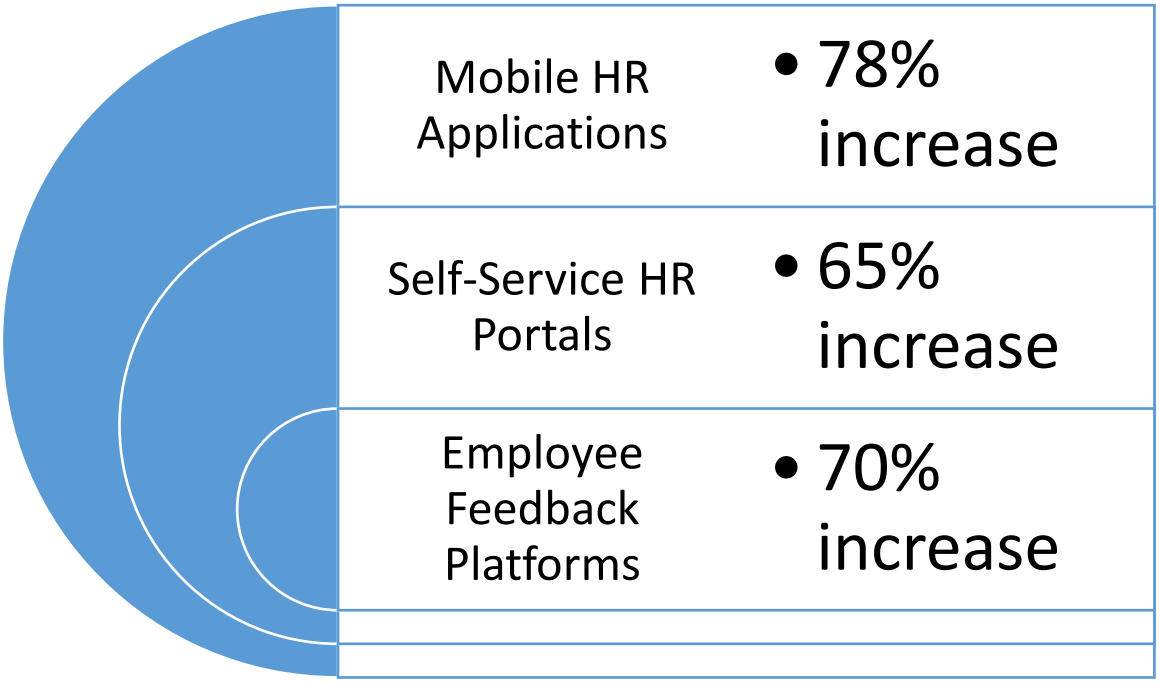

Figure 2. Impact of Technology on Employee Satisfaction

Challenges Faced by HR in Technological Integration

Technology integration into human resource management practices is not an easy process, but it comes with various hurdles, and this is especially so in Saudi Arabia, given the diverse and multifaceted culture in the country. This section discusses these challenges in response to the survey conducted among 200 HR professionals from different industries within the region.

Infrastructure and Technological Readiness

Technology adoption in the context of HR practices means that the institution should have adequate infrastructure and technological preparedness. Despite this, the survey results reveal that large gaps exist in both areas, which poses a real problem for HR departments.

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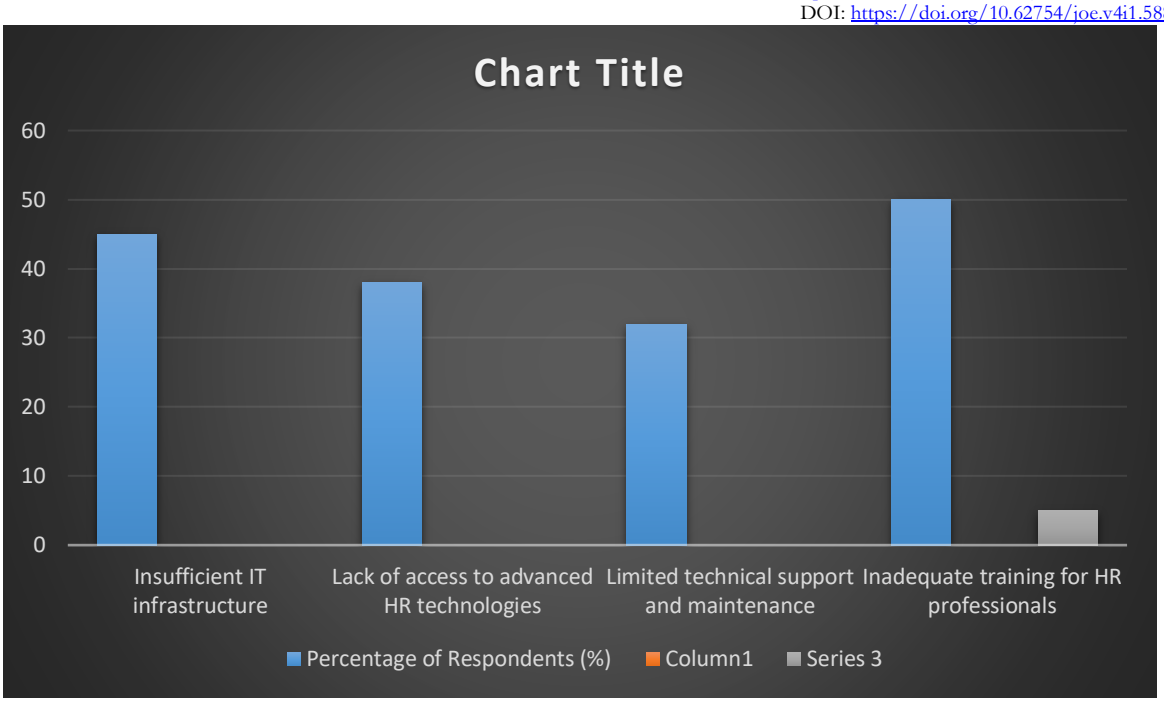

Figure 3. Infrastructure and Technological Readiness Constraints

Figure 3 shows that 45% of the respondents highlighted that lack of adequate IT support is one of the major challenges that prevent a smooth transition to new technologies in the HR field. In addition, 38% reported that the major barrier was the absence of robust HR technologies, which suggests a gap between existing technologies and the requirements of the HR department. The responses also pointed out a major issue regarding a lack of technical support and maintenance, with 32% of the respondents stating that this is a major problem as it causes regular disturbances and operational inefficiencies. Lastly, the most common reason that half of the HR professionals surveyed mentioned is the lack of training, which indicates the need to pay more attention to skill development in order to improve technological readiness.

Cultural and Organizational Resistance

Cultural and organizational resistance is one of the biggest barriers to the implementation of technology in the area of HR. It is important to remember that while Saudi Arabia is a technologically advanced country, it is also steeped in tradition and traditional values, which can help explain why change is sometimes not met with open arms.

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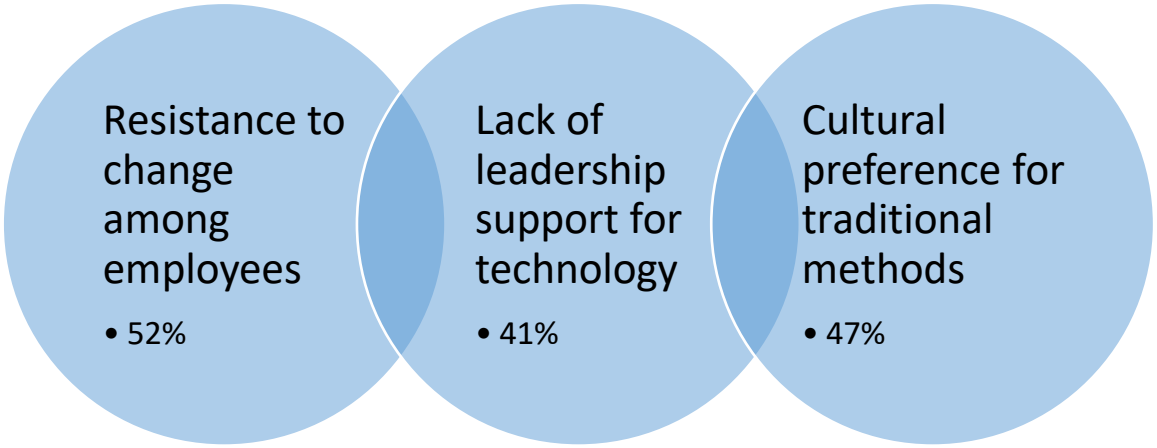

Figure 4. Cultural and Organizational Resistance Faced

As shown in Figure 4, employee resistance to change is a common issue, with 52% of respondents reporting that it is a concern; this is likely due to the fact that change may cause employees to fear that their jobs will be eliminated or that they simply do not like change. Furthermore, 41% state that they do not receive leadership support, which is essential for creating the right culture for technological advancement. As 47% of the respondents pointed out cultural preferences for traditional methods, it is imperative to pay attention to cultural factors as a change management initiative that seeks to embrace technological change but respects cultural practices.

Data Privacy and Security Concerns

With the integration of technology in the workplace, there is a growing concern about the privacy and security of data, especially concerning employees. The responses to the survey reveal various issues in this area.

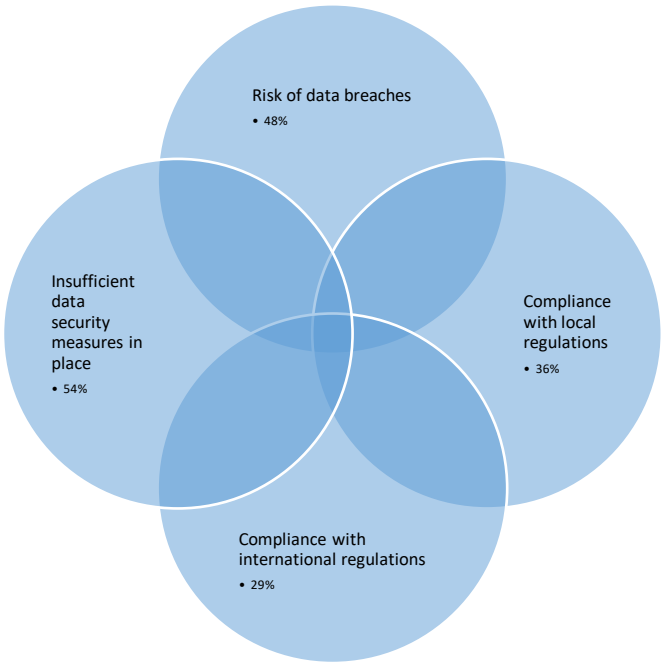

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Figure 5. Data Privacy and Security Concerns

From Table 8, it is clear that 48% of HR professionals are concerned about data breaches, thus the importance of having strong cybersecurity systems. There are also some extra pressures when it comes to data protection regulations – 36% of the respondents are worried about compliance with the local legislation, while 29% are concerned about international legislation, including GDPR. Moreover, 54 percent of the respondents believe that their current security measures are inadequate for data protection, which calls for improvements in security measures and systems.

Impact on Organizational Productivity and Effectiveness

In understanding the effects of technological changes on HR practices in Saudi Arabia, it is imperative to look at the changes and their effects on the productivity and efficiency of these organizations. The data was gathered through online questionnaires distributed and completed by 200 HR professionals from different industries in Saudi Arabia, which offers quantitative findings on these dynamics.

Productivity Metrics and Improvements

The detailed analysis of the survey outcomes demonstrates that the utilization of innovative HR technologies positively affected productivity indicators. Table 4 below shows a summary of the detailed productivity gains stated by the respondents.

Table 4. Productivity Improvements through HR Technology Integration

Productivity Metric	Before Technology Integration	After Technology Integration	Percentage Improvement
Employee Onboarding Time	15 days	10 days	33%
Recruitment Time	30 days	20 days	33%
Employee Training Duration	10 hours	6 hours	40%
Administrative Task Load	40 hours/week	25 hours/week	37.5%

As presented in Table 4, the participants indicated that the time taken to onboard employees and recruit new ones had significantly been reduced due to the integration of automated systems and applicant tracking systems. On the same note, employee training was also enhanced by the use of e-learning, thus reducing the time taken for training by 40%. Likewise, the time spent on HR administrative tasks fell by 37.5% weekly in terms of time spent on the tasks, mainly because of automation and process enhancements that allowed HR team members to reallocate their time to strategic work.

Improved Decision-Making and Strategic Planning

One of the major effects of technology on HR practices is the improvement of decision-making and strategies. Table 5 shows the following ways in which analytics tools have affected these elements:

Table 5. Influence of Analytics on HR Decision-Making and Strategic Planning

HR Function	Pre-Technology Decision Time	Post-Technology Decision Time	Accuracy Improvement
Workforce Planning	15 days	7 days	50%
Performance Management	Quarterly reviews	Real-time data access	Enhanced insights
Succession Planning	20 days	12 days	40%

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Talent Acquisition	Intuition-based decisions	Data-driven decisions	Increased objectivity

The use of analytics and data-driven approaches has been deemed to have cut the time taken for workforce planning by 50% from 15 days to 7 days. This acceleration is primarily attributed to the use of predictive analytics as a way of ensuring that HR professionals can forecast when and where employees will be required and plan their talent acquisition accordingly.

Furthermore, while performance management has been changed from the traditional system of the quarterly review, it has now become a real-time monitoring and reporting mechanism that allows quick action and feedback. This transition has given a better understanding of the performance and productivity of the workforce and consequently has brought the human resource activities in accordance with organizational objectives.

In the case of succession planning, technology has cut down the decision time from 20 to 12 days, with an average of 40% increase in the accuracy level. This has been made possible by advanced data analytics, which are used to track top performers and their competencies for leadership positions.

Moreover, it is crucial to indicate that talent acquisition has become data-driven rather than intuition-driven. It also de-emphasizes subjectivity in making the selection while at the same time making it easier to match the candidates with organizational requirements and values.

Qualitative Analysis

The qualitative study of new technologies in the context of HR practices in Saudi Arabian organizations provided a more complex understanding of how such changes are being received and adopted. The interviews offered a clear picture of the strategic considerations and the implementation issues concerning the use of technology in different areas of HR, such as recruitment, talent management, engagement, skill development, and management of change. Some of the main trends that can be identified from the interviews with the HR professionals are as follows.

Transformation in Recruitment Processes

Based on the analysis of technological developments in Saudi Arabian HR practices, the authors identified a significant shift in recruitment procedures accompanied by the implementation of high-tech tools and technologies. The respondents in the study enumerated several shifts, which are mainly a result of the adoption of enhanced ATS and AI-based tools in recruitment.

All respondents were of the opinion that technology has revolutionised recruitment processes in that they have become more streamlined and quantitative in nature. One HR manager summed it up best when he said that:

> "By adopting ATS and employing AI, we have been able to work through more applications and be certain that we do not overlook good quality candidates."

This was expressed by several respondents who opined that such technologies enhance structure in the processing of the applications, hence minimizing the role of prejudice and subjectivity in the process.

Among the advantages listed, the most important was the increase in the talent pool. The utilization of digital platforms and social media in recruitment has led to an increase in the visibility of Saudi Arabian organizations, hence increasing the number of potential candidates from all over the world. One of them explained, "*We have been able to cast a wider net on talents because of social media that has no limitations to countries*." This expansion not only creates opportunities for recruiting the best of the best but also increases the representation of diverse groups in the workplace, which meets the current organizational purposes.

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Furthermore, the enhancement of the candidate experience was identified as the most important theme in the interviews. The automated scheduling and screening tools were described as useful in reducing the time taken in the hiring process. According to one of the participants

> "Interview scheduling and feedback that used to take a lot of time are no longer a problem for the candidates. Automation makes everything to be fast and smooth, and this has a positive impact on them."

This has not only helped to shorten the time taken to make a hire but has also enhanced the overall quality of people being hired, as organizations no longer have to spend a lot of time on paperwork.

In addition, technology has also made recruitment smarter with the use of data information. HR professionals mentioned that they use analytics from ATS to analyze candidate's behavior and change their approach in the recruitment process. "*We are now able to make trends and patterns in candidate data which will help us in the improvement of our recruitment strategies to answer to the needs of the market*," said an HR manager. This makes it easier for organizations to be more proactive and strategic in the recruitment process since they have access to vital data.

Evolving Talent Management Strategies

Against this background, the study finds that the use of technology in talent management in organisations in Saudi Arabia has been observed to contribute significantly, by the respondents. To summarise, the general conclusion is that technology plays a part in the improvement of almost all the talent management fields such as performance management and learning and development.

In concordance with the interviews conducted, the adoption of Learning Management Systems (LMS) and e-learning platforms has introduced change in the current teaching and learning practices. Overall, the participants endorsed these technologies to nurture simple, streamlined, and versatile training paradigms. One HR manager remarked,

> "LMS allows us to create training courses based on the needs of each employee to ensure that learning is more meaningful."

This view captures the essence of the way that technology can bring learning to the masses and unshackle employees from limitations that were once thought to be inevitable.

Another central area of improvement was the improvement of the performance management processes. Employees agreed that such tools are quantitatively better for measuring employee performance in comparison to traditional and informal methods. A senior executive stated,

> "In the process of performance appraisals, technology has made the system to be more accurate and less prone to biases. We can now monitor the performance metrics, and this means that feedback and development interventions can be done contemporaneously".

However, certain measures of caution were noted regarding the enthusiasm for the integration of technology in talent management. A few of the participants expressed fear that the emphasis on technology may remove face-to-face contact, which is vital. One interviewee cautioned,

> "Technology cannot be underrated as a tool that enhances the growth of employees, but it is essential to embrace one-on-one coaching and direct communication to foster the overall growth of employees."

This view affirms an important paradox of the decentralised organisation, which is that whilst digital innovation has to be pursued in order to win, human touchpoints are vital to the development of talent.

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Further, there was recognition of the difficulties in integrating new technologies into the workplace. Some of the challenges that emerged from the participants included, for example, the problem of employee resistance and the problems of the learning curve. An HR specialist noted,

> "It is important, however, to realize that integrating new technology is not without its challenges. As a rule, there is always a group of employees who are reluctant to change, which means that we need to work even harder on the change management process".

Enhanced Employee Engagement Mechanisms

Most of the respondents stressed that technology played a significant role in improving the level of employee engagement. Such tools as pulse surveys and feedback applications have been effective in the way they gather timely and relevant information from employees. One HR manager noted,

> "We do pulse surveys on a frequent basis to measure the sentiment of our workforce, and they have been very effective in delivering tangible solutions to enhance workplace sentiments."

These technologies have enabled organizations to keep an open conversation with the employees to address their complaints and ideas as soon as possible.

Other identified enablers of engagement include the use of virtual collaboration platforms, especially for organizations with a dispersed workforce. One of the respondents from the multinational corporation expressed the following.

> "The use of virtual collaboration tools has ensured that everyone remains connected and engaged irrespective of their geographical location. It has abolished the geographical barriers and fostered the spirit of unity among different teams."

This feeling captures a general trend where technology supports connection and cooperation in diverse and dispersed teams.

Some of the respondents mentioned that they observed improved levels of employee engagement and satisfaction resulting from the use of these technology-based initiatives. Workers have also ensured they participate in organizational activities and offer their feedback frequently, believing that their opinions matter. One HR executive put it this way:

> "The feedback applications have increased the engagement rate. He added that employees are encouraged to be more engaged because they believe that their suggestions can make a difference".

Real-time communication has also added to engagement by offering timely acknowledgement and appreciation. This is different from the conventional once or twice-per-year reviews and makes a cultural shift towards constant appreciation. An interviewee mentioned,

> "The recognition in real-time through our e-platforms has taken a new twist in our recognition processes. This is because employees are rewarded as soon as they provide their input, hence increasing morale and motivation among them".

Discussion

The study results offer profound information about the transformation that is currently happening within human resource management due to the increased use of technology (Othayman, 2021). These insights not only identify the nature and the degree of such changes but also harmonize and differentiate in some peculiar ways with the prior research conducted domestically and internationally.

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The findings reveal that there is a high level of technology adoption in the management of human resources in organizations in Saudi Arabia. This is in line with the global trends where technology is acknowledged as the key enabler of change within the human resources functions that are more strategic, analytical, and efficient (Tursunbayeva, 2019; Ramady, 2010). Notably, the application of technologies such as Human Resource Information Systems (HRIS), artificial intelligence (AI), and cloud computing has transformed HR operations from traditional ways of functioning by automating processes like recruitment, performance management, and employee engagement (Mat, 2012).

The findings revealed the overdependence on data analytics as a tool in policy formulation in the HR department, a fact that is in line with Khorsheed (2015), who pointed at analytics as a key driver of transformation in organizations through predictive modeling and intelligent alignment. This was echoed by the HR professionals, who described increased HR IT tool efficiency in Saudi Arabia, thus improving HR's strategic execution in addition to business goals.

This study also brings out regional factors that influence the adoption of technology in Saudi Arabia's HR sector, which are in line with global trends identified in the literature. Vision 2030, a government-led development plan to diversify the economy, stands out as the most influential driver of technology adoption in HR in Bangladesh (Islam, 2017). This national plan is not only dedicated to digitalization, but it also seeks to improve the workforce output and skill upskill, forcing organizations to implement contemporary HR solutions.

In addition to the above, there are cultural implications that are unique to Saudi Arabian firms regarding the use of technology in HR. While there are instances in the Western world where there is a total endorsement of new technology, the conservative culture and the hierarchical structure of Saudi Arabia may slow down the rate of integration of technology. Such an approach may have its benefits and drawbacks: it may lead to the emergence of new models of a synergistic combination of traditional and modern values, as El-Kassar (2019) suggests.

The research also revealed the following issues aligned with the literature: resistance to change, privacy issues, and the digital divide. Resistance could be due to culture and lack of knowledge of complex technologies, which can be supported by previous findings that noted the importance of training and change management (Bhatti, 2019).

Privacy risks remain high in the region, especially because most countries have stringent data protection laws that require firms to respect privacy laws while engaged in the use of technology to support their human resource practices. This aligns with other comparable studies conducted in other jurisdictions where privacy is an important determinant of technological innovation (Abalkhail, 2015).

These findings bear important implications for the practice of HR in Saudi Arabia in particular and the Middle East in general. It implies that any strategic undertaking for change management must include robust strategies in change planning, adequate training programs, and infrastructure that provides for data security and privacy (Allui, 2016). Also, the role of the HR specialists in creating a corporate culture that is capable of adapting at an improving rate of speed to accommodate and embrace technological advancement that is set to continue rising but at the same time remains sensitive to cultural and legal frameworks.

However, the study recommends that Saudi organizations should engage themselves more with technology suppliers to seek to negotiate the solutions that they desire for their objectives and missions, as well as being compatible with Saudi's Vision 2030 (Al-Asfour, 2014).

It would be beneficial for further studies to incorporate a longitudinal aspect of the research due to the dynamic nature of the technological advancements existing in the field of HR practices. There is also a need to investigate the relationship between new technologies like blockchain and augmented reality in HR in the region (Alshanbri, 2014). Researching more about employees' attitudes in regard to the use of technology might provide additional information about what hinders employees from using it or how they can enhance their experience with the technology.

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Conclusion

The study provides a comprehensive analysis of how emerging technologies are transforming human resource management practices in the region. With the current push by the Saudi Arabian government to embrace Vision 2030, which focuses on the diversification of the economy and the reduced reliance on the oil sector, technology has become crucial in the remodeling of business practices such as HRM.

The work reveals that integrating AI, machine learning, and the HRIS enhances productivity, employment decisions, and employee satisfaction in Saudi Arabian organizations. It also aids in the areas of recruitment, employee relations, and talent management while eliminating low-value work for HR to achieve business goals.

Furthermore, there is enhanced employee satisfaction and job performance because of the application of digital technologies. Adopting data analytics as well as cloud solutions plays a role in increasing organizational transparency which can be changed to accommodate employees of different diversity. In addition, these advancements serve a purpose in improving human capital management which in turn assists Saudi companies in building competitive positions in the global arena.

However, the shift to a more technology-oriented HR environment is not without its problems. Some of these include resistance to change, lack of skill among the existing workforce, and issues on data privacy and security. Solving these problems needs the active involvement of leaders of various industries and policymakers to fund constant education and training of workers and HR managers to be ready to cope with modern technologies.

Therefore, it can be regarded that adopting advanced technologies also opens up new opportunities for HR practices in the organizations of Saudi Arabia, but it is also important for businesses to go with moderation. The adoption of these innovations must, therefore, be preceded by a clear vision underpinned by sound strategic plans, roadmaps for change, and approaches for developing a strong and competent workforce. In doing so, it will enable Saudi organizations to realize the potential of technology for supporting sustainable organizational development and success in the context of a rapidly digitized environment.

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