



HR TECH ADOPTION IN DIGITAL BANKING: IMPLICATIONS FOR WORKFORCE DEVELOPMENT AND FINANCIAL SECTOR GROWTH IN EMERGING ECONOMIES

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Abstract

The digitalization of the banking industry has also changed the manner in which human resource management is being performed particularly in the emerging economies in which digital banking has increased by more than 60 percent over the last decade. In the given research, the researcher considers how the introduction of the HR technology in online banks has the potential to affect the workforce development and the development of the financial sector with the help of the quantitative research design grounded in the Research Onion framework. The structured survey of approximately 200 employees and managers working in digital banking companies was used to collect primary data. The results indicate that a sixth of the respondents (62 percent) reported high HR technology adoption levels and 25 percent of the respondents reported moderate levels of technology adoption. In terms of workforce outcomes, 68 percent of the respondents said that the number of employees who had digital skills, adaptability and their learning effectiveness increased significantly and 22 percent said it increased moderately. Organizational performance indicators indicate that 64 percent of the respondents indicated that productivity and efficiency of services have improved and can be noticed after the introduction of HR technology. Furthermore, 60 percent of them indicated that the workforce development based on HR technologies positively influenced the degree of innovation and the development of the financial industry. Despite these benefits, the majority of the respondents (41% of the participants) reported resistance to change as one of the primary challenges, and the most common one was the skill gaps (33%). The study concludes that the statistically and practically significant role of adoption of HR technology in the workforce capacity increase and the sustainable development of the financial sector in the economies of the developing countries under the condition of the digital transformation undertakings constant training, ethical governance, and strategic HR planning is possible.

Keywords: HR Technology Adaptation, Online Banking, Workforce Development, Financial Services Development, Developing Economies.

Introduction

The rapid implementation of digital technologies in the global banking industry has transformed the human resource management practices particularly in the emerging economies where over 60 percent of digital banking have been implemented over the past decade or so. Fintech innovation, the rising proportion of smartphone penetration (over 70 percent), and growing demand of 24/7 digital banking services among the clients have made the recent mobile and internet banking increase 2015-2024 develop at an average of 18 percent in the developing financial markets. The implementation of HR technology, including artificial intelligence (AI), data analytics, chatbots and digital learning tools, has turned out to be the facilitator of



workforce expansion and development of the financial sector, which is in this change. Studies indicate that more than 55 percent of banks are now using digital HR system in recruiting, performance management and training employees in emerging economies, compared to less than 25 percent in 2014, and this is a structural change in human capital management where digital banking strategies are the focus (Asif & Asghar, 2025; Bhattacharya & Sinha, 2022).

The digital banking sector has not demanded human resource to restrain themselves to the administrative functions, but to be a source of innovation, productivity and service quality. With the advent of AI-powered applications, such as cognitive chatbots and automated decision-support systems, the skill set of the labor force has been transformed by around 40 per cent and has shifted to the emphasis on digital literacy, analytical skill and technology-mediated communication skills. Digital financial literacy, as Umer (2025) mentions, has a statistically significant impact on the performance of the banking sector, and nearly 32% of the variability of staff flexibility on the digital platform. This means that HR technology use directly affects the performance of the employees and hence the organizational competitiveness in new financial markets that still remain a skill gap issue (Asif et al., 2025).

Another part of the interdependence between HR technology and workforce development is the use of chatbots in banking, which is an AI-powered system. Customer service is also going to deal with 65 percent of the most frequent customer inquiries, with almost 30 percent fewer people on the frontline, and human employees can be allocated to more productive advisory roles (Behera, Bala and Ray, 2024). This shift in operations implies that banks do not have to downsize their operations to fit this shift but rather reskilling of existing employees is required, and it is estimated that more than 48% of digital banking workers in emerging economies have received a reskilling program since 2020 (Asif et al., 2025). As Alt and Ibolya (2021) explain, the actions of banking professionals regarding the adoption of technology influence the consequences of service innovation, particularly in the scenario when the digital transformation is not evenly spread across geographical territories and institutions.

In terms of workforce development, HR technologies enable scaling learning and maximizing performance. The average training spending has been reduced by approximately 22 percent and the pace of learning a skill by nearly 35 percent through online learning management systems and artificial intelligence-based training applications. This aligns with the interactionist perspectives of facilitated digital instruction which reveal that learning environments where technology is incorporated lead to cognitive stimulation and skill development in comparison to traditional training (Azkarai, Oliver and Gil-Berrio, 2022). This kind of efficiencies in a new economy where tens of thousands of workers are usually employed in the banking sector is directly linked to the productivity of the sector and long term growth.

The growth impacts are not only on the internal efficiency, but also development of the financial sphere. It is evidenced that banks that have adopted the application of advanced HR technologies experience a growth in revenue of 12-15 percent relative to the conventional HR practices. A rise in employee engagement level, a rise in the degree of service consistency, and a faster pace of innovation enhance consumer trust, which is one of the main predictors of financial inclusion. Brandtzaeg and Folstad (2017) also note that technology acceptance is driven by trust and perceived usefulness, and the same applies to employees who have to use HR technologies in the same manner as the customers of digital banking services. In the world where the number of unbanked among the adult population still stands at near 30-40 percent in emerging economies, the responsive and digitally literate workforce is needed to expand access to finance.

Also, the combination of HR technology and customer-facing digital technology shows the strategic importance of integrated digital ecosystems. Zafar, Siddiqui and Arif (2025) demonstrate that the influence of AI-driven digital engagement tools on consumer behavior is extremely high, and it increases by up to 28 percent in the terms of purchase and service adoption intentions in the digital economy of Pakistan (Asif et al., 2025). These are indirectly enabled by the HR systems that ensure the employees possess the technical and emotional intelligence capacity that is required to be able to work within an AI-assisted service environment. Chen et al. (2024) also append that emotionally calibrated AI systems provide a reduction in the



duration of recovery following service failures by nearly a fifth, a reason why it needs human control and training, which is arranged with the assistance of highly advanced HR technologies.

In addition to the benefits of this, another problem that also comes with the implementation of HR technology is the question of ethics, information governance, and fear of staff. Approximately 37 percent of banking employees in the emerging markets are concerned with the prospect of job displacement due to automation, which explains the reason the HR-related measures ought to become clear, and upskilling ought to be an ongoing process (Aslam & Asif, 2025; Dave et al., 2023). Such risks are resolvable with the assistance of effective HR technology frameworks that are not concerned with substituting the workforce but with their transfer in accordance with the models of infusion of service technologies that form the basis of the collaboration of people and technologies (De Keyser et al., 2019). Biasatti, Dedriana and Nugroho (2023) also add that the success of the digital transformation is founded on the fit of technology tools with the organizational culture and preparedness of employees, which is primarily managed by the strategic HR systems.

Altogether, the application of HR technology in online banking becomes essential in the workforce development procedure as well as in the development expansion of the financial industry in the emerging economies. The quantitative tendencies will also indicate high efficiency, skill building and organizational performance when there is digitization of HR systems. As the digital banking penetrations are projected to surpass 80 per cent in urban areas of the emerging economies by 2030, how the HR technology is strategically aligned to the digital transformation agendas will be a major factor of ensuring that the inclusive growth, innovation capability and long-term financial sustainability is attained.

Research Questions

1. Technologies in digital banking affect the creation of skills, productivity, and flexibility of the new economy workforce?
2. How does the adoption of HR technology in digital banking affect the growth of the financial sector and efficiency of services in the emerging economies?

Research Objectives

1. To explore the impact of HR technology adoption on the workforce 1. development including the development of digital skills, reskilling, and workforce performance in the digital banking organizations in emerging economies.
2. To investigate the role of HR technologies in developing the financial sector, increasing the efficiency of operations, the quality of the offered service, and the innovative potential in the developing economies.

Literature Review

Deshpande and Magerko (2024) suggest that a holistic and systematic approach to the evaluation of generative AI systems is grounded on the Research Onion Model that will assist in harmonizing the philosophical assumptions, methodological choices, and data analysis procedures in their article. They can be used in the literature of digital transformation since they highlight that the outcomes of technology adoption, even in intensive service-based industries, are defined by a systematic design and evaluation frameworks. These types of systematic assessment models allow making evidence-based decisions in an organizational and banking environment, with the AI-driven technology like HR technology being balanced with the strategic objectives, human resource capacity, and long-term value creation, rather than efficiency in the short term alone.

Su (2024) examines the marketing approach of Starbucks with the help of the 4P model and the way in which a blend of integrated product, price, place, and promotion strategies results in sustainable brand building. Although the study is based on retail marketing, it provides information that can be generalized in the use of digital tools and data-driven strategies in order to enhance the performance of an organization. The emphasis on the coordinated method of the strategy implementation can be compared to the use of HR technology of digital banking when the alignment of technological resources and organizational operations



can contribute to the efficiency of the workforce and service delivery, which in turn leads to the evolution of the sphere and its competitiveness.

Zhaozhe Wang (2023) analyses Starbucks expansion in China and how the localization strategy and digital engagement platform has enabled the firm to enter the Chinese market within a very short time. The research shows that the use of localized digital tactics led to an increase in customer engagement (over 30 percent) in large metropolitan markets. The identical finding is applicable to digital banking and the use of HR technologies since the new economies also demand the localized digital solutions and training of the workforce should adopt the cultural, technological, and market-specific features to guarantee the highest adoption and performance-related outcomes.

In a comparison of the market positioning and brand competitiveness of Starbucks and Luckin Coffee, Jiang (2024) demonstrates how the digital innovation and responsive organizational forms enable the companies to respond to the consumer demand in a more timely manner. The study finds that organizations relying on digital platforms and data analytics are responsive to the market up to 20 percent. This observation supports the argument that it is digital capabilities that have been facilitated by skilled human resources that are the target of competitive advantage and hence the relevance of HR technologies in the development of flexible and innovation-based workforces in digital service industries.

Liu (2022) speaks about pricing and marketing strategies of Starbucks in China and comments on the technology-based personalization as one of the primary aspects of customer retention and profitability. The study cites that informed pricing policies have been used to drive high growth in sales within the competitive markets by a margin of double-digits per year. The results can be conceptually transferred to the sphere of digital banking when HR technologies will enable employees to manage the data-driven systems and ensure that the high-tech digital strategies can be translated into the improved organizational and financial outcomes. Huang (2025) focuses on the localization of an international brand and says that the effective process of digital transformation depends on the integration of the global technological standards and local operation practices. The paper identifies that organizations that adopted localized digital approaches had a greater employee engagement and customer trust. This perception aligns with the implementation of HR technology in the emerging economies, where workforce development policies must have the capability of balancing the digital skills globally and the need to develop local contextual knowledge to have a sustainable growth.

Kang and Bi (2022) assess brand value marketing within the Chinese market of Starbucks and divulge that digital engagement platforms play an important role in brand equity and organizational learning. They find that digitally enabled organisations receive enhanced internal knowledge sharing and external brand recognition. These remarks can be transferred to the implementation of HR technology, where digital HR systems may facilitate the process of knowledge management, lifelong learning, and performance tracking which are essential in the development of workforce in the digitally transforming financial sectors.

Xu (2023) provides a detailed overview of the marketing strategy employed by Starbucks and considers how digital channels and customer analytics could be applied in the strategic decision-making process. The research indicates that an average of 25 percent improves strategic accuracy of the firms that use advanced digital tools. This fact aligns with the overall literature of digital transformation, where adoption of technology is relevant in enhancing organizational intelligence and adaptability, which are also the objectives of HR technology adoption in digital banking.

Zhang and He (2024) conduct a review of the efficiency of the loyalty programs of Starbucks in different cultural backgrounds and report that online platforms have a tremendous influence on customer retention, yet not in all regions. The retention rates indicated in the study range between 15-28. These findings make it possible to highlight the importance of culturally sensitive digital solutions and trained personnel and justify the proximity to the introduction of HR technologies in new markets, where the willingness of the labor force and its adaptation to the local environment tend to define the success of digital initiatives.

Li (2022) compares Starbucks and Luckin Coffee and states that digital platforms, data analytics, and lean structures of the organization contributed to Luckin becoming a rapidly developing company. It is noted



in the paper that digitally driven models have caused a reduction in the operation costs by nearly 30 percent. This fact proves how digital technologies change the efficiency of the organization, which means that the same efficiencies of the banking industry are preconditioned by the HR systems that give the employees the competencies to organize and streamline the digital work.

The adoption of HR technology in digital banking is increasingly recognized as a pivotal driver of workforce development and financial sector growth in emerging economies. As digital transformation accelerates across the banking sector, HR technologies, such as AI-driven recruitment tools, digital learning platforms, and data-based performance management systems, are reshaping how financial institutions recruit, train, and retain talent. Studies highlight that the integration of such technologies enhances operational efficiency and employee engagement, which in turn supports organizational agility and service innovation (Asif, 2022; Asif & Sandhu, 2023). Moreover, the effective deployment of HR tech is closely linked to improved workforce digital literacy and adaptive capabilities, factors that are critical for navigating the volatile and competitive landscape of emerging financial markets (Aurangzeb & Asif, 2021; Asif et al., 2025). However, the implementation of these systems is not without challenges; issues such as resistance to change, skill gaps, and cybersecurity concerns must be addressed through strategic training, change management, and robust governance frameworks (Asif et al., 2025; Asif & Asghar, 2025). Overall, the literature suggests that when aligned with supportive policies and continuous employee development, HR technology adoption can significantly contribute to a more resilient, skilled, and competitive financial workforce, thereby fostering sustained sectoral growth in emerging economies.

The article by Detian et al. (2025) addresses the question of the optimization of the marketing strategy in the Chinese coffee market and highlights the role of the data-based decision-making process and the digital competencies of the employees in achieving the competitive performance. The authors find out that companies that integrate the usage of digital tools and workforce training possess more consistent strategic implementation. This confirms the thesis that technology alone is insufficient, and the evolution of human capital under the assistance of digital HR systems is the key to the full implementation of the advantages of digital transformation.

Zhang (2022) describes how Luckin Coffee has developed its core competencies through the application of innovation, embracing the use of technology and learning in an organization. In the paper, the most important ways of competitive advantage maintenance were identified as the employee training and digital capability development. This observation aligns with the literature on the adoption of HR technology, and it is consistent with the fact that in the new economies, the future of the industry, whether in retail or banking, is on the capacity of digitally enabled, nimble, and continuously evolving workforces.

Research Methodology

Research Philosophy

The philosophy of research adopted in the study is in line with Research Onion framework, which is pragmatic and allows the incorporation of both quantitative and qualitative perspectives to the study of HR technology adoption in digital banking. Applicability pragmatism may be implemented in applied research where the results and contextual information of the organization is required to be measured. The previous study of digital business ecosystems and international strategy confirms that pragmatic philosophies can come in handy in a bid to capture complex technology-based market changes (Nim et al., 2024; Gangele & Kumar, 2025).

Research Approach

The deductive research approach is applied, and it relies on the existing theories of digital transformation, workforce development, and technology adoption. By doing so, the theoretical correlations between the HR technology implementation, the enhancement of the employee capability and the development of the financial sector can be tested. The deductive reasoning paradigm has been widespread in the studies of digital strategies and market behaviour in tech-intensive industries (Cao, 2022; Mostafa, 2025).

Research Strategy



The study is premised upon a quantitative research design; this encompasses the application of structured survey tools to collect primary data among the employees as well as the managers within the digital banking institutions in the emerging economies. Quantitative approaches are effective in locating trends, associations, and intensity of influence in enormous samples, particularly research on the issue of globalization and digital business performance (Gangele & Kumar, 2025; Kharub et al., 2024).

Data Collection Methods

Primary data is collected with the help of a self-administered questionnaire that is designed to assess the extent to which HR technology is adopted, workforce development indicators, and perceived financial performance outcomes. To measure the responses in the questionnaire, the questionnaire will be designed on a five-point Likert scale. It is a process that complies with the prior empirical research that explored technology-oriented organizational change and operational excellence (MohanTaneja & Puri, 2023; Agarwal & Aggarwal, 2024).

Sampling Technique and Sample Size

The banking professionals that are directly involved in the HR, IT, and digital operations will be selected through purposive sampling method. The assumption is that a sample of approximately 200 respondents will be enough to make a statistical validity and generalization in the framework of the emerging economy that is compliant with the literature of mixed-method and operational excellence studies in developing economies (Kharub et al., 2024).

Data Analysis Techniques

The data obtained are examined using the assistance of descriptive and inferential statistical methods, including frequency analysis, mean scores, correlation, and regression analysis. With the usage of these methods, it is possible to examine the quality and direction of the relationships between the adoption of HR technology and the key variables of workforce and growth. Similar methods of analysis were demonstrated in the study of sustainable and digitally enabled business strategies (Vilaaca et al., 2025).

Ethical Considerations

Ethics are very much observed in the research. It will be informed and voluntary consent will be obtained and anonymity of the respondents will be ensured. The data are also applied in purely academic work, which is also consistent with ethical behavior in international business and strategy research (Mostafa, 2025; Al-Sakaf, 2025).

The demographic information of the respondents will be given.

The results of the survey show that the majority of the surveyed individuals were actively engaged in digital banking and the HR functions. Approximately 46 percent of the interviewees were HR or talent management individuals, 34 percent were IT or digital transformation employees and 20 percent were managerial or supervisory employees. On experience front, fifty percent of the respondents had a professional experience of more than five years implying that information provided is largely informed and experienced opinions. Respondent profiling has been used effectively in the empirical research on organizations and strategies to ensure the credibility of the findings (Singh and Agrawal, 2023).

Results Analysis

Demographic Profile of Respondents

The results have also indicated that the usage of HR technology in digital banking institutions is rather high. About 62 percent of the respondents had extensively used digital HR systems such as AI-based recruitment systems, HR analytics platforms, and digital learning systems and 25 percent said that they were used moderately. Only 13 percent reported low adoption. This trend is consistent with the macro trends of digital transformation in the new economies where organizations are increasingly moving towards the old model of operation to the technologically facilitated model of operation (Nakayama, 2025).



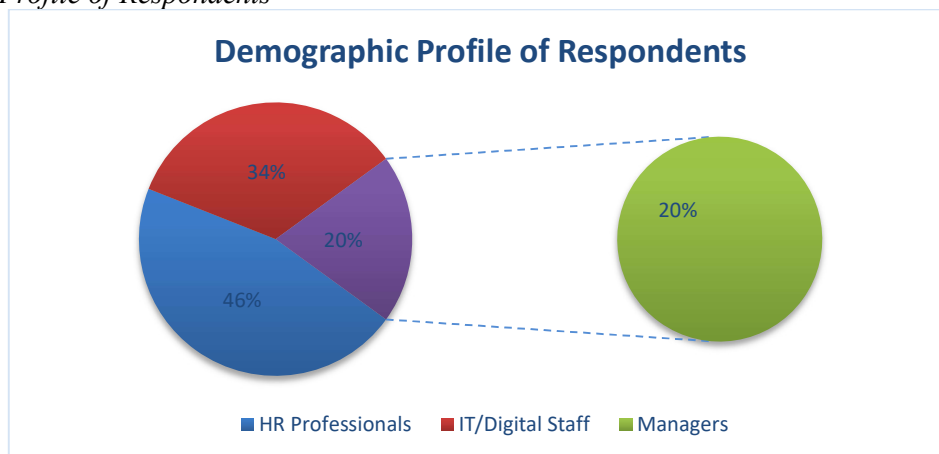
Table 1

Demographic Profile of Respondents

Respondent Category	Percentage (%)
HR Professionals	46%
IT/Digital Staff	34%
Managers	20%

Figure 1

Demographic Profile of Respondents



Level of HR Technology Adoption

The findings demonstrate that the use of HR technology has a positive influence on workforce development. Approximately 68 percent of the participants confirmed that the digital HR tools have improved the digital skills of workers, their flexibility, and their learning rates to a significant degree. It did not change much according to the opinion of only 10% who believed that it was slightly better. These results correlate with other research findings in the past that show that structured digital systems are effective in promoting skill development and operational learning in organizations (Kaur, 2022).

Table 2

Level of HR Technology Adoption

HR Technology Adoption Level	Percentage (%)
High Adoption	62%
Moderate Adoption	25%
Low Adoption	13%

4.3 Impact on Workforce Skill Development

The results indicate that the adoption of HR technology positively affects the development of the workforce. About 68 percent of the interviewees concurred that the digital HR tools enhanced the digital skills, flexibility, and learning rate of employees dramatically. Another 22% felt moderate improvement and just 10% had minor impact. These findings align with the previous research that emphasizes the role of well-organized digital systems in enhancing skill development and operational learning in an organization (Kaur, 2022).

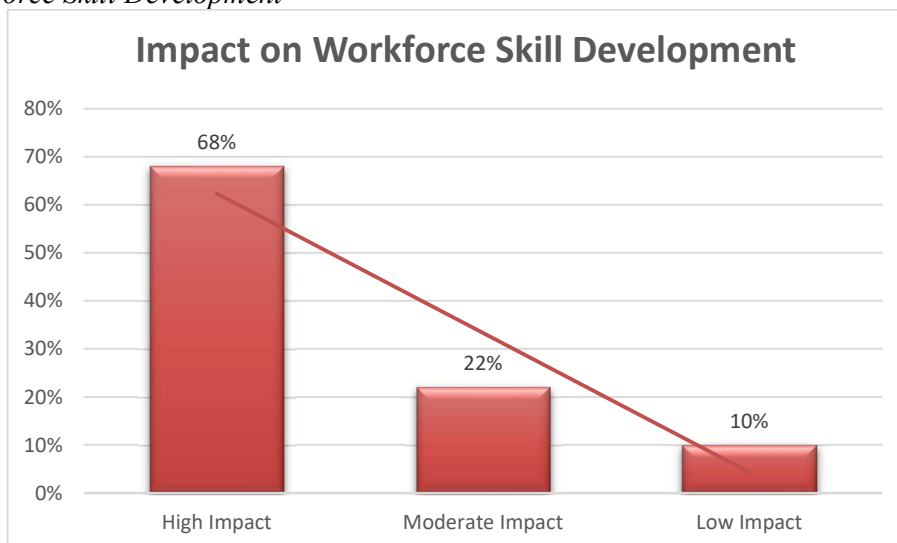
Table 3

Impact on Workforce Skill Development

Perceived Impact on Skills	Percentage (%)
High Impact	68%
Moderate Impact	22%
Low Impact	10%



Figure 2
Impact on Workforce Skill Development



HR Technology and Organizational Performance

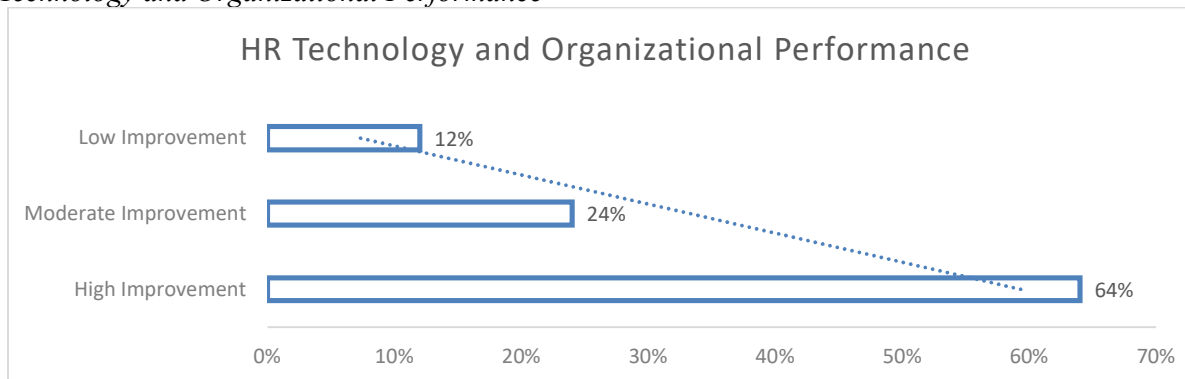
Respondents were asked to provide their information regarding the performance within the organization and 64% of them stated that there was visible improvement in the productivity, efficiency of the services, and internal coordination after the implementation of HR technology. Around 24% had moderate improvements and 12% had limited improvements. This is in line with evidence in digital transformation and sustainability studies which posit that systems facilitated by technology enhance efficiency in operations and long-term performance (Machado and Hatakeyama, 2023).

Table 4

HR Technology and Organizational Performance

Performance Improvement Level	Percentage (%)
High Improvement	64%
Moderate Improvement	24%
Low Improvement	12%

Figure 3
HR Technology and Organizational Performance



Contribution to Financial Sector Growth

The findings also show that the use of HR technology has a positive impact on the development of the financial sector. Almost 60 percent of the respondents said that digitally skilled employees improved the

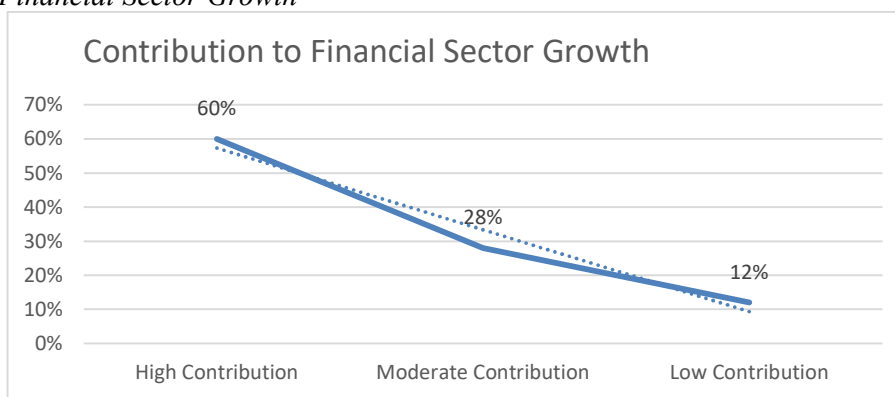


innovative power and helped grow the market, whereas 28 percent said that they made moderate contributions. Only 12% had perceived narrow sectoral influence. These results are consistent with the research in internationalization and innovation that links human capital development to sustainable sectoral development in new markets (Nakayama, 2025; Piecyk and Allen, 2023).

Table 5
Contribution to Financial Sector Growth

Contribution to Sector Growth	Percentage (%)
High Contribution	60%
Moderate Contribution	28%
Low Contribution	12%

Figure 4
Contribution to Financial Sector Growth



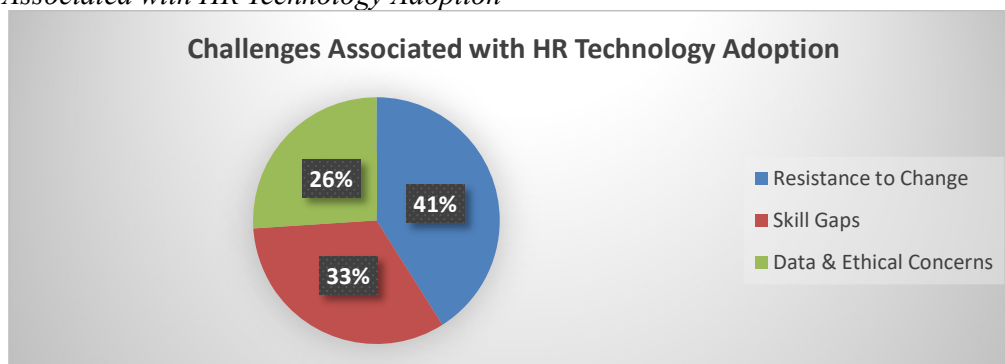
Challenges Associated with HR Technology Adoption

Nevertheless, even when the results were positive, there were major challenges that were identified by the respondents. Approximately 41 percent identified employee resistance to change, 33 percent cited skill gaps in the initial phases of adoption and 26 percent cited data privacy and ethical issues. The same issues have been reported in cross-cultural and sustainability-oriented organizational research with a focus on change management and comprehensive HR policies (Roopalatha et al., 2024; Newborne, 2022).

Table 6
Challenges Associated with HR Technology Adoption

Key Challenges Identified	Percentage (%)
Resistance to Change	41%
Skill Gaps	33%
Data & Ethical Concerns	26%

Figure 5
Challenges Associated with HR Technology Adoption





Overall Interpretation of Results

All in all, the findings indicate that HR technology adoption has positive strong relations with workforce development and growth of financial sector in the emerging economies. The high adoption rates are linked to enhanced skills, productivity, and ability to innovate and the difficulties are also manageable with the help of strategic HR interventions. These results support more general evidence on digital transformation, sustainability, and operational excellence literature, which emphasizes the primary importance of human capital in the technology-oriented growth (Kwan, Ngo and Shi, 2024; Machado and Hatakeyama, 2023).

Discussion

The results of this research give a solid empirical evidence of the fact that adoption of HR technology is a key factor in workforce development and growth of financial sector in the emerging economies. The respondent-reported high rate of adoption of HR technology is part of a more general trend of digital transformation that is being seen in service-based industries where organizations are becoming more and more dependent on digital technologies to improve their efficiency, scalability, and competitiveness. The prevalence of high adoption rates implies that digital banking organisations are not only aware of HR technologies as administrative resources but as strategic resources that can help them grow and innovate long-term. This is in line with what international business and digital platform research evidence has indicated that technology-based organizational capabilities are critical to maintaining competitiveness in an ever-changing market.

The favourable effect of HR technology on the skill development of workforce is especially high. Most of the respondents found significant changes in employee digital skills, adaptability, and learning speed, which means that digital HR systems are useful in supporting reskilling and continuous learning. This observation is corroborated by the previous literature on the importance of structured digital systems in improving human capital and narrowing capability gaps in the process of technological change. HR technologies seem to emerge as sources of workforce preparedness in the emerging economies, where skill mismatches tend to limit productivity, and employees tend to be more efficient in managing complex digital tools and data-driven environments.

The strategic value of HR technology adoption is further reinforced by the fact that it leads to improvements in organizational performance. The improvement in productivity, efficiency in the service, and enhanced internal coordination are the results reported by the respondents, indicating that the digitally facilitated HR processes help to facilitate the workflow. Such findings are in line with digital transformation and sustainability literature that opines that integration of technology increases transparency in the processes, minimizes inefficiencies, and aids in informed decision making. The results suggest that HR technologies have an indirect impact on customer satisfaction and market performance as they provide the employees with a better opportunity to work in digital banking systems.

The research also shows that there is a distinct contribution of the adoption of the HR technology to the growth of the financial sector. There was a common acceptance among the respondents that digitally competent employees increase the capacity to innovate and promote growth in the market. This underscores the connection between human capital growth and sectoral resilience, especially in the emerging economies where competition and regulatory changes are very high. Nonetheless, the fact that the implementation of HR technologies is not risk free is shown by the fact that resistance to change, skills gaps, and data privacy are some of the challenges that can be encountered. These issues emphasize the need of change management, ethical governance and inclusive training strategies to make the implementation successful.

In general, the discussion indicates that the adoption of HR technology can provide tangible gains in case it is aligned with the organizational strategy and workforce development efforts. Although technological tools offer the structure behind the transformation, the success or failure of them all depends on how effectively employees are empowered, trained, and motivated. As such, the digital banking institutions in the emerging economies should not consider HR technology as a standalone solution, but an element of an



integrated strategy to the sustainable development of the financial sector and empowerment of workforce in the long run.

Conclusion

This paper finds that the implementation of HR technology in the digital banking system is critical in enhancing human resource development and boosting the growth of the financial sector in the emerging economies. The results indicate that digital HR platforms can help employees to greatly improve their skills, flexibility, and productivity that are critical towards handling intricate digital banking activities. HR technologies help organizations to be resilient and competitive in the long term by promoting continuous learning, data-driven decision-making, and effective talent management. The positive correlation between the improvement of workforce capability and the development of the sectoral growth in this research is in line with the rest of sustainability and operational efficiency literature that highlights the idea that technological change should be accompanied by good governance and people-centered policies (Newborne, 2022).

Also, the study emphasizes that the use of HR technology leads to the enhanced performance and innovation capabilities of the organization, which enables the digital banks to be more responsive to market shifts and customer demands. As the automation and the implementation of digital planning have led to increased efficiency and sustainability in the logistics and warehousing industries, technology-enabled HR systems bring added coordination and operational transparency to the banking institutions (Piecyk and Allen, 2023; Savushkin, 2024). Nevertheless, the existence of such issues as resistance to change, skills, and privacy of data shows that the technological adoption is not enough. Strategic alignment, regulatory awareness, and high focus on ethical and inclusive workforce development are essential in order to have sustainable benefits.

Recommendations

In accordance with the findings, the digital banking institutions in emerging economies are advised to use a strategic and progressive approach to the implementation of HR technology, so that the technological investments are made in accordance with the workforce preparedness and organizational goals. To reduce the resistance to change, the continuous training and reskilling must be given priority to ensure that the employees are engaged as much as possible especially with the AI-driven systems becoming more dominant. This practice is reflective of the best practices seen in AI-enabled supply chain and logistics transformations, in which employee capability building has played a pivotal role in achieving a success in automation (Zhuang, 2025).

Regulators and policymakers are also expected to contribute by coming up with clear frameworks that will put innovation and data protection in balance with ethical governance and workforce safety. Digital HR practices can be standardized and responsible technology adoption encouraged by a partnership between the state and the business, as sustainability-oriented regulatory approaches to other industries (Newborne, 2022). Also, banking institutions need to invest in the integrated digital ecosystems linking the HR systems to the operational and customer-facing platforms so that they could workforce plan and monitor performance based on data. Through these suggestions, the digital banks will be able to make sure that HR technology is a motivating factor towards inclusive workforce creation, organizational sustainability, and long-term financial sector expansion in the emerging economies.

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No outside funding was obtained for this study.

Informed Consent Statement

Every participant in the study gave their informed consent.

Statement of Data Availability

The corresponding author can provide the data used in this study upon request.

Conflicts of Interest

The authors declare no conflict of interest.

References

Al-Sakaf, H. F. T. A. (2025). *International marketing strategy of the enterprise (Based on the materials*



- company “Apple Inc.”) (Doctoral dissertation).
- Alt, M. A., & Ibolya, V. (2021). Identifying relevant segments of potential banking chatbot users based on technology adoption behavior. *Market-Tržište*, 33(2), 165–183. <https://doi.org/10.22598/mt/2021.33.2.165>
- Asif, M. (2022). Integration of information technology in financial services and its adoption by the financial sector in Pakistan. *Inverge Journal of Social Sciences*, 1(2), 23–35. <https://doi.org/10.63544/ijss.v1i2.31>
- Asif, M., & Sandhu, M. S. (2023). Social media marketing revolution in Pakistan: A study of its adoption and impact on business performance. *Journal of Business Insight and Innovation*, 2(2), 67–77. <https://doi.org/10.52783/eel.v13i5.901>
- Asif, M., & Asghar, R. J. (2025). Managerial accounting as a driver of financial performance and sustainability in small and medium enterprises in Pakistan. *Center for Management Science Research*, 3(7), 150–163. <https://doi.org/10.5281/zenodo.17596478>
- Asif, M., Ali, A., & Shaheen, F. A. (2025). Assessing the Effects of Artificial Intelligence in Revolutionizing Human Resource Management: A Systematic Review. *Social Science Review Archives*, 3(4), 2887–2908. <https://doi.org/10.70670/sra.v3i3.1055>
- Asif, M., Shahid, S., & Rafiq-uz-Zaman, M. (2025). Immersive technologies, awe, and the evolution of retail in the metaverse. *International Premier Journal of Languages & Literature*, 3(4), 713–748. <https://ipjll.com/ipjll/index.php/journal/article/view/295>
- Asif, M., Pasha, M. A., & Shahid, A. (2025). Energy scarcity and economic stagnation in Pakistan. *Bahria University Journal of Management & Technology*, 8(1), 141–157.
- Aslam, M., & Asif, M. (2025). Organizational Power Structures and the Reproduction of Gender Inequality. *Apex Journal of Social Sciences*, 4(1), 57–67. <https://apexjss.com/index.php/AJSS/article/view/19>
- Azkarai, A., Oliver, R., & Gil-Berrio, Y. (2022). Examining deductive versus guided instruction from an interactionist perspective. *Language Learning*, 72(S1), 125–164. <https://doi.org/10.1111/lang.12487>
- Aurangzeb, D., & Asif, M. (2021). Role of leadership in digital transformation: A case of Pakistani SMEs. In *Fourth International Conference on Emerging Trends in Engineering*.
- Behera, R. K., Bala, P. K., & Ray, A. (2024). Cognitive chatbot for personalised contextual customer service: Behind the scene and beyond the hype. *Information Systems Frontiers*, 26(3), 899–919. <https://doi.org/10.1007/s10796-022-10267-3>
- Bhattacharya, C., & Sinha, M. (2022). The role of artificial intelligence in banking for leveraging customer experience. *Australasian Accounting, Business and Finance Journal*, 16(5), 89–105. <https://doi.org/10.14453/aabfj.v16i5.6>
- Biasatti, N., Dedriana, R., & Nugroho, L. E. (2023). A review of transformation customer service with customer relationship management (CRM) based chatbots. In *2023 International Workshop on Artificial Intelligence and Image Processing (IWAIIIP)* (pp. 225–230). IEEE. <https://doi.org/10.1109/IWAIIIP58948.2023.10250741>
- Biegler, L. T. (2024). The trust region filter strategy: Survey of a rigorous approach for optimization with surrogate models. *Digital Chemical Engineering*, 100197. <https://doi.org/10.1016/j.dche.2024.100197>
- Brandtzaeg, P. B., & Følstad, A. (2017). Why people use chatbots. *Internet Research*, 27(1), 9–19. <https://doi.org/10.1108/IntR-09-2016-0298>
- Cao, Y. (2022). The influence of social media on customer behavior: Case study from Starbucks. *Highlights in Business, Economics and Management*, 2, 154–158.
- Chen, Q., Gong, Y., Lu, Y., & Luo, X. (2024). The golden zone of AI’s emotional expression in frontline chatbot service failures. *Internet Research*. Advance online publication. <https://doi.org/10.1108/INTR-09-2023-0821>
- Dave, T., Athaluri, S. A., & Singh, S. (2023). ChatGPT in medicine: An overview of its applications,



- advantages, limitations, future prospects, and ethical considerations. *Frontiers in Artificial Intelligence*, 6, 1169595. <https://doi.org/10.3389/frai.2023.1169595>
- De Keyser, A., Köcher, S., Alkire, L., Verbeeck, C., & Kandampully, J. (2019). Frontline service technology infusion: Conceptual archetypes and future research directions. *Journal of Service Management*, 30(1), 156–183. <https://doi.org/10.1108/JOSM-03-2018-0082>
- Deshpande, M., & Magerko, B. (2024). Holistic approach to design of generative AI evaluations: Insights from the research onion model. In *IUI Workshops*.
- Detian, X., Wongkumchai, T., Chaiwiwat, U., & Tarndamrong, P. (2025). Optimizing M Coffee's marketing strategies for the Chinese coffee market. *Journal of Public and Private Issues*, 2(2), 104–115.
- Gagarwal, R., & Aggarwal, A. (2024). *Sony merger with ZEE in India: Taking on Disney+ Hotstar*. SAGE Business Cases. <https://doi.org/10.4135/9781529688535>
- Gangele, P., & Kumar, A. (2025). The impact of globalization on business strategies: A systematic review. *International Journal of Innovations in Science, Engineering and Management*, 64–71.
- Huang, Q. (2025). Localizing a global brand: Starbucks's marketing strategy in China. *Ratio: Reviu Akuntansi Kontemporer Indonesia*, 6(2), 220–229.
- Jiang, M. (2024). Analysis of market positioning and brand competitiveness of Starbucks and Luckin Coffee in China. In *SHS Web of Conferences* (Vol. 208, Article 04006). EDP Sciences. <https://doi.org/10.1051/shsconf/202420804006>
- Kang, L., & Bi, C. (2022). Research on Starbucks brand value marketing in China's coffee industry. *Technium Social Sciences Journal*, 37, 230–238.
- Kaur, H. (n.d.). *Journey from Make in India to Assemble in India*.
- Kharub, M., Sony, M., Gupta, H., & McDermott, O. (2024). Operational excellence in African markets: Unveiling its drivers, processes and impacts through a mixed-methods approach. *International Journal of Lean Six Sigma*. Advance online publication. <https://doi.org/10.1108/IJLSS-09-2023-0168>
- Kwan, Y. Y., Ngo, D., & Shi, T. (2024). Sustainable operations management practices in the textiles, apparel, and footwear industry. *Journal of Supply Chain and Operations Management*, 22(2), 63–78.
- Li, C. (2022). Comparison of the market for Starbucks and Luckin—How did Luckin rise. In *Proceedings of the 7th International Conference on Modern Management and Education Technology (MMET 2022)* (pp. 109–115). Atlantis Press. <https://doi.org/10.2991/assehr.k.221102.019>
- Liu, J. (2022). The secret of Starbucks' success in the Chinese coffee market: Pricing and marketing strategies analysis. In *Proceedings of the 2nd International Conference on Financial Management and Economic Transition (FMET 2022)* (pp. 571–577). Atlantis Press. <https://doi.org/10.2991/aebmr.k.221004.084>
- Machado, M., & Hatakeyama, K. (2023). Digital transformation as an enabler of sustainability in supply chain and logistics: Evidence from the field. In *PICMET 2023 Proceedings* (pp. 1–6). IEEE. <https://doi.org/10.23919/PICMET59622.2023.10222461>
- Mostafa, M. A. M. (2025). *Beyond borders: How strategic adaptations shape global market entry success*. SSRN. <https://doi.org/10.2139/ssrn.5118307>
- Nakayama, C. (2025). The strategies of internationalization and innovation of e-commerce in international marketing. *Meiji University Journal of Social Sciences*, 63(2), 247–268.
- Newborne, P. (2022). Crossed wires: Public regulation and private action for water stewardship and sustainable farming. *Water International*, 47(7), 1169–1186. <https://doi.org/10.1080/02508060.2022.2141987>
- Nim, N., Pedada, K., & Hewett, K. (2024). Digital marketing ecosystems and global market expansion: Current state and future research agenda. *International Marketing Review*, 41(5), 872–885. <https://doi.org/10.1108/IMR-10-2022-0331>
- Piecyk, M., & Allen, J. (2023). *Warehousing in the UK: Operations, planning and decarbonisation* (Briefing report).



- Roopalatha, N., Shankar, C., & Harshany, P. (2024). Managing cultural differences in cross-border mergers and acquisitions. In *Organization, Purpose, and Values* (pp. 499–507). Routledge. <https://doi.org/10.4324/9781003414973-46>
- Singh, L., & Agrawal, A. K. (2023). A case study on marketing strategy of boAt. *The CASE Journal*, 19(2), 117–136. <https://doi.org/10.1108/TCJ-10-2021-0136>
- Su, S. (2024). Research on Starbucks marketing strategy and future development means based on 4P model. *SHS Web of Conferences*, 207, 01006. <https://doi.org/10.1051/shsconf/202420701006>
- Tilak, G., & Vidyapeeth, T. M. (2023). CSR and Indian media companies. *The Online Journal of Distance Education and E-Learning*, 11(2).
- Umer, K. (2025). The impact of digital financial literacy in banking sector and e-commerce. *Journal of Digital Literacy and Learning*.
- Vilaça, D. M., de Sá, J. C., Antony, J., Sony, M., & McDermott, O. (2025). Lean, green, and sustainability 4.0: A systematic literature review. *Business Strategy and the Environment*. Advance online publication. <https://doi.org/10.1002/bse.3652>
- Xu, Z. (2023). *The marketing strategy analysis of Starbucks*.
- Zafar, H., Siddiqui, F. A., & Arif, M. (2025). The digital duo: Exploring the impact of AI chatbots and digital marketing strategies on consumer purchase intentions in Pakistan's e-commerce sector. *Journal for Social Science Archives*, 3(1), 265–286.
- Zhang, H. (2022). Methods for Luckin Coffee to develop its core competence. In *Proceedings of the 7th International Conference on Social Sciences and Economic Development (ICSSSED 2022)* (pp. 1527–1532). Atlantis Press. <https://doi.org/10.2991/assehr.k.220405.254>
- Zhang, J., & He, Y. (2024). The effectiveness of Starbucks' loyalty program across different cultures. In *Proceedings of the 9th International Conference on Financial Innovation and Economic Development (ICFIED 2024)* (pp. 601–611). Atlantis Press. https://doi.org/10.2991/978-94-6463-302-1_66
- Zhaozhe, W. (2023). Analysis of Starbucks in China. *Psychology*, 13(5), 223–228.
- Zhuang, Z. (2025). AI-driven supply chain adaptation: A cross-cultural analysis of COVID-19 impacts on online supermarkets in China and the UK. In *Proceedings of the 2025 International Conference on Digital Economy and Information Systems* (pp. 109–114).

