BULLETIN OF MANAGEMENT REVIEW
VOL- 2, ISSUE- 2, 2025
HTTPS://BULLETINOFMANAGEMENT.COM/INDEX.PHP/JOURNAL

Name of Publisher: INNOVATIVE EDUCATION RESEARCH INSTITUTE
Area of Publication: Business, Management and Accounting (miscellaneous)
Review Type: Double Blind Peer Review

BULLETIN OF MANAGEMENT REVIEW (BMR)

ONLINE ISSN: 3006-2276
PRINT ISSN: 3006-2268

HTTPS://THECRSSS.COM/INDEX.PHP/JOURNAL/ISSUE/ARCHIVE

Examining the Impact of Artificial Intelligence Adoption on IT Project Success in Pakistan: The Moderating Role of Employee Skill Readiness"

Mehboob Alam
Founder & CEO, Infinkey Solutions Private Limited. Email: se.mehboob@gmail.com
Syed Faizan Amjad
Co-founder & CEO, Aptagon Technologies. Email: syedfaizanamjad@gmail.com
Adeel Younas
Founder & CEO, NexGen Solutions. Email: adeel@nexgensol.tech
Anum Irshad
Senior Technical Project Manager, ZAPTA Technologies Pvt Ltd. Email: Anumirshad892@gmail.com
Ali Hamza Sabir
Project Manager, Infinkey Solutions. Email: se.alihamza@gmail.com

Abstract

The increased application of smart technologies has remodeled how projects are handled in the world IT industry. In Pakistan, the immense growth of the IT sector offers prospects for the incorporation of smart systems to bolster project performance. This research examines how the application of smart systems influences IT project success, with emphasis on the impact of employees' technical readiness on this relationship. A systematic questionnaire was administered to IT professionals working in different organizations in Pakistan, and the information were processed through statistical regression techniques. The findings reveal that the deployment of intelligent systems plays a significant role in realizing project objectives such as efficiency, quality, and timely completion. In addition, the study demonstrates that the performance of such technology largely depends on the capabilities of the workforce to effectively use them. When workers are properly trained and capable of utilizing these tools, the advantages of technology adoption are fully realized. The research stresses the need for investment in employee training and development to enable the successful implementation of smart systems in IT project settings. The findings are useful for project managers, decision makers, and IT companies looking to maximize project results through technological innovation and human resource development.

Keywords: Project success, intelligent systems, workforce readiness, IT industry in Pakistan, employee skills, project management, technology integration.

Introduction

With the changing times of technological revolution, the incorporation of intelligent technologies into business processes has emerged as a hallmark of organizational competitiveness and effectiveness (ul Hassan et al., 2023). Of the industries undergoing drastic changes, the information technology (IT) sector is leading the way. The implementation of systems that can learn, adapt, and automate tasks not only increased operational velocity but also facilitated problem-solving and strategic decision-making. Worldwide, this technological shift has caused project execution frameworks to be redefined, and most organizations are embracing new tools and methodologies to stay competitive and address increasing client expectations (Khan et al., 2021)

The move towards automation and smart decision-making systems has significantly influenced the management of projects, especially in terms of planning, tracking, quality control, and resource management (Rana et al., 2024). All these tools are currently employed

to forecast project risks, schedule optimization, real-time monitoring of team performance, and facilitating better linkage between project objectives and organizational strategy. As these systems become increasingly integrated into everyday project work, the focus increases on learning how they impact total project success.

Within emerging economies such as Pakistan, this technological change holds both opportunities and challenges. Pakistan's IT sector, which is among the most promising economic sectors of the country, has seen remarkable growth in recent years (Atif et al., 2024). With increased investment in digital infrastructure, a growing startup ecosystem, and a youth-driven workforce, the country is gradually positioning itself as a competitive player in the global digital economy. However, the adoption of intelligent technologies in this context is still in its early stages and faces several structural and operational constraints. Contrary to more established markets, Pakistan's technology environment is typified by fluctuations in infrastructure, patchy access to state-of-the-art tools, and variations in workforce readiness (Gul et al., 2021).

Although the use of clever systems promises enormous potential in enhancing project performance—e.g., in terms of timely completion of projects, within cost, and to specified quality levels—the results are not entirely within technology itself. Human capital continues to be a fundamental determinant in the success or otherwise of technology implementation (Kakakhel et al., 2016). One of the keys, but sometimes neglected, determinants is readiness of employees. This is a measure of how far employees have the technological capability, the intellectual capabilities, and the adaptive mentality to operate successfully on contemporary technological systems (Gul et al., 2024).

Employee readiness is not just about technical competence. It involves a wide range of capabilities, such as critical thinking, problem-solving, a willingness to change, and a continuous learning ability (Khan et al., 2020). In most situations, even the most sophisticated technological frameworks are unable to produce anticipated results when the manpower lacks the proper competence to use or properly take advantage of these systems. In this context, the success of automated project management systems is being regarded more and more as reliant on the human element.

The problem is especially relevant in the Pakistani IT context. The nation's educational and vocational training institutions have been criticized for being behind in terms of curriculum revision and skill development courses in accordance with technological trends

across the world. Due to this, the needs of contemporary digital systems and the abilities of the workforce are diverging, and these divergences may be detrimental to smooth technology incorporation and, in turn, hurt the outcome of projects. Therefore, there is an urgent need to explore if workforce preparedness is able to increase or even mediate the effect of intelligent technology adoption on project performance.

This study addresses this gap by investigating the relationship between the adoption of intelligent systems and IT project success in Pakistan, while also examining the moderating role of employee skill readiness. By focusing on the intersection of technological implementation and human capital, this research contributes to a more nuanced understanding of the conditions under which technology can drive successful project outcomes in developing economies.

The research utilizes a quantitative research approach, basing it on the use of standardized survey tools to gather information from IT professionals in Pakistan. Regression analysis is employed in assessing how the availability of well-skilled and well-prepared workers magnifies the good impacts of intelligent system integration on project performance measures. These performance measures are based on project efficiency, output quality, meeting deadlines, and the satisfaction of stakeholders.

Comprehending this dynamic is not merely pedagogically valuable but also has practical implications for corporate leaders, policy makers, and training institutions. If worker skill readiness is found to be a strong moderator, it would indicate that investments in labor force development are equally as vital to project success as are technology upgrades. Such discoveries could feed into national digital skills growth strategies, corporate employee training policies, and local IT industry best practices in project management.

In addition, by concentrating on Pakistan—a nation that embodies much of the challenge and opportunity for developing economies in the age of digitization—this study provides findings that could apply to comparable settings globally. Developing nations with nascent digital economies tend to confront similar obstacles like inadequate access to training materials, uneven edification quality, and intransigence with respect to technological advancement. Thus, the findings of this research can be used as useful benchmarks for other countries who want to unlock the entire potential of intelligent technologies in their IT industries.

In conclusion, this study aims to accomplish three primary goals. First, it seeks to assess the

direct effect of intelligent system adoption on the success of IT projects in Pakistan. Second, it aims to evaluate the extent of skill readiness among staff in the information technology industry. Third, and consequently, it examines whether the availability of a skilled and flexible workforce enhances the linkage between technology integration and project performance. In doing so, the research contributes to the overall discussion on technology and project management for the developing world.

Literature Review

This chapter delivers a detailed overview of existing research on the implementation of intelligent systems into information technology (IT) projects, project success determinants and dimensions, employees' competence and readiness in technological contexts, as well as theoretical perspectives underlying the current study. This review synthesizes empirical as well as conceptual literature to provide groundwork for realizing the dynamics of technological integration and human resource readiness in influencing project results.

Intelligent Technologies Used in IT Projects

Adoption of intelligent systems in organizational procedures means the use of automated, data-based, and computational tools that simulate or assist advanced decision-making which has been performed manually. In the IT project management environment, these tools have become more critical. They automate procedures, improve predictive capabilities, and offer adaptive solutions for advanced issues.

Traditionally, IT project management has used formal methodologies like Waterfall or Agile for scope, time, and resource management. But changing requirements of international digital markets and complexity in software development cycles have demanded incorporating intelligent systems into these methodologies. These systems help in several project functionalities like early risk detection, automated testing of code, dynamic resource management, and real-time progress tracking.

There have been several studies demonstrating that the incorporation of such systems into IT project processes can be beneficial for project performance. For instance, automated testing software minimizes time and cost expenditures in manual testing, and machine learning programs can inspect past project records to predict risks or shortage of resources. The deployment of intelligent scheduling applications has also been correlated with enhanced resource planning and timeliness in achieving deadlines.

In addition, studies indicate that companies that utilize these technologies are more likely to

have tighter integration between project work and overall business strategy. Specifically, they are better suited to cope with market fluctuations, make dynamic changes in project parameters, and innovate (e.g., Bughin et al., 2018; Westerman et al., 2021). The ability of these tools to learn from data and adjust based on new inputs makes them particularly useful in fast-paced and complex IT settings.

While these advantages exist, the adoption process is no easy feat. Technical challenges like integration with existing systems, privacy of data, and non-standardization pose obstacles to successful implementation. Organizational impediments such as change resistance, absence of leadership commitment, and alignment issues between technical and managerial staff further complicate the adoption process. They highlight the requirement for a strategic one that addresses both technological capability and organizational preparedness.

In emerging economies like Pakistan, these challenges are compounded by infrastructural limitations, inconsistent access to state-of-the-art tools, and disparities in technology literacy across organizations. Thus, understanding the conditions under which the adoption of intelligent systems leads to project success becomes particularly critical in this context.

Defining and Measuring IT Project Success

Historically, project success has been measured according to the "iron triangle" model, comprising three main dimensions: completion within the time specified, maintaining the budget allocated, and meeting the initial scope or specifications. These are basic measures of project performance that provide a minimum understanding of project success. Contemporary understandings of project success acknowledge that there is a necessity for a more inclusive assessment.

Recent research on project management broadens the success criteria to encompass stakeholder satisfaction, quality of output, team performance, outcomes of innovation, and alignment with business strategy objectives (Mir & Pinnington, 2014; Shenhar et al., 2001). This enhanced understanding considers that a project can achieve its time, cost, and scope but fail to deliver value or meet client expectations.

With the increasing dependence on data-oriented and automated solutions in IT projects, the very nature of success has also changed. Smart technologies provide more flexibility in the delivery of projects, making it easier for project teams to react quickly to changes, cut down uncertainties, and make informed decisions based on data. For instance,

real-time analytics dashboards can monitor project performance metrics continuously, enabling managers to take action proactively when deviations are detected. Predictive technologies assist in anticipating future bottlenecks, whereas decision support systems provide suggestions on the basis of extensive amounts of real-time and historical data.

These abilities have been found to contribute to improvement in not just conventional measures of success but also stakeholder participation and organizational learning. Automated-supported agile decision-making results in quicker iterations, problem detection at an early stage, and more responsive planning procedures (Maroufkhani et al., 2020). These enhancements are especially useful in the IT industry, as project specifications change during implementation as a result of technology advances or changing client demands.

Even with the potential of smart systems to optimize project results, success is not automatic. The literature records that effective implementation of technology relies on numerous variables such as organizational culture, leadership, group dynamics, and staff capabilities. Therefore, technology cannot by itself bring about success—it will have to be backed by a favorable environment and an equipped workforce.

Workforce Readiness and Employee Competence

Workforce readiness is the total ability of employees to work successfully with and leverage new technology tools in their workplace. This is more than just technical expertise; it involves the attitudes, learning flexibility, and tolerance needed to work in dynamic technological environments. For intelligent systems, employee readiness is a critical factor in guaranteeing that technology's potential is realized in reality.

A digitally empowered workforce is able to decipher sophisticated system outputs, incorporate knowledge into decision-making processes, and resolve rudimentary problems independent of support from other sources. In contrast, an unskilled workforce is likely to fumble over implementation, resulting in underuse, system output misinterpretation, or outright project failure.

Sheng et al. (2022) highlight that organizations that have robust digital competency models are better able to utilize new technologies to their maximum capabilities. Within these cultures, employees are provided with ongoing education, and the culture is immersed in learning. Training, of course, involves technical competence, but cognitive flexibility, critical thinking, and cross-function collaboration are also promoted—abilities that are critical when working with smart systems that tend to slice across departmental lines.

Jain et al. (2022) also add that the worthiness produced from wise technologies is a linear function of the workforce's capability to interact with such tools. For IT project settings, team members and project managers need to be able to comprehend and apply system-generated knowledge to their everyday processes. This entails identifying boundaries, authenticating outputs, and ensuring technological suggestions conform to business goals.

In countries like Pakistan, the issue of workforce readiness is a very pressing concern in developing nations. Various impediments are in place to prevent the creation of a technology-capable workforce, such as a lack of access to quality education, poor industry-academia interaction, and a lack of formal upskilling programs. Consequently, most organizations experience a readiness deficit: whereas they might buy sophisticated tools, their workers do not possess the training needed to effectively utilize these tools.

This gap in readiness is a huge threat to project success. It not only reduces the success of technology adoption, but it could also result in higher employee frustration, lower job satisfaction, and decreased productivity. Thus, organizations need to make workforce development a strategic target in addition to technology acquisition.

Theoretical Framework

The current research uses two complementary theoretical frameworks in explaining the interplay between intelligent technology adoption, project success, and employee preparedness: the Technology-Organization-Environment (TOE) framework and the Resource-Based View (RBV) of the firm.

The TOE framework, first proposed by Tornatzky and Fleischer (1990), offers a systematic lens in examining new technology adoption. It suggests that the process of adoption is determined by three environmental factors: technological features (e.g., compatibility, complexity), organizational features (e.g., size, structure, leadership), and environmental conditions outside the organization (e.g., competition, regulatory policies). This framework has been extensively used in studies on digital transformation and applies notably in developing country settings, where environmental factors such as infrastructure and market conditions significantly determine the adoption of technology.

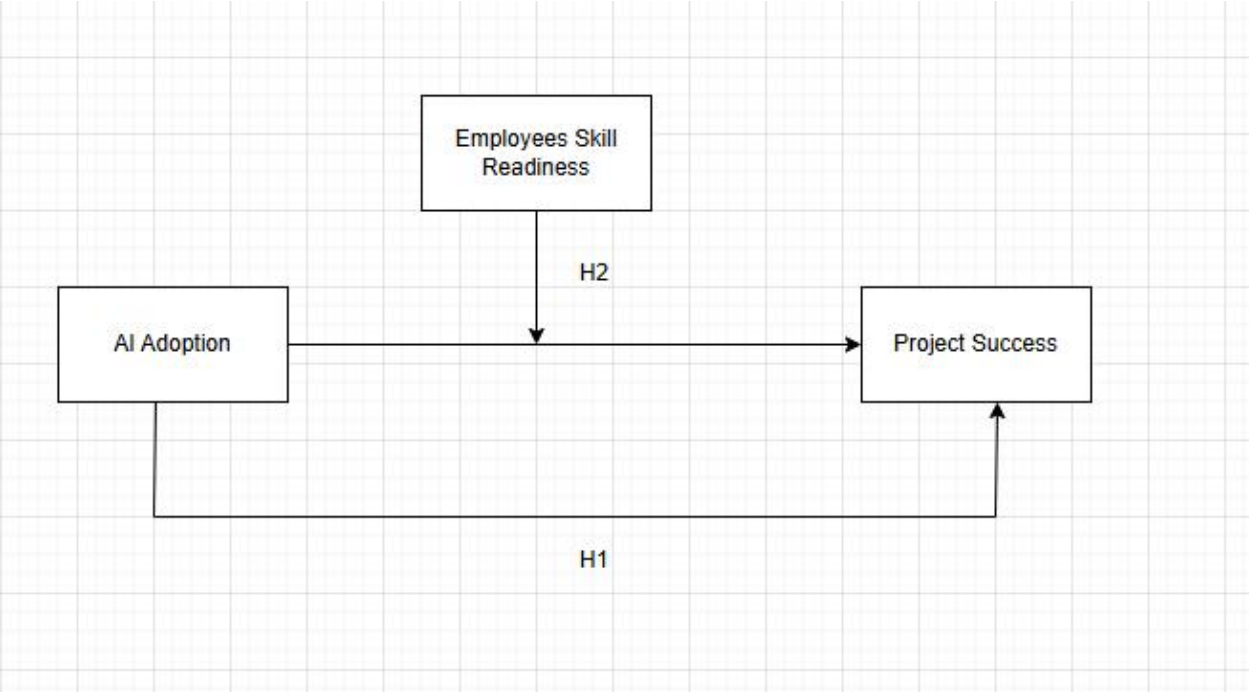
In using the TOE framework for the present study, intelligent system integration is envisioned as a function of internal organizational preparedness and pressure from the environment. Whereas the technological aspect takes into account tools' capabilities and benefits, the organizational factor highlights internal enablers including employee

competencies, availability of resources, and organizational culture supportive of innovation. The environmental factor encompasses forces such as industry rivalry and technological trends within the Pakistani IT industry.

The second theoretical foundation of this research is the Resource-Based View (RBV) proposed by Barney (1991). The RBV argues that an organization's internal capabilities and resources are the sources of sustainable competitive advantage. For this approach, resources need to be valuable, rare, inimitable, and non-substitutable (VRIN) to be of significant value to organizational performance.

Within the context of this research, employee skill readiness is a strategic internal asset. It meets the VRIN requirements in that it is challenging to imitate, rare between organizations, and essential for maximally exploiting technological tools. The RBV posits that organizations possessing an appropriately trained, flexible workforce will be in a better position to reap value from technology investments and deliver higher-quality project outcomes.

By integrating these two theories, the research is able to examine both the macro-level factors that impact technology adoption (according to TOE) and the micro-level internal processes (according to RBV) that establish whether adoption has successful consequences. This two-theory framework strengthens the explanatory capacity of the research and underpins the formulation of testable hypotheses about the moderating effect of employee readiness.



Hypotheses

H1: AI adoption has a positive impact on IT project success.

H2: Employee skill readiness moderates the relationship between AI adoption and IT project success

Methodology

Research Design

This study adopts a quantitative, cross-sectional survey design (Riaz et al., 2021) to investigate the relationship between the integration of intelligent systems and project success within Pakistan's IT sector. A structured questionnaire was developed to capture responses from individuals actively engaged in IT projects, including project managers, developers, systems analysts, and quality assurance professionals. This method is suitable for measuring perceptions, experiences, and behavioral trends within a wide sample at a single point in time. It also accommodates hypothesis testing using statistical methods that can uncover relationships among variables.

The use of a survey approach is also consistent with existing empirical work in technology management and organizational behavior, where technological adoption and readiness of the workforce have often been measured using psychometric scales. The format of the questionnaire facilitates consistency in data gathering, avoiding biases and improving response reliability.

Sample and Data Collection

The research used a purposive sampling technique, focusing on professionals actively engaged in managing or implementing IT projects in major technology clusters of Pakistan, i.e., Lahore, Islamabad, and Karachi. The cities symbolize the center of Pakistan's information technology infrastructure and are home to a concentration of tech companies, software houses, and IT service providers.

The questionnaire was sent online, making it convenient for professionals to respond. Of the 220 responses received, 200 were found to be valid for analysis after data cleaning processes. Those that were incomplete or did not meet inclusion criteria, for example, not being involved in IT project roles, were removed.

The last sample consisted of a representative sample of participants in professional roles, years of experience, and organizational membership. It consisted of 34% project managers, 28% software engineers, 22% analysts, and 16% other similar professionals. The gender ratio was 65% male and 35% female, and the average professional experience was 5.8 years, denoting a fairly experienced workforce.

Measurement Instruments

To measure the central constructs of the research—technological integration, project success, and workforce readiness—validated scales from the literature were borrowed and framed for the local IT industry. All items were surveyed on a five-point Likert scale (1 = strongly disagree, 5 = strongly agree).

• Use of Intelligent Systems: This was measured using a five-item scale derived from prior research on technological transformation in enterprise systems (e.g., Bughin et al., 2018). The items focused on the extent of use of smart tools in project planning, monitoring, resource allocation, and decision-making.

•Project Performance Outcomes: Seven-point scale was used to measure perceptions of project success, including the classical dimensions—timeliness, cost effectiveness, and meeting the scope—as well as contemporary ones like stakeholder satisfaction and congruence with strategic objectives (Mir & Pinnington, 2014).

• Employee Competence and Readiness: Preparedness of the workforce was measured through a six-item scale indicating digital literacy, flexibility, continuous learning disposition, and certain skills in reference to data-intensive tools (Sheng et al., 2022). Some of the items on the measure were "I feel confident in adjusting to new software technologies" and "I

continuously update my skills to match new system demands."

All measurement items were pilot tested with a small pilot sample of 15 respondents to check for clarity and context relevance. Feedback was utilized for fine-tuning wordings and modifying those items that were ambiguous or culturally out-of-sync.

Data Analysis Procedure

The collected data were analyzed using SPSS and AMOS, which allowed for both descriptive and inferential statistical analysis. The analysis followed several sequential steps:

Descriptive Statistics: Basic frequencies and means were computed to summarize demographic characteristics and construct responses.

Reliability Testing: Cronbach's alpha values were computed for each scale to assess internal consistency.

Validity Assessment: Exploratory and confirmatory factor analyses were conducted to verify the unidimensionality of each construct and validate the measurement model.

Regression Analysis: Multiple regression analysis was used to test the direct relationship between technology use and project success.

Moderation Testing: The moderating effect of workforce readiness was tested using interaction terms, following the guidelines for moderation analysis in regression frameworks.

Results

Reliability and Validity of Constructs

All three constructs demonstrated acceptable to excellent reliability, with Cronbach's alpha values above 0.7, confirming internal consistency:

- Use of Intelligent Systems: $\alpha = 0.83$
- Project Performance: $\alpha = 0.87$
- Workforce Readiness: $\alpha = 0.79$

Factor loadings were all above the recommended threshold of 0.6, and the Kaiser-Meyer-Olkin (KMO) measure was 0.81, indicating sampling adequacy for factor analysis. The Bartlett's test of sphericity was significant ($p < 0.001$), affirming the suitability of the dataset for structure detection.

Confirmatory factor analysis in AMOS yielded a good model fit with the following indicators: CFI = 0.95, TLI = 0.93, RMSEA = 0.05, and $\chi^2/df = 2.1$. These results support the construct validity and one-dimensionality of the measurement model.

Hypotheses Testing

Two primary hypotheses were tested in the study:

H1: The use of intelligent systems in IT projects is positively associated with project performance.

H2: Workforce readiness positively moderates the relationship between technology use and project performance.

H1 was supported with a significant and positive regression coefficient ($\beta = 0.48$, $p < 0.01$), suggesting that organizations that actively integrate automated tools into their project processes are more likely to achieve favorable outcomes.

H2 was also supported, with the interaction term between smart technology use and employee readiness showing a significant effect ($\beta = 0.27$, $p < 0.05$). This implies that the relationship between technology and project success is significantly enhanced when employees possess the requisite skills and adaptability.

Discussion

The findings of this research are significant in shedding light on the dynamics of technological integration and project success in the context of Pakistan's IT industry. The positive correlation between the application of smart tools and project outcomes validates existing findings in international research that emphasizes the efficiency gains and strategic benefits of automation and data-driven decision-making.

More importantly, the role of workforce readiness as a moderator highlights that technology is not enough. Even the most sophisticated systems need human users who have the ability to decipher, adjust, and decide based on the outputs of the system. In organizations where workers possess a solid grounding in digital tools, adaptive mindsets, and learning culture, the payoff from technology is significantly greater.

This is in line with the wider body of literature on managing technological change, which highlights the use of human capital to capture the payoff from innovation (Shahid et al., 2022). Staff who know how to work in new systems, who welcome change, and who continually revise their expertise can ease the transition, reduce resistance, and support organizational learning.

For Pakistan's IT sector, where numerous companies are at initial phases of digitalization, these observations hold special importance. Spending on smart systems in the absence of concomitant expenditure on developing human capabilities can result in under-

usage and reduced returns.

Conclusion

This study explored the relationship between the integration of intelligent technologies and the success of IT projects within Pakistan's growing digital economy. The findings confirm that the effective use of smart systems contributes positively to project outcomes. However, the extent of this contribution is highly dependent on the preparedness and competence of the workforce.

Organizations that invest simultaneously in technological infrastructure and human capital are more likely to realize tangible benefits from their digital transformation efforts. Workforce readiness, particularly in the form of adaptability, digital literacy, and continuous learning, emerges as a key enabler of successful project execution.

Future research may consider additional moderating or mediating variables, such as organizational culture, leadership styles, or technological infrastructure maturity, to build a more comprehensive understanding of how technology interacts with organizational systems. Longitudinal studies could also help examine how workforce readiness evolves over time in response to changing technology landscapes.

References

Atif, M., Altaf, Y., Gul, S., & ul Hassan, S. W. (2024). IMPACT OF INNOVATION ON PAKISTAN'S GDP: THE MEDIATING ROLE OF SME GROWTH. *Journal of Research in Economics and Finance Management*, *3*(2), 55-67.

Barney, J. (1991). Firm resources and sustained competitive advantage. *Journal of Management*, *17*(1), 99–120. https://doi.org/10.1177/014920639101700108

Bughin, J., Seong, J., Manyika, J., Chui, M., & Joshi, R. (2018). *Notes from the AI frontier: Modeling the impact of AI on the world economy*. McKinsey Global Institute. https://www.mckinsey.com/featured-insights/artificial-intelligence/notes-from-the-ai-frontier-modeling-the-impact-of-ai-on-the-world-economy

Dwivedi, Y. K., Hughes, L., Ismagilova, E., Aarts, G., Coombs, C., Crick, T., Duan, Y., Dwivedi, R., Edwards, J. S., Eirug, A., Galanos, V., Ilavarasan, P. V., Janssen, M., Jones, P., Kar, A. K., Kizgin, H., Kronemann, B., Lal, B., Lucini, B., ... Williams, M. D. (2021). Artificial Intelligence (AI): Multidisciplinary perspectives on emerging challenges, opportunities, and agenda for research, practice and policy. *International Journal of Information Management*, *57*, 101994. https://doi.org/10.1016/j.ijinfomgt.2019.08.002

Gul, S., Gilani, U. S., Khokhar, A. M., & Khan, Y. (2021). DIRECT AND INDIRECT EFFECT OF ETHICAL LEADERSHIP ON WORKPLACE CONFLICT IN FOREIGN DIRECT INVESTMENT (TELECOM SECTOR OF KHYBER PAKHTUNKHWA). *Ilkogretim Online*, *20*(3).

Gul, S., Limongi, R., & Syed, H. W. U. (2024). Unraveling the nexus: social entrepreneur intention and socioeconomic development with mediating role of entrepreneurial knowledge. *Kybernetes*.

Jain, R., Sharma, R., & Zaki, M. (2022). Enhancing digital transformation through workforce capabilities: A skills-readiness perspective. *Journal of Business Research*, *141*, 350–362. https://doi.org/10.1016/j.jbusres.2021.12.031

Kakakhel, S. J., Saeed, T., & Gul, S. (2016). Role of NGOS in the Women Empowerment through Provision of Rural Entrepreneurship Opportunities. *Journal of Applied Environmental and Biological Sciences*, *6*, 331-52.

Khan, S., Ahmad, S., Gul, S., Imtiaz, I., & ul Hassan, S. W. (2020). COMBATING TOXIC WORKPLACE ENVIRONMENT THROUGH SPECIFIC HR PRACTICES: AN EMPIRICAL STUDY OF WORKPLACE RELATIONS IN THE HOSPITALS OF PAKISTAN. *International Journal of Management Research and Emerging Sciences*, *10*(4).

Khan, S., Gul, S., & Khan, M. A. (2020). Putting phronetic leadership in action for social innovation: a tale of social enterprises. *Liberal Arts and Social Sciences International Journal (LASSIJ)*, *4*(2), 98-113.

Khan, S., Gul, S., ul Hassan, S. W., & Imtiaz, I. (2021). Battling The Toxic WAR at Workplace Through The Introduction of Specific HR Practices: A Case of Higher Education Sector of Pakistan. *International Journal of Management (IJM)*, *12*(2), 956-969.

Maroufkhani, P., Ismail, W. K. W., & Ghobakhloo, M. (2020). Big data analytics adoption model for small and medium enterprises. *Journal of Science and Technology Policy Management*, *11*(1), 22–47. https://doi.org/10.1108/JSTPM-02-2020-0021

Mir, F. A., & Pinnington, A. H. (2014). Exploring the value of project management: Linking project management performance and project success. *International Journal of Project Management*, *32*(2), 202–217. https://doi.org/10.1016/j.ijproman.2013.05.012

Rana, R. A., Kiran, S., & Gul, S. (2024). THE IMPACT OF EMAIL MARKETING ON

CONSUMER BUYING DECISION PROCESS IN THE PAKISTANI MARKET. *Journal for Business Education and Management*, *4*(1), 209-226.

Riaz, A., Shahid, M., & Ali, Q. (2021). A moderated mediation model of empowering leadership and employees' innovative work behavior. *Journal of Management and Research*, *8*(2), 252-274.

Shahid, M., Chaudhry, S., Bilal, M., Amber, H., Aslam, S., Malik, S., & Shahzad, K. (2022). The link between team identification, entrepreneurial orientation, and innovative work behavior and its dimensions in the context of Pakistan. *Sage Open*, *12*(1), 21582440221079893.

Sheng, J., Amankwah-Amoah, J., Wang, X., & Khan, Z. (2022). Workforce digital skill development for Industry 4.0: Exploring the strategic roles of HRM. *Technological Forecasting and Social Change*, *179*, 121647. https://doi.org/10.1016/j.techfore.2022.121647

Tornatzky, L. G., & Fleischer, M. (1990). *The processes of technological innovation*. Lexington Books.

ul Hassan, S. W., Gul, S., Ahmed, M., & Tariq, M. (2023). ROLE OF CORPORATE GOVERNANCE ON THE FINANCIAL DISTRESS: EVIDENCE FROM PAKISTAN. *International Journal of Business and Management Sciences*, *4*(2), 143-148.

Westerman, G., Bonnet, D., & McAfee, A. (2021). *Leading digital: Turning technology into business transformation*. Harvard Business Review Press.