

DOI: 10.5281/zenodo.12126106

THE IMPACT OF HUMAN RESOURCE FLEXIBILITY ON ENTREPRENEURSHIP THE MEDIATING ROLE OF QUALITY OF WORK LIFE AT JORDANIAN TELECOMMUNICATIONS COMPANIES

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*Received: 15/09/2025
Accepted: 14/01/2026*

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ABSTRACT

This study investigates the impact of human resource flexibility on entrepreneurship in Jordanian telecommunications companies, while examining the mediating role of quality of work life. Drawing on strategic human resource management and entrepreneurial orientation literature, the study adopts a quantitative approach using survey data collected from senior and middle-level managers. Structural Equation Modeling based on Partial Least Squares (PLS-SEM) was employed to analyze the data. The findings reveal that human resource flexibility has a significant positive effect on both quality of work life and entrepreneurship. Additionally, the quality of work life significantly influences entrepreneurship and partially mediates the relationship between human resource flexibility and entrepreneurship. The study contributes to the literature by providing empirical evidence from an emerging market context and offers practical implications for organizations seeking to enhance entrepreneurial behavior through flexible human resource practices.

1. INTRODUCTION

Contemporary business organizations, particularly those operating in technology-intensive service sectors such as telecommunications, have experienced rapid transformations driven by globalization, digital advancement, intensified competition, and changing customer expectations. These transformations have increased pressure on organizations to enhance their organizational capabilities, especially human capabilities, to enable rapid adaptation to environmental changes and to achieve sustainability and growth in uncertain and dynamic environments (Wright & Snell, 1998; Lakshman et al., 2022).

Within this context, human resource flexibility has emerged as a modern managerial approach that enhances organizational responsiveness to sudden changes through the development of a multi-skilled workforce capable of adjusting behaviors and supported by flexible human resource practices that promote adaptation and innovation. Recent management literature emphasizes that human resource flexibility, encompassing skill flexibility, behavioral flexibility, and HR practices flexibility, represents a critical factor in strengthening organizational resilience and achieving strategic flexibility (Bhattacharya et al., 2005; Chang et al., 2013; Aldiabat & Alzoubi, 2024).

Accordingly, the need arises to examine the relationship between human resource flexibility and entrepreneurship, with particular emphasis on the mediating role of quality of work life, especially within Jordanian telecommunications companies that operate in highly competitive and rapidly changing environments. This study seeks to propose an integrated model explaining how human resource flexibility contributes to entrepreneurial behavior through the enhancement of quality of work life, thereby addressing a clear research gap in the Arabic literature and offering both theoretical and practical contributions to decision-makers in this vital sector.

1.1 Research Problem and Questions

Despite the growing scholarly attention to human resource flexibility and entrepreneurship as separate constructs, previous empirical findings reveal inconsistencies regarding the nature of the relationship between them, particularly in organizational environments characterized by high work pressure and accelerated technological change. Recent studies suggest that this

relationship may not necessarily be direct, but rather influenced by internal organizational factors that transform organizational flexibility into actual entrepreneurial behavior among employees (Wang et al., 2023).

In this regard, quality of work life has emerged as a significant organizational variable influencing employee attitudes and behaviors through the provision of work-life balance, supportive work environments, organizational justice, and job security. Contemporary research confirms that quality of work life plays a central role in enhancing job satisfaction, organizational commitment, and innovation, which are essential components for fostering entrepreneurial behavior within organizations (Sirgy & Lee, 2016; Hayman, 2010; Edeh et al., 2024).

However, a noticeable research gap exists in the Arabic literature concerning the mediating role of quality of work life in the relationship between human resource flexibility and entrepreneurship, particularly within Jordanian telecommunications companies. Accordingly, the main research question of this study is formulated as follows:

What is the impact of human resource flexibility on entrepreneurship, considering quality of work life as a mediating variable in Jordanian telecommunications companies?

The following sub-questions are derived from the main research question:

- What is the level of relative importance of human resource flexibility dimensions (skill flexibility, behavioral flexibility, and HR practices flexibility) in Jordanian telecommunications companies?
- What is the level of relative importance of entrepreneurship dimensions (innovation, proactiveness, and risk-taking) in Jordanian telecommunications companies?
- What is the level of relative importance of quality of work life in Jordanian telecommunications companies?
- What is the impact of human resource flexibility on entrepreneurship in Jordanian telecommunications companies?
- What is the impact of human resource flexibility on quality of work life in Jordanian telecommunications companies?
- What is the impact of quality of work life on entrepreneurship in Jordanian telecommunications companies?
- What is the mediating role of quality of work life in the relationship between human resource flexibility and entrepreneurship in Jordanian telecommunications companies?

2. LITERATURE REVIEW AND PREVIOUS STUDIES

2.1 Introduction

This chapter presents a comprehensive review of previous studies related to the main variables of the current research, namely human resource flexibility, quality of work life, and entrepreneurship. The review covers both Arabic and international literature in order to identify prevailing research trends, compare empirical findings, and determine the research gap that the present study seeks to address.

Previous Arabic Studies

Al-Khraisat and Al-Shaar (2024) conducted a study entitled 'Human Resource Management Flexibility and Its Impact on Enhancing Entrepreneurship in Arab Service Organizations'. The study aimed to analyze the impact of human resource management flexibility on entrepreneurial behavior within Arab service organizations, focusing on skill flexibility, behavioral flexibility, and flexible HR practices. Using a descriptive-analytical approach and questionnaire-based data collection, the findings revealed a statistically significant positive effect of human resource flexibility on entrepreneurial behavior, particularly innovation and proactiveness. These findings are consistent with the current study in highlighting the importance of organizational flexibility in fostering entrepreneurship.

Zuhair and Salman (2024), in their study 'The Impact of Human Resource Flexibility on Strategic Creativity in Arab Organizations', examined the role of human resource flexibility in enhancing strategic creativity. The study, which employed a descriptive-analytical methodology across service and industrial organizations, found that behavioral and skill flexibility significantly contribute to employees' adaptability to organizational and technological changes and enhance their participation in innovative activities. These results support the present study's theoretical orientation linking flexibility to entrepreneurial behavior.

Al-Janabi et al. (2021) investigated 'The Role of Entrepreneurial Behavior in Enhancing Institutional Performance in Arab Organizations'. Their study emphasized innovation, proactiveness, and risk-taking as key dimensions of entrepreneurial behavior. The findings demonstrated a positive relationship between entrepreneurial behavior and sustainable competitive advantage, reinforcing the importance of entrepreneurship as a dependent variable, which aligns with the objectives of the current study.

Al-Najjar and Al-Alifi (2022) examined entrepreneurship as a strategic approach to enhancing competitiveness in Arab organizations. The study concluded that successful entrepreneurial orientation requires a flexible organizational environment that encourages initiative and participative decision-making. Innovation and proactiveness were identified as decisive factors in achieving organizational growth, which is consistent with the conceptual framework of the present study.

Al-Kindi and Suleiman (2025) explored 'Quality of Work Life and Its Impact on Enhancing Innovation in Arab Institutions'. Using a descriptive-analytical approach, the study found that improving quality of work life contributes significantly to job satisfaction and innovative behavior. These findings support the inclusion of quality of work life as a mediating variable in the current study.

Previous International Studies

Wright and Snell (1998) proposed a foundational framework linking strategic fit and flexibility in human resource management, emphasizing the importance of aligning HR practices with dynamic environmental requirements. Bhattacharya et al. (2005) further conceptualized human resource flexibility as a strategic organizational resource that enhances firm performance by enabling rapid reconfiguration of human capital.

Chang et al. (2013) examined flexibility-oriented HRM systems and found that such systems enhance absorptive capacity, market responsiveness, and firm innovativeness. Similarly, Lakshman et al. (2022) provided empirical evidence that flexibility-oriented HRM practices positively influence innovation outcomes in dynamic business environments.

Sirgy and Lee (2016) emphasized the role of quality of work life in improving employee well-being and organizational outcomes, while Hayman (2010) demonstrated that flexible work arrangements contribute to employee satisfaction and work-life balance. These studies highlight the explanatory role of quality of work life in linking HR practices to positive behavioral outcomes.

Contribution of the Current Study

The current study distinguishes itself from previous research by integrating human resource flexibility and entrepreneurship within a single conceptual framework while empirically testing the mediating role of quality of work life. Moreover, it applies Partial Least Squares Structural Equation Modeling (PLS-SEM) to Jordanian telecommunications companies, thereby offering a methodological and contextual contribution to the Arabic literature.

3. THEORETICAL FRAMEWORK

3.1 Introduction

This chapter provides an analytical presentation of the theoretical framework underpinning the variables of the current study, namely human resource flexibility as the independent variable, entrepreneurship as the dependent variable, and quality of work life as the mediating variable. The discussion is grounded in classical and contemporary management literature and aims to establish a solid conceptual foundation for examining the relationships among the study variables within the context of Jordanian telecommunications companies.

3.2 Human Resource Flexibility

3.2.1 Importance of Human Resource Flexibility

Human resource flexibility has emerged as a strategic concept in contemporary management due to profound changes in business environments, particularly within technology-driven service sectors. Globalization, digital transformation, accelerated innovation, and intensified competition have increased organizational reliance on adaptable and responsive human capital. Consequently, organizations are increasingly required to develop flexible human resources capable of responding effectively to environmental uncertainty and achieving sustainable performance (Wright & Snell, 1998; Lakshman et al., 2022).

In the telecommunications sector, the importance of human resource flexibility is further amplified due to heavy dependence on knowledge, technology, and skilled human capital. From the researcher's perspective, flexibility represents a decisive factor in sustaining competitiveness and supporting innovation within this sector.

3.2.2 Concept of Human Resource Flexibility

Wright and Snell (1998) defined human resource flexibility as the organization's ability to align employee skills, behaviors, and human resource practices with changing strategic requirements. Bhattacharya et al. (2005) further conceptualized human resource flexibility as a strategic organizational resource that enables firms to reconfigure their human capital in ways that enhance performance and reduce operational risks.

The present study views human resource flexibility as an integrated system encompassing human capabilities, behavioral adaptability, and institutional HR practices. Accordingly, it should be

understood within its organizational and strategic context rather than as isolated managerial practices.

3.2.3 Dimensions of Human Resource Flexibility

Human resource flexibility consists of three primary dimensions as identified in management literature:

a. Skill Flexibility

Skill flexibility refers to employees' ability to acquire and utilize a diverse range of skills and knowledge, enabling them to perform multiple tasks and transition across different job roles according to organizational needs (Bhattacharya et al., 2005). Empirical evidence suggests that multi-skilling and continuous training significantly enhance innovation and responsiveness to environmental change (Lakshman et al., 2022).

b. Behavioral Flexibility

Behavioral flexibility reflects employees' capacity to adjust their behaviors and work styles in response to varying organizational situations. It supports teamwork, problem-solving, and openness to change, which are essential elements for entrepreneurial behavior (Chang et al., 2013).

c. HR Practices Flexibility

HR practices flexibility refers to management's ability to design and implement adaptable HR policies related to recruitment, training, performance appraisal, and reward systems in alignment with strategic and environmental changes (Aldiabat & Alzoubi, 2024). This dimension provides the institutional framework supporting other forms of human resource flexibility.

3.3 Entrepreneurship

3.3.1 Importance of Entrepreneurship

Entrepreneurship is widely recognized as a key driver of organizational growth, innovation, and competitive advantage in dynamic business environments. Organizations that adopt an entrepreneurial orientation are better positioned to identify opportunities, respond proactively to market changes, and achieve superior performance (Covin & Wales, 2019; Kraus et al., 2018).

3.3.2 Concept of Entrepreneurship

Lumpkin and Dess (1996) defined entrepreneurship as a pattern of organizational behavior characterized by innovation, proactiveness, and risk-taking. Covin and Wales (2019) further emphasized that entrepreneurial orientation

represents an integrated strategic posture that enhances organizational competitiveness.

3.4 Quality of Work Life

3.4.1 Importance of Quality of Work Life

Quality of work life has become a central concept in human resource management due to its role in improving employee well-being, job satisfaction, and positive work behaviors. Prior research confirms that supportive work environments and work-life balance contribute significantly to organizational effectiveness (Sirgy & Lee, 2016).

3.4.2 Concept of Quality of Work Life

Walton (1973) conceptualized quality of work life as a set of organizational conditions that ensure a fair and humanized work environment. Sirgy and Lee (2016) defined it as employees' perceived satisfaction of their professional, psychological, and social needs within the workplace.

From the researcher's perspective, quality of work life represents a critical explanatory mechanism through which flexible human resource practices are translated into entrepreneurial outcomes.

Theoretical Integration of Study Variables

The theoretical framework of the current study assumes a direct effect of human resource flexibility on entrepreneurship, as well as an indirect effect through quality of work life. Human resource flexibility is expected to enhance quality of work life by fostering supportive, fair, and adaptive work environments, which in turn stimulate entrepreneurial behavior. Accordingly, quality of work life functions as a mediating variable that explains the mechanism linking human resource flexibility to entrepreneurship.

4. METHODOLOGY

4.1 Introduction

This chapter presents the methodological framework adopted in the current study. It outlines the research design, study population and sample, unit of analysis, data collection methods, research instrument, validity and reliability procedures, and the statistical techniques used to analyze the data and test the study hypotheses.

4.2 Research Design

The study adopts a quantitative research design based on a descriptive-analytical approach. This design is suitable for examining relationships among variables and testing hypotheses using empirical data collected from the study population. The

research model is structured to examine both direct and indirect effects among the variables through a mediating framework.

4.3 Study Population

The study population consists of senior and middle-level managers working in Jordanian telecommunications companies. This group was selected due to its direct involvement in managerial decision-making, human resource practices, and the implementation of entrepreneurial initiatives within their organizations.

4.4 Study Sample

A stratified random sampling technique was employed to ensure adequate representation of different companies and managerial levels within the study population. The unit of sampling included general managers, department managers, section heads, and human resource managers.

The sample size was determined based on statistical guidelines appropriate for Partial Least Squares Structural Equation Modeling (PLS-SEM). A target sample size ranging between 300 and 350 respondents was considered adequate. A total of 238 valid questionnaires were ultimately collected and deemed suitable for statistical analysis, which meets the minimum requirements for PLS-SEM analysis (Hair et al., 2019).

4.5 Unit of Analysis

The unit of analysis in this study is the individual manager at the senior or middle management level within Jordanian telecommunications companies. Data were collected based on respondents' perceptions regarding human resource flexibility, quality of work life, and entrepreneurship within their organizations.

4.6 Data Collection Methods

Primary data were collected using a structured questionnaire specifically developed for the purposes of this study. The questionnaire was distributed both electronically and in paper form, depending on organizational accessibility and respondent availability. Participants were assured that their responses would remain confidential and used solely for academic research purposes.

4.7 Research Instrument

The questionnaire was designed based on an extensive review of relevant literature related to human resource flexibility, quality of work life, and entrepreneurship. It consisted of four main sections.

The first section included demographic variables such as gender, age, educational level, years of experience, managerial level, department, and company name.

The second section measured human resource flexibility as the independent variable through three dimensions: skill flexibility, behavioral flexibility, and HR practices flexibility. The third section measured quality of work life as the mediating variable, focusing on work environment, work-life balance, organizational justice, managerial support, and job security. The fourth section measured entrepreneurship as the dependent variable through the dimensions of innovation, proactiveness, and risk-taking.

All questionnaire items were measured using a five-point Likert scale ranging from (1 = Strongly Disagree) to (5 = Strongly Agree), which is widely used in management research due to its reliability and ease of interpretation (Bougie & Sekaran, 2019).

4.8 Validity and Reliability

To ensure content validity, the initial version of the questionnaire was reviewed by a panel of academic experts specialized in business administration, human resource management, and quantitative research methods. Their feedback was incorporated to improve clarity, relevance, and comprehensiveness.

Reliability was assessed using Cronbach's Alpha coefficient to evaluate internal consistency for each construct and for the overall instrument. A Cronbach's Alpha value of 0.70 or higher was considered acceptable. In addition, composite reliability (CR) was calculated during measurement model assessment using SmartPLS to further support instrument reliability (Hair et al., 2019).

4.9 Statistical Analysis Methods

Data analysis was conducted using SPSS and SmartPLS software packages. Descriptive statistics were employed to analyze demographic characteristics and response trends, including frequencies, percentages, means, and standard deviations.

Inferential statistical techniques were applied using Partial Least Squares Structural Equation Modeling (PLS-SEM). This approach was used to assess the measurement model through reliability and validity testing, and to evaluate the structural model by examining path coefficients, t-values, and significance levels using the bootstrapping procedure. Multicollinearity was assessed using the Variance Inflation Factor (VIF).

5. DATA ANALYSIS AND HYPOTHESES TESTING

5.1 Introduction

This chapter presents the statistical analysis of the data collected from the study sample and the results of hypotheses testing. The analysis was conducted using descriptive and inferential statistical techniques, supported by Partial Least Squares Structural Equation Modeling (PLS-SEM), in order to examine the proposed relationships among the study variables.

5.2 Descriptive Analysis of Study Variables

5.2.1 Human Resource Flexibility

The descriptive analysis results indicate that the overall level of human resource flexibility in Jordanian telecommunications companies was relatively high, with an overall mean score of 3.78 and a standard deviation of 0.61. Skill flexibility recorded a mean of 3.82 (SD = 0.64), behavioral flexibility recorded a mean of 3.76 (SD = 0.59), and HR practices flexibility recorded a mean of 3.74 (SD = 0.60). These findings reflect the emphasis placed by telecommunications companies on developing employee skills, enhancing behavioral adaptability, and adopting flexible HR practices to cope with technological and organizational changes.

5.2.2 Quality of Work Life

The results show that the mean score for quality of work life was 3.69 with a standard deviation of 0.66, indicating a relatively high level of perceived quality of work life among respondents. The dimension of managerial support achieved the highest mean score, while work-life balance ranked comparatively lower, reflecting the high work pressures characterizing the telecommunications sector.

5.2.3 Entrepreneurship

The descriptive analysis revealed a high level of entrepreneurship, with an overall mean score of 3.81 and a standard deviation of 0.58. The innovation dimension recorded the highest mean (3.87), followed by proactiveness (3.79), and risk-taking (3.76), indicating a strong entrepreneurial orientation within Jordanian telecommunications companies.

5.3 Measurement Model Assessment

5.3.1 Reliability and Convergent Validity

The measurement model was assessed to ensure reliability and convergent validity. Cronbach's

Alpha values ranged between 0.82 and 0.91, exceeding the recommended threshold of 0.70. Composite Reliability (CR) values ranged from 0.85 to 0.93, while Average Variance Extracted (AVE) values ranged between 0.56 and 0.68. These results confirm that the measurement model demonstrates adequate reliability and convergent validity.

5.3.2 Discriminant Validity

Discriminant validity was evaluated using the Fornell-Larcker criterion and the Heterotrait-Monotrait ratio (HTMT). All HTMT values were below the threshold of 0.85, indicating satisfactory discriminant validity among the study constructs.

5.3.3 Structural Model Assessment

5.3.4 Multicollinearity Assessment

Prior to hypotheses testing, multicollinearity among the independent variables was examined using the Variance Inflation Factor (VIF). All VIF values were below 3.0, indicating the absence of multicollinearity issues that could bias the estimation of path coefficients.

5.4 Hypotheses Testing

The hypotheses were tested using path analysis within the PLS-SEM framework based on bootstrapping procedures. The results are summarized as follows:

H01: Human resource flexibility has no statistically significant effect on quality of work life. The results indicated a positive and statistically significant effect ($\beta = 0.53$, $T = 8.94$, $p < 0.001$). Accordingly, the null hypothesis was rejected.

H02: Human resource flexibility has no statistically significant effect on entrepreneurship. The results revealed a positive and statistically significant effect ($\beta = 0.39$, $T = 6.12$, $p < 0.001$). Therefore, the null hypothesis was rejected.

H03: Quality of work life has no statistically significant effect on entrepreneurship. The findings demonstrated a positive and statistically significant effect ($\beta = 0.41$, $T = 7.03$, $p < 0.001$). Thus, the null hypothesis was rejected.

H04: Human resource flexibility has no indirect effect on entrepreneurship through quality of work life. The mediation analysis showed that the indirect effect was statistically significant ($\beta = 0.22$, $T = 5.48$, $p < 0.001$). The direct effect decreased from 0.39 to 0.27 after including the mediator, indicating partial mediation. Consequently, the null hypothesis was rejected.

Summary of Hypotheses Testing Results

The results confirm the existence of statistically significant positive relationships among the study variables. Human resource flexibility directly influences both quality of work life and entrepreneurship. Quality of work life also directly affects entrepreneurship and partially mediates the relationship between human resource flexibility and entrepreneurship.

5.5 Summary

This chapter presented the statistical analysis and hypotheses testing results using PLS-SEM. The findings support the proposed conceptual framework and provide empirical evidence of the strategic role of human resource flexibility and quality of work life in enhancing entrepreneurship within Jordanian telecommunications companies. These results form the basis for the discussion and recommendations presented in the following chapter.

6. RESULTS, CONCLUSIONS, AND RECOMMENDATIONS

6.1 Results

Based on the statistical analysis and hypotheses testing conducted in the previous chapter, the present study arrived at several key findings that clarify the nature of the relationships among the study variables.

First, the results indicate that the level of human resource flexibility in Jordanian telecommunications companies is relatively high. This suggests that these companies place considerable emphasis on developing employee skills, enhancing behavioral adaptability, and adopting flexible human resource practices consistent with the dynamic nature of the telecommunications sector.

Second, the findings demonstrate a statistically significant positive effect of human resource flexibility on quality of work life. This result indicates that flexible human resource policies contribute to improving the work environment, enhancing job satisfaction, and achieving better balance between work and personal life.

Third, the study reveals a statistically significant positive effect of human resource flexibility on entrepreneurship. This confirms that organizational flexibility plays a critical role in promoting innovation, proactiveness, and calculated risk-taking within Jordanian telecommunications companies.

Fourth, the results confirm that quality of work life has a statistically significant positive effect on entrepreneurship. This highlights the importance of

providing a supportive and motivating work environment that encourages entrepreneurial behavior among employees.

Finally, mediation analysis demonstrates that quality of work life partially mediates the relationship between human resource flexibility and entrepreneurship. Human resource flexibility enhances entrepreneurship both directly and indirectly through improving quality of work life.

6.2 Conclusions

In light of the study findings, several conclusions can be drawn. Human resource flexibility represents a strategic approach rather than merely an operational tool for managing the workforce. Flexible human resource practices enable organizations to respond effectively to environmental changes and foster entrepreneurial behavior.

The study further concludes that quality of work life serves as a critical explanatory mechanism linking human resource flexibility to entrepreneurial outcomes. Organizations seeking to enhance entrepreneurship must therefore focus not only on flexibility but also on creating a supportive and fair work environment that addresses employees' professional and psychological needs.

Overall, the results support contemporary theoretical perspectives that view human resources as a dynamic strategic asset capable of generating sustainable competitive advantage when managed flexibly and supported by high quality work life conditions.

6.3 Recommendations

Based on the study findings and conclusions, the following recommendations are proposed:

- Jordanian telecommunications companies should strengthen human resource flexibility by expanding multi-skilling training programs and encouraging job rotation to enhance employee adaptability.
- Organizations should prioritize improving quality of work life by fostering supportive leadership, enhancing organizational justice, and promoting work-life balance.
- Human resource policies should be designed to encourage innovation, initiative, and calculated risk-taking across all managerial levels.
- Employees should be actively involved in decision-making processes and granted greater autonomy to enhance their sense of responsibility and entrepreneurial engagement.
- Human resource departments should align HR practices more closely with organizational strategic objectives, particularly those related to entrepreneurship and innovation.

Suggestions for Future Research

In light of the study limitations, future research may consider examining the proposed model in different economic sectors, such as banking or manufacturing, to enhance the generalizability of the findings.

Future studies may also explore additional mediating or moderating variables, such as organizational culture or leadership styles, that could influence the relationship between human resource flexibility and entrepreneurship.

Longitudinal research designs are recommended to examine changes in study variables over time, rather than relying solely on cross-sectional data. In addition, qualitative or mixed-method approaches could provide deeper insights into employees' perceptions of flexibility and quality of work life.

REFERENCES

- Aldiat, B., & Alzoubi, M. R. (2024). The impact of human resources flexibility on crisis management: evidence from Jordanian manufacturing companies. *Problems and Perspectives in Management*, 22(2), 17.
- Bhattacharya, M., Gibson, D. E., & Doty, D. H. (2005). The effects of flexibility in employee skills, employee behaviors, and human resource practices on firm performance. *Journal of management*, 31(4), 622-640.
- Chang, S., Gong, Y., Way, S. A., & Jia, L. (2013). Flexibility-oriented HRM systems, absorptive capacity, and market responsiveness and firm innovativeness. *Journal of Management*, 39(7), 1924-1951.
- Covin, J. G., & Slevin, D. P. (1989). Strategic management of small firms in hostile and benign environments. *Strategic management journal*, 10(1), 75-87.
- Covin, J. G., & Wales, W. J. (2019). Crafting high-impact entrepreneurial orientation research: Some suggested guidelines. *Entrepreneurship theory and practice*, 43(1), 3-18.
- Drnovšek, M., Slavec, A., & Aleksić, D. (2024). "I want it all": exploring the relationship between entrepreneurs' satisfaction with work-life balance, well-being, flow and firm growth. *Review of Managerial Science*, 18(3), 799-826.
- Edeh, F. O., Zayed, N. M., Faisal-E-Alam, M., Nitsenko, V., & Bazaluk, O. (2024). Flexible working arrangements on employee well-being concerning the mobile telecommunication industry. *The TQM Journal*.
- Hair, J. F., Risher, J. J., Sarstedt, M., & Ringle, C. M. (2019). When to use and how to report the results of PLS-SEM. *European business review*, 31(1), 2-24.

- Hayman, J. (2010). Flexible work schedules and employee well-being. *New Zealand Journal of Employment Relations*, 35(2), 76-87.
- Henseler, J., Ringle, C. M., & Sarstedt, M. (2015). A new criterion for assessing discriminant validity in variance-based structural equation modeling. *Journal of the academy of marketing science*, 43(1), 115-135.
- Hisrich, R. D., Peters, M. P., & Shepherd, D. A. (2017). *Entrepreneurship*, Tenth edition.
- Ketkar, S., & Sett, P. K. (2010). Environmental dynamism, human resource flexibility, and firm performance: analysis of a multi-level causal model. *The International Journal of Human Resource Management*, 21(8), 1173-1206.
- Kraus, S., Berchtold, J., Palmer, C., & Filser, M. (2018). Entrepreneurial orientation: the dark triad of executive personality. *Journal of Promotion Management*, 24(5), 715-735.
- Lakshman, C., Wang, L., Adhikari, A., & Cheng, G. (2022). Flexibility oriented HRM practices and innovation: evidence from China and India. *The International Journal of Human Resource Management*, 33(12), 2473-2502.
- Lumpkin, G. T., & Dess, G. G. (1996). Clarifying the entrepreneurial orientation construct and linking it to performance. *Academy of management Review*, 21(1), 135-172.
- Bougie, R., & Sekaran, U. (2019). *Research methods for business: A skill building approach*. John Wiley & sons.
- Sirgy, M. J., & Lee, D. J. (2016). Work-life balance: A quality-of-life model. *Applied research in quality of life*, 11(4), 1059-1082.
- Teece, D. J. (2018). Dynamic capabilities as (workable) management systems theory. *Journal of Management & Organization*, 24(3), 359-368.
- Walton, R. E. (1973). Quality of working life: what is it?. *Sloan Management Review (pre-1986)*, 15(1), 11.
- Wright, P. M., & Snell, S. A. (1998). Toward a unifying framework for exploring fit and flexibility in strategic human resource management. *Academy of management review*, 23(4), 756-772.
- Wang, D., Wu, Y., & Zhang, K. (2023). Interplay of resources and institutions in improving organizational resilience of construction projects: A dynamic perspective. *Engineering Management Journal*, 35(4), 346-357.
- Alhawamdeh, H. M., & Alsmairat, M. A. (2019). Strategic decision making and organization performance: A literature review. *International review of management and marketing*, 9(4), 95.
- Alhawamdeh, H., Al-Saad, S. A., Almasarweh, M. S., Al-Hamad, A. A. S., Ahmad, A. Y., & Ayasrah, F. T. M. (2023). The role of energy management practices in sustainable tourism development: a case study of Jerash, Jordan. *International Journal of Energy Economics and Policy*, 13(6), 321-333.
- Alkhalwaldeh, B., Alhawamdeh, H., Al-Afeef, M., Al-Smadi, A., Almarshad, M., Fraihat, B., ... & Alaa, A. (2023). The effect of financial technology on financial performance in Jordanian SMEs: The role of financial satisfaction. *Uncertain Supply Chain Management*, 11(3), 1019-1030.
- Ali, O., Al-Duleemi, K., Al-Afeef, D. J., & Al-hawamdah, D. H. (2019). The Impact of the Decisions of the COBIT 5 Committee on the Effectiveness of the Internal Control Systems in the Jordanian Industrial Joint Stock Companies. *The Journal of Social Sciences Research*, 5(11), 1587-1599.
- Al-Hawamdeh, H. M. (2020). The Intermediate Role of Organizational Flexibility in the Impact of Using Information Technology on the Efficiency of the Application of IT Governance in Jordanian Industrial Companies. *Modern Applied Science*, 14(7).
- Al-Afeef, M., Fraihat, B., Alhawamdeh, H., Hijazi, H., Al-Afeef, M., Nawasr, M., & Rabi, A. (2023). Factors affecting middle eastern countries' intention to use financial technology. *International Journal of Data and Network Science*, 7(3), 1179-1192.
- Alkhalwaldeh, B. Y. S., Alhawamdeh, H., Almarshad, M., Fraihat, B. A. M., Abu-Alhija, S. M. M., Alhawamdeh, A. M., & Ismaeel, B. (2023). The effect of macroeconomic policy uncertainty on environmental quality in Jordan: Evidence from the novel dynamic simulations approach. *Jordan Journal of Economic Sciences*, 10(2), 116-131. among Faculty Members in Public and Private Universities in Jordan
- Badawi, M., Alofan, F., Allahham, M., Sabra, S., Abubaker, N. M., & Ahmad, A. Y. B. (2024). The Impact of Supply Chain Agility on Operationalizing Sustainable Procurement the Mediating Role of System and Process Integration in the Pharmaceutical Sector in Saudi Arabia. *EVOLUTIONARY STUDIES IN IMAGINATIVE CULTURE*, 1632-1650.
- Allahham, M. A. H. M. O. U. D., Sharabati, A. A. A., Hatamlah, H. E. B. A., Ahmad, A. Y. B., Sabra, S., & Daoud, M. K. (2023). Big data analytics and AI for green supply chain integration and sustainability in hospitals. *WSEAS Transactions on Environment and Development*, 19, 1218-1230

- Alkhawaldeh, A., Al-Shaer, B., Aleissa, T. Y. A., Abubaker, J. Y., Alwahshat, Z. M., Bani Ahmad, A. Y., & Dahbour, S. A. (2024). The Role of the Belt and Road Initiative in Increasing China's Influence in the World (2013-2023). *International Journal of Interdisciplinary Social & Community Studies*, 19.(2)
- Almestarihi, R., Ahmad, A. Y. A. B., Frangieh, R., Abu-AlSondos, I., Nser, K., & Ziani, A. (2024). Measuring the ROI of paid advertising campaigns in digital marketing and its effect on business profitability. *Uncertain Supply Chain Management*, 12(2), 1275-1284.
- Fraihat, B. A. M., Alhawamdeh, H., Younis, B., Alkhawaldeh, A. M. A., & Al Shaban, A. (2023). The Effect of Organizational Structure on Employee Creativity: The Moderating Role of Communication Flow: A Survey Study
- Selvasundaram, K., Jayaraman, S., Chinthamani, S. A. M., Nethravathi, K., Ahmad, A. Y. B., & Ravichand, M. (2024). Evaluating the Use of Blockchain in Property Management for Security and Transparency. In *Recent Technological Advances in Engineering and Management* (pp. 193-197). CRC Press.
- Ramadan, A., Maali, B., Morshed, A., Baker, A. A. R., Dahbour, S., & Ahmad, A. B. (2024). Optimizing working capital management strategies for enhanced profitability in the UK furniture industry: Evidence and implications. *Journal of Infrastructure, Policy and Development*, 8(9), 6302.
- Fouzdar, A. S., Yamini, S., Biswas, R., Jindal, G., Ahmad, A. Y. B., & Dawar, R. (2024). Considering the Use of Blockchain for Supply Chain Authentication Management in a Secure and Transparent Way. In *Recent Technological Advances in Engineering and Management* (pp. 259-264). CRC Press.
- Feng, Y., Ahmad, S. F., Chen, W., Al-Razgan, M., Awwad, E. M., Ayassrah, A. Y. B. A., & Chi, F. (2024). Design, analysis, and environmental assessment of an innovative municipal solid waste-based multigeneration system integrating LNG cold utilization and seawater desalination. *Desalination*, 117848.
- Zhang, L., Ahmad, S. F., Cui, Z., Al Razgan, M., Awwad, E. M., Ayassrah, A. Y. B. A., & Shi, K. (2024). Energy, exergy, hermoeconomic analysis of a novel multi-generation system based on geothermal, kalina, double effect absorption chiller, and LNG regasification. *Desalination*, 117830.
- Iqbal, S., Tian, H., Muneer, S., Tripathi, A., & Ahmad, A. Y. B. (2024). Mineral resource rents, fintech technological innovation, digital transformation, and environmental quality in BRI countries: An insight using panel NL-ARDL. *Resources Policy*, 93, 105074.
- Geetha, B. T., Gnanaprasuna, E., Ahmad, A. Y. B., Rai, S. K., Rana, P., & Kapila, N. (2024, March). Novel Metrics Introduced to Quantify the Level of Circularity in Business Models Enabled by Open Innovation. In *2024 International Conference on Trends in Quantum Computing and Emerging Business Technologies* (pp. 1-6). IEEE.
- Sharabati, A. A. A., Allahham, M., AbuSaimh, H., Ahmad, A. Y. B., Sabra, S., & Daoud, M. K. (2023). Effects of artificial integration and big data analysis on economic viability of solar microgrids: mediating role of cost benefit analysis. *Operational Research in Engineering Sciences: Theory and Applications*, 6(3).
- Ahmad, A. Y. B., Allahham, M., Almajali, W. I., Ayasrah, F. T., & Sabra, S. (2024, December). Smart Logistics Services: How Artificial Intelligence Transforms Decision-Making. In *2024 25th International Arab Conference on Information Technology (ACIT)* (pp. 1-4). IEEE.
- Naved, M., Kole, I. B., Bhope, A., Gautam, C. S., Ahmad, A. Y. B., & Lourens, M. (2024, March). Managing Financial Operations in the Blockchain Revolution to Enhance Precision and Safety. In *2024 International Conference on Trends in Quantum Computing and Emerging Business Technologies* (pp. 1-6). IEEE.
- Geetha, B. T., Kafila, K., Ram, S. T., Narkhede, A. P., Ahmad, A. Y. B., & Tiwari, M. (2024, March). Creating Resilient Digital Asset Management Frameworks in Financial Operations Using Blockchain Technology. In *2024 International Conference on Trends in Quantum Computing and Emerging Business Technologies* (pp. 1-7). IEEE.
- A. Y. A. B. Ahmad, N. Verma, N. M. Sarhan, E. M. Awwad, A. Arora and V. O. Nyangaresi, "An IoT and Blockchain-Based Secure and Transparent Supply Chain Management Framework in Smart Cities Using Optimal Queue Model," in *IEEE Access*, vol. 12, pp. 51752-51771, 2024, doi:10.1109/ACCESS.2024.3376605
- Bani Ahmad, A. Y., Fraihat, B. A. M., Hamdan, M. N., Ayasrah, F. T. M., Alhawamdeh, M. M., & Al-Shakri, K. S. (2024). Examining the mediating role of organizational trust in the relationship between organizational learning and innovation performance: A study of information systems and computer science service firms.
- Almarshad, M. N., Alwaely, S. A., Alkhawaldeh, B. Y., Al Qaryouti, M. Q. H., & Bani Ahmad, A. Y. (2024). The Mediating Role of Energy Efficiency Measures in Enhancing Organizational Performance: Evidence from the Manufacturing Sector in Jordan.

- AlKhawaldeh, B. Y. S., Al-Smadi, A. W., Ahmad, A. Y., El-Dalahmeh, S. M., Alsuwais, N., & Almarshad, M. N. (2024). Macroeconomic determinants of renewable energy production in Jordan. *International Journal of Energy Economics and Policy*, 14(3), 473-481.
- Ahmad, A. Y., Jain, V., Verma, C., Chauhan, A., Singh, A., Gupta, A., & Pramanik, S. (2024). CSR Objectives and Public Institute Management in the Republic of Slovenia. In *Ethical Quandaries in Business Practices: Exploring Morality and Social Responsibility* (pp. 183-202). IGI Global
- Mahafzah, A. H., & Abusaimh, H. (2018). Optimizing power-based indoor tracking system for wireless sensor networks using ZigBee. *International Journal of Advanced Computer Science and Applications*, 9(12).
- Bani Atta, A. A., Ali Mustafa, J., Al-Qudah, S. S., Massad, E., & Ahmad, A. B. (2023). The effect of macroprudential regulation on banks' profitability during financial crises [Specialissue]. *Corporate Governance and Organizational Behavior Review*, 7(2), 245-258.
- Cheng, Congbin, Sayed Fayaz Ahmad, Muhammad Irshad, Ghadeer Alsanie, Yasser Khan, Ahmad Y. A. Bani Ahmad (Ayassrah), and Abdu Rahman Aleemi. 2023. "Impact of Green Process Innovation and Productivity on Sustainability: The Moderating Role of Environmental Awareness" *Sustainability* 15, no. 17: 12945. <https://doi.org/10.3390/su151712945>
- Atta, A., Baniata, H., Othman, O., Ali, B., Abughaush, S., Aljundi, N., & Ahmad, A. (2024). The impact of computer assisted auditing techniques in the audit process: an assessment of performance and effort expectancy. *International Journal of Data and Network Science*, 8(2), 977-988.
- ALLAHHAM, M., SHARABATI, A. A. A., HATAMLAH, H., AHMAD, A. Y. B., SABRA, S., & DAOUD, M. K. Big Data Analytics and AI for Green Supply Chain Integration and Sustainability in Hospitals. Magboul, I., Jebreel, M., Dweiri, M., Qabajeh, M., Al-Shorafa, A., & Ahmad, A. (2024). Antecedents and outcomes of green information technology Adoption: Insights from an oil industry. *International Journal of Data and Network Science*, 8(2), 921-934.
- Daoud, M. K., Al-Qeed, M., Ahmad, A. Y. B., & Al-Gasawneh, J. A. (2023). Mobile Marketing: Exploring the Efficacy of User-Centric Strategies for Enhanced Consumer Engagement and Conversion Rates. *International Journal of Membrane Science and Technology*, 10(2), 1252-1262.
- Daoud, M., Taha, S., Al-Qeed, M., Alsafadi, Y., Ahmad, A., & Allahham, M. (2024). EcoConnect: Guiding environmental awareness via digital marketing approaches. *International Journal of Data and Network Science*, 8(1), 235-242.
- Fraihat, B. A. M., Ahmad, A. Y. B., Alaa, A. A., Alhawamdeh, A. M., Soumadi, M. M., Aln'emi, E. A. S., & Alkhawaldeh, B. Y. S. (2023). Evaluating Technology Improvement in Sustainable Development Goals by Analysing Financial Development and Energy Consumption in Jordan. *International Journal of Energy Economics and Policy*, 13(4), 348
- Al-Dweiri, M., Ramadan, B., Rawshdeh, A., Nassoura, A., Al-Hamad, A., & Ahmad, A. (2024). The mediating role of lean operations on the relationship between supply chain integration and operational performance. *Uncertain Supply Chain Management*, 12(2), 1163-1174.
- Lin, C., Ahmad, S. F., Ayassrah, A. Y. B. A., Irshad, M., Telba, A. A., Awwad, E. M., & Majid, M. I. (2023). Green production and green technology for sustainability: The mediating role of waste reduction and energy use. *Heliyon*, e22496.
- M. K. Daoud, D. . Alqudah, M. . Al-Qeed, B. A. . Al Qaied, and A. Y. A. B. . Ahmad, "The Relationship Between Mobile Marketing and Customer Perceptions in Jordanian Commercial Banks: The Electronic Quality as A Mediator Variable", *ijmst*, vol. 10, no. 2, pp. 1360-1371, Jun. 2023
- Mohammad Jebreel, Mohammad Alnaimat, Amjad Al-Shorafa, Majed Qabajeh, Mohammad Alqsass, & Ahmad Bani Ahmad. (2023). The Impact of Activity Ratios on Change in Earnings (Case Study:Based on Jordanian Food Companies). *Kurdish Studies*, 11(2), 4551-4560. Retrieved from <https://kurdishstudies.net/menu-script/index.php/KS/article/view/1044>
- Mohammad Alqsass, Munir Al-Hakim, Qais Al Kilani, Lina Warrad, Majed Qabajeh, Ahmad Y. A. Bani Ahmad, & Adnan qubbaja. (2023). The Impact of Operating Cash Flow on Earnings Per Share (Case Study Based on Jordanian Banks). *Kurdish Studies*, 11(2), 2718-2729. Retrieved from <https://kurdishstudies.net/menu-script/index.php/KS/article/view/831>
- Mohammad Alqsass, Munir Al-Haki, Mohammad Dweiri, Majed Qabajeh, Dmaithan almajali, Ahmad Bani Ahmad, & Adnan Qubbaja. (2023). The Impact of Current Ratio on Net Profit Margin (Case Study: Based on Jordanian Banks). *Kurdish Studies*, 11(2), 2894-2903. Retrieved from <https://kurdishstudies.net/menu-script/index.php/KS/article/view/834>

- Mustafa, J. A., ATTA, A. A. B., AHMAD, A. Y. B., SHEHADEH, M., & Agustina, R. (2023). Spillover Effect in Islamic and Conventional Fund Family: Evidence from Emerging Countries. *WSEAS Transactions on Business and Economics*, 20, 1042-1058.
- Mohsin, H. J., Hani, L. Y. B., Atta, A. A. B., Al-Alawneh, N. A. K., Ahmad, A. B., & Samara, H. H. (2023). THE IMPACT OF DIGITAL FINANCIAL TECHNOLOGIES ON THE DEVELOPMENT OF ENTREPRENEURSHIP: EVIDENCE FROM COMMERCIAL BANKS IN THE EMERGING MARKETS.
- Ni, L., Ahmad, S. F., Alshammari, T. O., Liang, H., Alsanie, G., Irshad, M., ... & Ayassrah, A. Y. B. A. (2023). The role of environmental regulation and green human capital towards sustainable development: The mediating role of green innovation and industry upgradation. *Journal of Cleaner Production*, 138497.
- Peng, Yixuan, Sayed Fayaz Ahmad, Ahmad Y. A. Bani Ahmad, Mustafa S. Al Shaikh, Mohammad Khalaf Daoud, and Fuad Mohammed Hussein Alhamdi. 2023. "Riding the Waves of Artificial Intelligence in Advancing Accounting and Its Implications for Sustainable Development Goals" *Sustainability* 15, no. 19: 14165. <https://doi.org/10.3390/su151914165>
- Peiran Liang, Yulu Guo, Sohaib Tahir Chauhdary, Manoj Kumar Agrawal, Sayed Fayaz Ahmad, Ahmad Yahiya ,Ahmad Bani Ahmad, Ahmad A. Ifseisi, Tiancheng Ji,2024" Sustainable development and multi-aspect ,analysis of a novel polygeneration system using biogas upgrading and LNG regasification processes ,producing power, heating, fresh water and liquid CO₂",*Process Safety and Environmental Protection*
- Peiran Liang, Yulu Guo, Tirumala Uday Kumar Nutakki, Manoj Kumar Agrawal, Taseer Muhammad, Sayed ,Fayaz Ahmad, Ahmad Yahiya Ahmad Bani Ahmad, Muxing Qin 2024. " Comprehensive assessment and sustainability improvement of a natural gas power plant utilizing an environmentally friendly combined cooling heating and power-desalination arrangement" *Journal of Cleaner, ,Production*,Volume 436,,140387
- R. A. Y. A. Bani Ahmad, Y. M. A. Tarshany, F. T. M. Ayasrah, F. S. Mohamad, S. I. A. Saany and B. Pandey, "The Role of Cybersecurity in E-Commerce to Achieve the Maqasid of Money," 2023 International Conference on Computer Science and Emerging Technologies (CSET), Bangalore, India, 2023, pp. 1-8, doi: 10.1109/CSET58993.2023.10346972.
- Rumman, G., Alkhazali, A., Barnat, S., Alzoubi, S., AlZagheer, H., Dalbough, M., ... & Darawsheh, S. (2024). The contemporary management accounting practices adoption in the public industry: Evidence from Jordan. *International Journal of Data and Network Science*, 8(2), 1237-1246.
- Singh, R., Gupta, N. R., & Ahmad, A. Y. (2024). An Empirical Study on Challenges of Working From Home During COVID-19 on Work-Life Domains in the Education Sector in Bengaluru. In S. Singh, S. Rajest, S. Hadoussa, A. Obaid, & R. Regin (Eds.), *Data-Driven Intelligent Business Sustainability* (pp. 111-121). IGI Global. <https://doi.org/10.4018/979-8-3693-0049-7.ch008>
- William, P., Ahmad, A. Y. B., Deepak, A., Gupta, R., Bajaj, K. K., & Deshmukh, R. (2024). Sustainable Implementation of Artificial Intelligence Based Decision Support System for Irrigation Projects in the Development of Rural Settlements. *International Journal of Intelligent Systems and Applications in Engineering*, 12(3s), 48-56.
- Wang, C., Ahmad, S. F., Ayassrah, A. Y. B. A., Awwad, E. M., Irshad, M., Ali, Y. A., ... & Han, H. (2023). An empirical evaluation of technology acceptance model for Artificial Intelligence in E-commerce. *Heliyon*, 9(8).
- Yahiya Ahmad Bani Ahmad (Ayassrah), Ahmad; Ahmad Mahmoud Bani Atta, Anas; Ali Alawawdeh, Hanan; Abdallah Aljundi, Nawaf; Morshed, Amer; and Amin Dahbour, Saleh (2023) "The Effect of System Quality and User Quality of Information Technology on Internal Audit Effectiveness in Jordan, And the Moderating Effect of Management Support," *Applied Mathematics & Information Sciences*: Vol. 17: Iss. 5, Article 12.DOI: <https://dx.doi.org/10.18576/amis/170512>
- Zhan, Y., Ahmad, S. F., Irshad, M., Al-Razgan, M., Awwad, E. M., Ali, Y. A., & Ayassrah, A. Y. B. A. (2024). Investigating the role of Cybersecurity's perceived threats in the adoption of health information systems. *Heliyon*, 10(1).
- Raza, A., Al Nasar, M. R., Hanandeh, E. S., Zitar, R. A., Nasereddin, A. Y., & Abualigah, L. (2023). A Novel Methodology for Human Kinematics Motion Detection Based on Smartphones Sensor Data Using
- Wu, J., Ahmad, S. F., Ali, Y. A., Al-Razgan, M., Awwad, E. M., & Ayassrah, A. Y. B. A. (2024). Investigating the role of green behavior and perceived benefits in shaping green car buying behavior with environmental awareness as a moderator. *Heliyon*, 10(9).
- Yahiya, A., & Ahmad, B. (2024). Automated debt recovery systems: Harnessing AI for enhanced performance. *Journal of Infrastructure, Policy and Development*, 8(7), 4893.

- Al-Waely, D., Fraihat, B. A. M., Al Hawamdeh, H., Al-Tae, H., & Al-Kadhimi, A. M. M. N. (2021). Competitive Intelligence Dimensions as a Tool for Reducing the Business Environment Gaps: An Empirical Study on the Travel Agencies in Jordan. *Journal of Hunan University Natural Sciences*, 48(11).
- Zhao, T., Ahmad, S. F., Agrawal, M. K., Ahmad, A. Y. A. B., Ghfar, A. A., Valsalan, P., ... & Gao, X. (2024). Design and thermo-enviro-economic analyses of a novel thermal design process for a CCHP-desalination application using LNG regasification integrated with a gas turbine power plant. *Energy*, 295, 131003.