

Studies in Computational Intelligence 1152

Abdalmuttaieb M. A. Musleh Al-Sartawi  
Arafat Salih Aydiner  
Mohammad Kanan *Editors*

# Business Analytical Capabilities and Artificial Intelligence-enabled Analytics: Applications and Challenges in the Digital Era, Volume 2

# **Studies in Computational Intelligence**

Volume 1152

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Editors

# Business Analytical Capabilities and Artificial Intelligence-enabled Analytics: Applications and Challenges in the Digital Era, Volume 2



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# Foreword

The value of business analytics and artificial intelligence (AI) has been separately discussed at the foreground of research for business, marketing, and operations management. Despite the strategic importance of business analytics and AI, there has been a paucity of studies on the role of AI in invoking business analytics capabilities. In today's dynamic business environment, with continuously growing information and its volume based on tremendous size of data growing to the level of big data, business intelligence (BI) is insufficient to tackle business operations on its own. Data analytics as well as machine learning approaches need to be more strongly linked to the planning, management, and control of business and requirements engineering processes [1].

However, the primary focus of most current big data analytics tools and technologies is on storage, processing, and in particular data analysis and machine learning tasks. Additionally, in the current digital landscape, AI is increasingly becoming a more effective digital realm promised to facilitate immediate access to information and effective decision making in ever-increasing business environments [2, 3]. Therefore, AI can be used to support analytics, whereby both AI and big data analytics complement each other. Both AI and big data-driven tools present forecasting and visualization, diagnosis and predictions, deep learning, and business analytics. With smart malware coupled with the necessity for Internet-of-Things (IoT), we need a better intelligence system such as AI for effective decision-making [4].

With AI along with its two other subsets, i.e., machine learning (ML) and deep learning (DL), we have a better chance against any cyber-attacks and making operations within businesses more robust as well as making planning and decision-taking more trustworthy [5]. The aforementioned cutting-edge technologies have revolutionized how businesses analyze data, gain insights, and make informed decisions [6]. One prominent trend is the emergence and prominence of predictive analytics. The algorithms of AI and its subset ML can filter through vast amounts of data to identify trends, patterns, and correlations, enabling decision-makers to make accurate predictions about future outcomes, thus improving decision outcomes and payoffs immensely [7]. Overall, AI and its subsets in BI can help businesses and managers to automate processes and get actionable insights from information and data which

lead to improved strategic planning and decision-making [8]. This eventually helps businesses to gain and sustain competitive advantage in today's data-driven societies.

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# Preface

Using technology to improve decision-making and solving complex problems has become a highly active research and practice area. Technologies like artificial intelligence (AI), big data analytics, Internet of Things (IoT), and many more have acquired a major part of the operations of businesses for decision-making. The discussion in this book postulates that businesses should adopt AI strategies that are an extension of their existing big data and business analytical capabilities. Therefore, this book *Business Analytical Capabilities and Artificial Intelligence-Enabled Analytics: Applications and Challenges in the Digital Era* provides a comprehensive reference work for scholars, academics, students, managers, entrepreneurs, and policymakers by examining frameworks and business practice implications through its discussions which embraces a wide variety of unique topics on business analytics, AI and how these technologies can be applied together to address the challenges of the digital era.

This publication features chapters from a variety of perspectives, disciplines, and communities seeking the advancement of knowledge on big data, artificial intelligence, and other technologies for strategic and business decision making. The publication therefore presents interdisciplinary topics in the fields of technology specifically from the viewpoint of applications, opportunities, and challenges that businesses are facing while using technology for analytics, decision-making and developing strategies.

This book consists of 70 chapters which are full research papers. The book submissions were reviewed in a double-blind process by researchers and scholars in the relevant fields.

This book showcases a wide range of important topics and areas in accounting, finance, banking, human resources, health, media, sports, and many more. These include but not limited to

- the application of cyber accounting for achieving strategic objectives,
- the impact of big data analytics capabilities on decision making at the telecommunications sector,
- the role of robotic process automation in internal auditing quality in banks,

- mobile payment and digital financial inclusion,
- technology and its impact on patient's decision for selecting treatment,
- digital media marketing and sports brand loyalty, and
- the applications of AI for talent acquisition strategies in technology startups.

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# The Influence of Cybersecurity Leadership on the Resilience of Jordanian Businesses: A Study on the Role of Cybersecurity Measures in Entrepreneurial Success



**Ala'a M. Al-Momani, Mohammad Sarram, Saed Majed Zighan, Rehan Tareq Al-Majali, Najah Al-shanableh, Seyed Ghasem Saatchi, Tamather Majed Shatnawi, Nancy S. Alajarmeh, Sulieman Ibraheem Shelash Al-Hawary, and Anber Abraheem Shlash Mohammad**

**Abstract** Theoretical management thought posits that the challenge of addressing cyber risks has instigated a reevaluation of business resilience, particularly as organizations increasingly adopt digital transformation strategies. To empirically investigate this proposition, this paper delves into the realm of cybersecurity measures and their influence on business resilience. Employing a cross-sectional research design and a quantitative methodology involving 255 respondents, encompassing

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entrepreneurial SME managers, the study collected the essential data for its investigation. Structural equation modeling techniques were leveraged to scrutinize both the measurement model and the structural model. The study's findings ultimately underscore the positive impact of cybersecurity measures on business resilience, particularly in the context of detection. Consequently, we recommend a multifaceted approach for SMEs, with a focus on prioritizing comprehensive cybersecurity training for their employees. This approach should aim to cultivate a culture of awareness and vigilance within the organization, further strengthening its cybersecurity defenses and enhancing its overall resilience.

**Keywords** Cybersecurity measures · Business resilience · Entrepreneurship · SMEs · Jordan

## 1 Introduction

Business resilience, often referred to as organizational resilience, stands as a paramount concept in the realm of commerce and industry, as observed by [1–4]. It encompasses an organization's inherent capability to adapt, endure, and recuperate from a spectrum of challenges, disruptions, and unforeseen events while preserving its core operations and functionalities, in alignment with the insights of [2, 5–10]. In essence, business resilience epitomizes an entity's capacity to navigate through adversities, be they in the guise of economic contractions, natural calamities, supply chain disruptions, or other unanticipated circumstances, in concordance with the perspectives of [3, 11–17]. It is noteworthy to emphasize that business resilience entails a proactive and strategic approach to risk management, meticulous contingency planning, and the agility to rebound from setbacks [4–9, 13, 18]. Through the cultivation of resilience, enterprises can not only persevere during times of crisis but also prosper and expand in the face of adversity, ultimately ensuring their long-term sustainability and prosperity, in accordance with the findings of [11, 19, 20].

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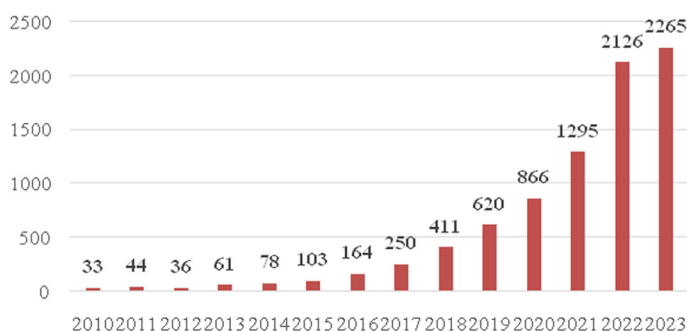
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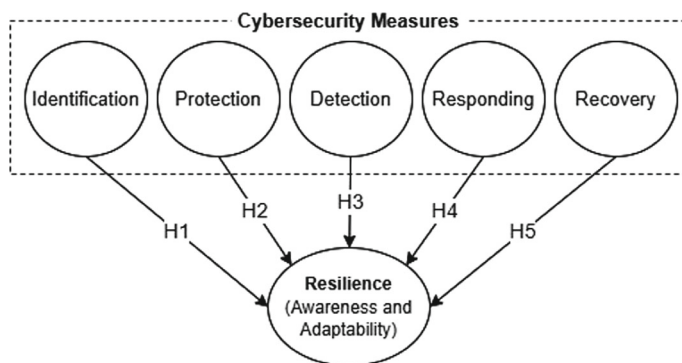
The Scopus database shows that cybersecurity research papers started being included in indexed journals starting in 1999. Between 2010 and November 7, 2023, there was a total of 8,352 articles written in English and indexed with the term “cybersecurity”. Out of these, 5686 articles have been indexed since 2021, highlighting the increasingly crucial role that cybersecurity measures play in protecting sensitive data, critical infrastructure, and the overall integrity of organizations. See Fig. 1. Moreover, using VOSviewer software for bibliometric network analysis revealed that prominent keywords in the chosen database include cybersecurity ( $f = 5576$ ), cyberattack ( $f = 274$ ), and resilience ( $f = 85$ ). Figure 2 highlights the focus on cybersecurity research. Accordingly, the topic of cybersecurity is important for several reasons. (1) Cybersecurity measures encompass a diverse spectrum of practices, technologies, and policies meticulously devised to shield digital assets from the perils of cyber threats and attacks [12–16, 21–24]. (2) Cybersecurity has evolved into an indispensable facet of daily operations for businesses, governments, and individuals [10, 25–31]. (3) This transition has been necessitated by the escalating frequency and sophistication of cyberattacks [7, 19, 32–35]. (4) The primary objectives of cybersecurity measures are to thwart unauthorized access, prevent data breaches, and mitigate disruptions to digital infrastructure. They are ultimately designed to ensure the confidentiality, integrity, and availability of sensitive information and critical systems [17, 36–40]. (5) In the entrepreneurial landscape of Jordan, the impact of cybersecurity measures on the business resilience of Small and Medium-sized Enterprises (SMEs) is a pressing concern in the contemporary digitally driven world. (6) As these SMEs relentlessly pursue growth and adaptability in an environment characterized by constant change, the effective implementation and influence of cybersecurity measures remain subjects of paramount importance.

Therefore, this research seeks to probe fundamental questions pertaining to the extent of cybersecurity adoption among SMEs, its consequential impact on their business resilience, the prevailing challenges and vulnerabilities they encounter, sector-specific disparities, and the strategic approaches that SMEs can employ to reinforce their cybersecurity defenses. By immersing itself in the examination of these critical



**Fig. 1** Distribution of articles over years (Scopus database)





**Fig. 3** Research conceptual framework

business resilience. These studies collectively underscore the imperative need for effective cybersecurity measures and the development of resilience metrics to fortify business resilience in the face of cyber threats. Figure 3 offers a visual representation of the proposed conceptual framework for this research, illustrating the manner in which cybersecurity measures impact business resilience.

In order to scrutinize the relationships between cybersecurity measures and business resilience, the research endeavors to assess the following hypotheses:

**Hypothesis 1 (H1):** Business resilience is significantly bolstered by identification.

**Hypothesis 2 (H2):** Business resilience is significantly bolstered by protection.

**Hypothesis 3 (H3):** Business resilience is significantly bolstered by detection.

**Hypothesis 4 (H4):** Business resilience is significantly bolstered by responding.

**Hypothesis 5 (H5):** Business resilience is significantly bolstered by recovery.

### 3 Research Methodology

This research adopted a cross-sectional design to investigate the impact of cybersecurity measures on business resilience at entrepreneurship SMEs in Jordan. The cross-sectional design emphasizes concurrently collecting research data from sample members during a specific timeframe [46–52]. In this research, data collection through surveys took place from August 27 to October 29, 2023. The research approach was primarily quantitative and involved a questionnaire developed based on an extensive review of the existing literature. In the data analysis phase, the study applied structural equation modeling (SEM) using the software tool AMOS to scrutinize the collected data.

Data pertaining to the impact of cybersecurity measures on business resilience was gathered from a diverse population of managers of entrepreneurship SMEs in Jordan, for example, Flux Wireless, liwwa, B- DARA, and Al-Rai General Trade.

Due to the temporal restrictions and the large size of the study population, the comprehensive survey approach was not efficient. Hence, the sampling method was deemed necessary. Convenience sampling was chosen as the most appropriate method, particularly when the researcher cannot accurately identify the target population [53–57]. A sample size of 200 respondents at least was determined based on the guidelines of [58]. Consequently, an electronic version of the survey was developed, and its link was disseminated through the official websites of these companies. In total, 274 responses were received, with 19 responses deemed disproportionate for statistical analysis. After the exclusion of these responses, the final sample for this research comprised 255 respondents, representing an adequacy rate of 93% of what was received.

The primary instrument employed in this research investigation was a self-administered questionnaire. This questionnaire encompassed several sections, including a cover letter outlining the research's objectives, emphasizing the voluntary nature of participation, and underscoring the commitment to ethical research considerations. Additionally, a segment of the questionnaire was dedicated to the collection of categorical demographic information from the respondents, while two other sections were designated for gathering data related to the primary research variables. To gauge respondents' perspectives on the research variables, a five-point Likert scale was utilized. This scale ranged from a minimum rating of 1, indicating "strongly disagree," to a maximum rating of 5, signifying "strongly agree."

In this research, cybersecurity measures served as the independent variable, encompassing a set of items derived from [59]. Meanwhile, cybersecurity measures were conceptualized as a second-order construct, further branching into five distinct first-order constructs with five items for each. These constructs, each exploring various facets of cybersecurity measures, included identification (ID1–ID5); protection (PR1–PR5); detection (DE1–DE5); responding (RS1–RS5); and recovery (RC1–RC5). On the other hand, the dependent variable in this research was business resilience, with the items for measurement obtained from [2]. Business resilience was treated as a second-order construct branching into five first-order constructs with four items for each, which were awareness and adaptability.

## 4 Research Findings

To assess the relationships between the constructs and their observed items, confirmatory factor analysis (CFA) was employed in this research. The estimation process encompassed an overall goodness-of-fit assessment, as well as individual evaluations of the validity and reliability of the research instrument. As advocated by [36], CFA is a valuable technique for grouping observed variables into their respective structures, thereby enhancing the model's capacity for generalization. The outcomes of the assessments of item and construct validity and reliability related to the impact of cybersecurity measures on business resilience are presented in Table 1.



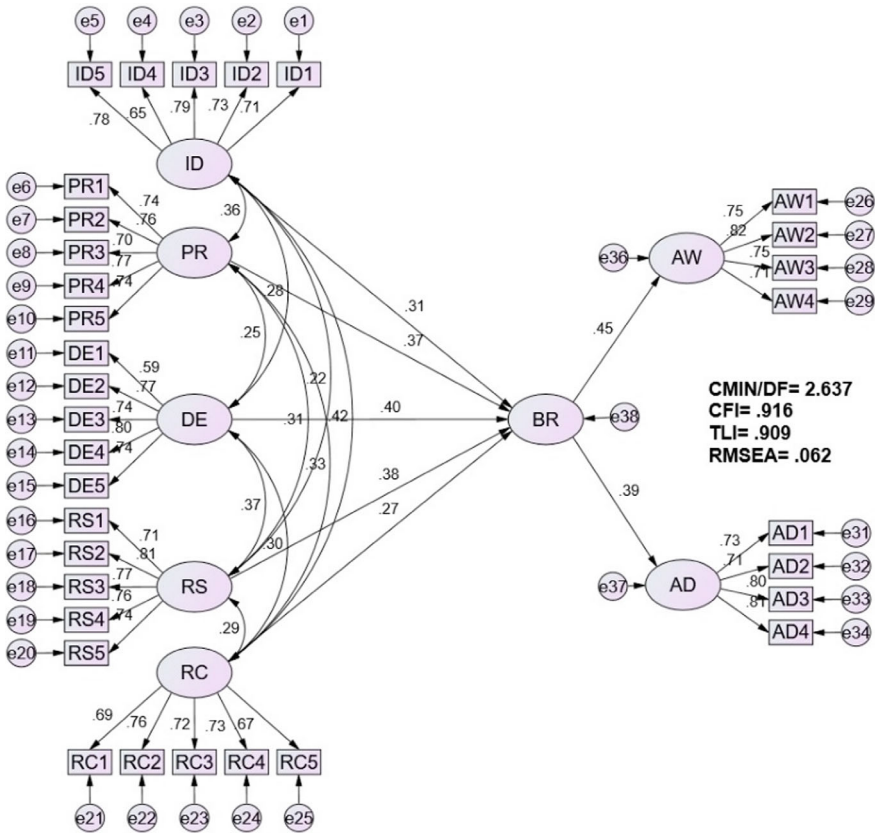
**Table 1** Summary of measurement model evaluation

Variables	Items	Loadings range	AVE	MSV	$\sqrt{\text{AVE}}$	CR	VIF
Identification	[ID1–ID5]	[0.653–0.792]	0.543	0.497	0.737	0.855	2.135
Protection	[PR1–PR5]	[0.703–0.773]	0.553	0.502	0.743	0.861	1.922
Detection	[DE1–DE5]	[0.592–0.804]	0.537	0.483	0.733	0.852	1.764
Responding	[RS1–RS5]	[0.715–0.813]	0.580	0.499	0.761	0.873	2.556
Recovery	[RC1–RC5]	[0.674–0.764]	0.514	0.508	0.717	0.841	2.168
Awareness	[AW1–AW4]	[0.711–0.822]	0.575	0.510	0.759	0.844	–
Adaptability	[AD1–AD4]	[0.709–0.813]	0.585	0.513	0.764	0.849	–

The loadings of the items, as revealed in the results presented in Table 1, fell within the range of 0.592–0.822. These values indicated that all items were deemed acceptable and were retained within the model, as they exceeded the commonly recognized threshold of 0.50 [23, 60–62]. Convergent validity was evaluated using the average variance extracted (AVE), and the results demonstrated that the AVE values ranged from 0.514 to 0.585. These results comfortably surpassed the minimum threshold of 0.50 [34, 63–67], confirming the convergent validity of the research instrument. To ascertain discriminant validity, the method of comparisons, as advocated by [28], was applied. The results of these comparisons showed that the values of AVE outperformed the maximum shared variance (MSV) values, and the square root of AVE was greater than 0.70 and exceeded the correlation values between the remaining variables in the model. Hence, it can be deduced that the measurement model exhibited discriminant validity.

In terms of reliability, composite reliability (CR) was evaluated using McDonald's Omega coefficients [36, 68–71]. The results demonstrated that the CR values ranged between 0.841 and 0.873, surpassing the minimum threshold of 0.70 [13, 16, 29, 72–74]. This indicates that the model, which assesses the impact of cybersecurity measures on business resilience, achieved satisfactory levels of validity and reliability. Moreover, concerning the independent variables, specifically the cybersecurity measures, it was determined that they were not afflicted by multicollinearity. The variance inflation factor (VIF) values were found to be below the generally accepted upper limit of 5 [75].

Structural Equation Modeling (SEM) is an extensive statistical technique for testing hypotheses about the relationships among dependent and independent variables. The study's hypotheses were assessed using AMOS software, which facilitates the examination of the connections between the elements of the conceptual framework being analyzed. In line with this methodology, the adequacy of fit between the test model and the theoretical model is assessed through goodness-of-fit indicators. Additionally, standardized and non-standardized impact coefficients are derived from gauging the relationships [33, 42, 56, 76–78]. Figure 4 illustrates the structural model designed for the evaluation of the impact of cybersecurity measures on business resilience, emphasizing the values of goodness-of-fit indicators.



**Fig. 4** SEM for the impact of cybersecurity measures on business resilience

As illustrated in Fig. 4, the model’s goodness of fit was evaluated using various indices. The minimum discrepancy per degree of freedom (CMIN/df) was found to be 2.637, which falls below the accepted threshold of 3 [41, 61, 79, 80]. The incremental fit indices, specifically the Comparative Fit Index (CFI) and the Tucker-Lewis Index (TLI), displayed values of 0.916 and 0.909, respectively. These values exceed the recommended threshold of 0.90 [54], indicating a good fit for the model. The root mean square error of approximation (RMSEA) yielded a value of 0.062, which is less than the threshold of 0.08 [48, 53], further confirming the model’s suitability. Table 2 provides the results of hypothesis testing, shedding light on the significance of the relationships between the independent variables and the dependent variable.

The findings in Table 2 revealed that cybersecurity measures had a notable and statistically significant impact on business resilience. The coefficient of determination ( $R^2$ ) reached a value of 0.603, suggesting that approximately 60% of the variance in business resilience can be attributed to variations in cybersecurity measures. Furthermore, the results indicated variations in the impact of different measures of

**Table 2** Path analysis coefficients for hypothesis testing

Paths	B	S.E.	Beta	T	P	R <sup>2</sup>
Identification → business resilience	0.325	0.063	0.311	5.16	0.002	0.603
Protection → business resilience	0.374	0.060	0.366	6.23	0.000	
Detection → business resilience	0.411	0.057	0.402	7.21	0.000	
Responding → business resilience	0.395	0.059	0.382	6.69	0.000	
Recovery → business resilience	0.297	0.064	0.273	4.64	0.007	

cybersecurity on business resilience. Detection ( $\beta = 0.402$ ,  $t = 7.21$ ,  $p < 0.001$ ) emerged as the most influential dimension, followed by responding ( $\beta = 0.382$ ,  $t = 6.69$ ,  $p < 0.001$ ) in the second position, then protection ( $\beta = 0.366$ ,  $t = 6.23$ ,  $p < 0.001$ ), identification ( $\beta = 0.311$ ,  $t = 5.16$ ,  $p < 0.01$ ), and recovery ( $\beta = 0.273$ ,  $t = 4.64$ ,  $p < 0.001$ ) which occupied the last position in terms of impact.

## 5 Conclusion

The affirmative impact of cybersecurity measures on the business resilience of Small and Medium-sized Enterprises (SMEs) within the entrepreneurial landscape of Jordan is unequivocal. In a region where SMEs assume a pivotal role in driving economic development and employment opportunities, the effective implementation of cybersecurity measures can yield far-reaching advantages. Cybersecurity measures serve as an indispensable bulwark against cyber threats, ensuring the confidentiality, integrity, and accessibility of critical data. This protection is of paramount importance in preserving the trust of customers and stakeholders. Furthermore, in the event of a cyber incident, the capacity to swiftly recover and minimize downtime, as highlighted by [44], constitutes a notable advantage. This, in turn, contributes to the resilience of SMEs, permitting them to sustain their operations and cater to their clientele even in the face of adversity. The adaptive potential afforded by cybersecurity measures ensures that SMEs can adapt and remain ahead of emerging threats. Such adaptability is indispensable for the long-term resilience of businesses, given the continually evolving threat landscape. Additionally, the implementation of cybersecurity measures aids SMEs in Jordan in mitigating risks and aligning with regulatory compliance standards, thus averting legal consequences and further solidifying their resilience, in line with the insights of [22].

In conclusion, the affirmative impact of cybersecurity measures on the business resilience of Entrepreneurship SMEs in Jordan is multifaceted and of paramount significance for their viability and expansion. Through the strategic implementation of cybersecurity measures, SMEs can safeguard their data, preserve customer trust, and rapidly recover from cyber incidents, thereby securing their capacity to adapt and flourish in a digital age characterized by formidable cybersecurity challenges. In this context, cybersecurity emerges as a catalyst for entrepreneurial success in

Jordan and plays an integral role in enhancing the sustainability of SMEs within a swiftly evolving business landscape.

## 6 Recommendations

To harness the positive impact of cybersecurity measures on the business resilience of Entrepreneurship Small and Medium-sized Enterprises (SMEs) in Jordan, a multi-faceted approach is recommended. First and foremost, SMEs should prioritize comprehensive cybersecurity training for their employees, cultivating a culture of awareness and vigilance. Developing a robust incident response plan is equally essential, as it guides swift and efficient actions in the event of a cybersecurity breach. Measures such as data encryption, regular vulnerability assessments, access control, and network security must be implemented to fortify digital defenses. Furthermore, proactive steps such as supplier and third-party risk assessment, regulatory compliance, and cybersecurity audits should be integrated into the cybersecurity strategy. Collaboration and information sharing among SMEs, combined with cybersecurity insurance, can further enhance resilience.

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# The Relationship Between Leadership Agility and Entrepreneurial Resilience Among Jordanian Small and Medium-Sized Enterprises (SMEs)



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**Abstract** Small and medium-sized enterprises (SMEs) represent the predominant segment of Jordan's economy, which is fundamentally underpinned by entrepreneurial endeavors. Given their constrained resources and operation within a volatile milieu, SMEs often confront the specter of failure unless they institute a well-defined strategy that fosters agile leadership and bolsters their entrepreneurial resilience. Thus, the primary aim of this research was to investigate the impact of leadership agility on entrepreneurial resilience. The study's research cohort comprised managers hailing from small and medium-sized enterprises within the Jordanian landscape, and a judiciously selected sample of 407 managers was secured for analysis. Employing structural equation modeling, both the measurement model and

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structural model of the research were meticulously assessed. The research findings substantiated that the facets of leadership agility, with particular emphasis on uncertainty absorbing, significantly contributed to the augmentation of entrepreneurial resilience. As a consequence, it is imperative that leadership development programs be meticulously crafted to endow current and aspiring leaders with the requisite skills and a forward-thinking mindset that enables the making of flexible decisions and the inspiration of innovation within SMEs.

**Keywords** Leadership agility · Customer entrepreneurial resilience · Small and medium-sized enterprises · Jordan

## 1 Introduction

In the contemporary and ever-changing business environment, an organization's capacity to confront uncertainty, adjust to fluctuations, and persist in the presence of challenges has assumed paramount importance. This is particularly pertinent for small and medium-sized enterprises (SMEs), which are often characterized by limited resources, susceptibility to market vicissitudes, and a continuous demand for innovation to maintain competitiveness [1–6]. Within this context, the notion of entrepreneurial resilience has garnered substantial recognition as a pivotal factor influencing an organization's ability not only to endure but also to flourish when

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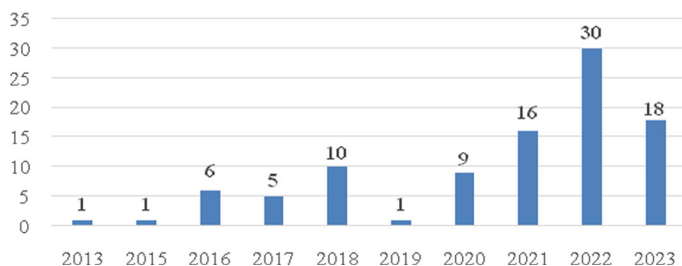
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confronted with adversity [7–13]. Entrepreneurial resilience encompasses an organization's capacity to endure disruptions, effectively recover from setbacks, and persistently pursue its objectives, even in the face of adverse conditions [14–23].

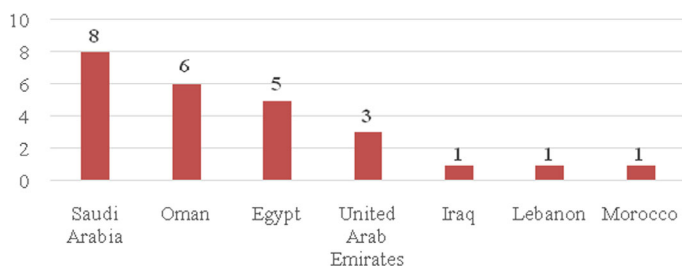
Entrepreneurial resilience as an organizational capability to rebound effectively from challenging situations and turbulence, thereby facilitating the preservation of its strategic objectives and the relentless pursuit of long-term goals [24–26]. Moreover, the multifaceted nature of entrepreneurial resilience, which encompasses elements such as organizational culture, resource allocation, and a proactive stance towards risk and adaptation [27–30]. Entrepreneurial resilience, as a dynamic and indispensable attribute, empowers organizations to not only acclimate to evolving circumstances but also leverage opportunities, even when confronted with adversity.

Leadership agility represents a critical psychological dimension embraced by leaders to stimulate favorable employee conduct and fortify their capacity to align with the strategic trajectory of the organization [25, 31–37]. The concept of leadership agility, as articulated by [38], encompasses a leader's proficiency in navigating complexity and ambiguity with dexterity. On the other hand, the aptitude to adopt diverse perspectives, make well-informed decisions, and tailor one's leadership approach to harmonize with the prevailing context [39]. In accordance with [29, 40–42], agile leaders possess the capacity to flexibly adapt their approach in accordance with the distinct requirements of their team members and the exigencies of the prevailing situation. This adaptability lends itself to enhanced leader-team synergy, thereby fostering ameliorated organizational outcomes. Moreover, this genre of leadership is distinguished by a perpetually evolving learning orientation, adeptness in thriving amidst uncertainty, and a profound comprehension of the mechanisms that underpin effective leadership across various contexts [3, 28, 43–47].

According to the Scopus database, research papers on entrepreneurial resilience began appearing in indexed journals in 2013. From 2013 to November 3, 2023, there were 79 English-language journal articles indexed with “entrepreneurial resilience” in the title. According to data from the Scopus database, see Fig. 1, there is an observable increasing trend in the number of publications over the years. Reflecting on the ongoing challenges in the global economy and increasing market competition. Moreover, the distribution of research on entrepreneurial resilience within Arab nations, as cataloged in the Scopus database (see Fig. 2), indicates a disparate level of engagement with the topic. Notably, the lack of research emanating from Jordan stands out, indicating a substantial void in the scholarly discourse that could otherwise offer insights into the development of resilience among Jordanian entrepreneurs amid economic adversities. Accordingly, this research includes several gaps. (1) There is an unexamined relationship between leadership agility and entrepreneurial resilience in Jordanian SMEs. (2) Jordan's SMEs face challenges like market instability and technological shifts. (3) There is a noticeable lack of research on how leadership agility affects entrepreneurial resilience in Jordan. (4) Without in-depth research, Jordanian SMEs may struggle to meet unique challenges, use resources wisely, and understand local business practices and regulations [48–51]. Therefore, it is crucial to delve into how leadership agility influences entrepreneurial resilience. Such research will yield critical insights that can guide business leaders, policymakers, and academics in



**Fig. 1** Distribution of articles over years (Scopus database)



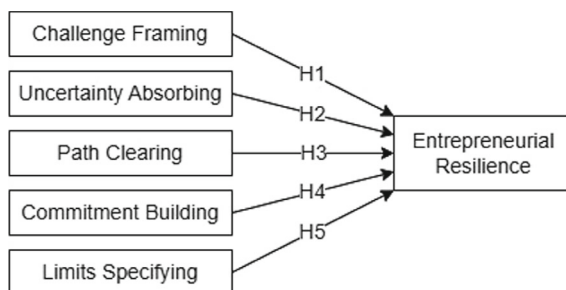
**Fig. 2** Distribution of articles across countries (Scopus database)

strengthening the resilience and subsequent success of Jordanian businesses, forming a cohesive strategy for long-term stability and growth.

## 2 Background and Research Hypotheses

Papla and Pak [52] have posited that a critical component in the development of strategic agility during times of crisis lies in the effective management of flexibility tensions [52]. Their research culminated in the formulation of a model that amalgamates agile strategic leadership techniques with entrepreneurial resilience. Building upon this, Wahyudono [53] has discerned that a leader's degree of entrepreneurial resilience significantly impacts the performance of emerging hotels, equipping them to navigate the persistent turbulence characterizing the business milieu [53]. Concurrently, Hutchinson and colleagues [54] have shed light on leadership practices and behaviors that contribute to the cultivation of entrepreneurial resilience [54]. Moreover, Lee and Wang [55] have investigated to identify the catalysts and impediments to entrepreneurial resilience, offering an integrated model that enriches the theoretical framework of entrepreneurial resilience through agile human resource management methodologies [55]. Hence, it is imperative to recognize that leadership agility, encompassing entrepreneurial leadership, constitutes an indispensable

**Fig. 3** Research conceptual framework



facet in the augmentation of entrepreneurial resilience, thus enhancing the performance and competitive edge of SMEs. Figure 3 provides a visual representation of the proposed conceptual framework for this research, illustrating leadership agility impact entrepreneurial resilience.

In order to scrutinize the relationships between leadership agility and entrepreneurial resilience, the research endeavors to assess the following hypotheses:

**Hypothesis 1 (H1):** Challenge framing positively influences entrepreneurial resilience.

**Hypothesis 2 (H2):** Uncertainty absorbing positively influences entrepreneurial resilience.

**Hypothesis 3 (H3):** Path clearing positively influences entrepreneurial resilience.

**Hypothesis 4 (H4):** Commitment building positively influences entrepreneurial resilience.

**Hypothesis 5 (H5):** Limits specifying positively influences entrepreneurial resilience.

### 3 Research Methodology

This research adopted a cross-sectional design to investigate the impact of leadership agility on entrepreneurial resilience in Jordanian small and medium-sized enterprises (SMEs). The cross-sectional design emphasizes concurrently collecting research data from sample members during a specific timeframe [56–61]. In this research, data collection through surveys took place from September 3 to October 29, 2023. The research approach was primarily quantitative and involved a questionnaire developed based on an extensive review of the existing literature. In the data analysis phase, the study applied structural equation modelling (SEM) using the software tool AMOS to scrutinize the collected data.

Data pertaining to the impact of leadership agility on entrepreneurial resilience was gathered from a diverse population of managers of SMEs in Jordan. Due to the temporal restrictions and the large size of the study population, the comprehensive survey approach was not efficient. Hence, the sampling method was deemed

necessary. Convenience sampling was chosen as the most appropriate method, particularly when the researcher cannot accurately identify the target population [62, 63]. A sample size of 385 respondents was determined based on the guidelines of [64]. Consequently, an electronic version of the survey was developed, and its link was disseminated through the official websites and social media of these companies. In total, 432 responses were received, with 25 responses deemed disproportionate for statistical analysis. After the exclusion of these responses, the final sample for this research comprised 407 respondents, representing a response rate of 94.2% of what was sent.

The primary instrument employed in this research investigation was a self-administered questionnaire. This questionnaire encompassed several sections, including a cover letter outlining the research's objectives, emphasizing the voluntary nature of participation, and underscoring the commitment to ethical research considerations. Additionally, a segment of the questionnaire was dedicated to the collection of categorical demographic information from the respondents, while two other sections were designated for gathering data related to the primary research variables. To gauge respondents' perspectives on the research variables, a five-point Likert scale was utilized. This scale ranged from a minimum rating of 1, indicating "strongly disagree," to a maximum rating of 5, signifying "strongly agree."

In this research, leadership agility served as the independent variable, encompassing a set of items derived from [43, 65]. Meanwhile, leadership agility was conceptualized as a second-order construct, further branching into five distinct first-order constructs. These constructs, each exploring various facets of leadership agility using five items, included challenge framing (CF1–CF5); uncertainty absorbing (UA1–UA5); path clearing (PC1–PC5); commitment building (CB1–CB5); and limits specifying (LS1–LS5). On the other hand, the dependent variable in this research was entrepreneurial resilience, with the items for measurement obtained from [24, 66]. Customer digital engagement was treated as a first-order construct with four items (ER1–ER4).

## 4 Research Findings

To assess the relationships between the constructs and their observed items, confirmatory factor analysis (CFA) was employed in this research. The estimation process encompassed an overall goodness-of-fit assessment, as well as individual evaluations of the validity and reliability of the research instrument. As advocated by [12], CFA is a valuable technique for grouping observed variables into their respective structures, thereby enhancing the model's capacity for generalization. The outcomes of the assessments of the item and construct validity and reliability related to the impact of leadership agility on entrepreneurial resilience are presented in Table 1.

The loadings of the items, as revealed in the results presented in Table 1, fell within the range of 0.652–0.824. These values indicated that all items were deemed acceptable and were retained within the model, as they exceeded the commonly recognized

**Table 1** Summary of measurement model evaluation

Variables	Items	Loadings range	AVE	MSV	$\sqrt{\text{AVE}}$	CR	VIF
Challenge framing	[CF1–CF5]	[0.675–0.792]	0.540	0.475	0.735	0.854	1.528
Uncertainty absorbing	[UA1–UA5]	[0.709–0.773]	0.541	0.486	0.735	0.855	1.645
Path clearing	[PC1–PC5]	[0.652–0.814]	0.544	0.502	0.738	0.856	2.055
Commitment building	[CB1–CB5]	[0.730–0.824]	0.613	0.511	0.783	0.888	1.880
Limits specifying	[LS1–LS5]	[0.706–0.781]	0.555	0.493	0.745	0.862	1.925
Entrepreneurial resilience	[ER1–ER4]	[0.691–0.799]	0.548	0.513	0.740	0.829	–

threshold of 0.50 [57, 67–71]. Convergent validity was evaluated using the average variance extracted (AVE), and the results demonstrated that the AVE values ranged from 0.540 to 0.613. These results comfortably surpassed the minimum threshold of 0.50 [33, 56, 72–75], confirming the convergent validity of the research instrument. To ascertain discriminant validity, the method of comparisons, as advocated by [34], was applied. The results of these comparisons showed that the values of AVE outperformed the maximum shared variance (MSV) values, and the square root of AVE was greater than 0.70 and exceeded the correlation values between the remaining variables in the model. Hence, it can be deduced that the measurement model exhibited discriminant validity.

In terms of reliability, composite reliability (CR) was evaluated using McDonald's Omega coefficients [8, 11, 74, 76, 77]. The results demonstrated that the CR values ranged between 0.829 and 0.888, surpassing the minimum threshold of 0.70 [78]. This indicates that the model, which assesses the impact of leadership agility on entrepreneurial resilience, achieved satisfactory levels of validity and reliability. Moreover, with regard to the independent variables, specifically the leadership agility, it was determined that they were not afflicted by multicollinearity. The variance inflation factor (VIF) values were found to be below the generally accepted upper limit of 5 [49, 72, 79, 80].

SEM stands as a comprehensive statistical method used to test theories regarding the links between dependent and independent variables. The hypotheses of the study were examined using the AMOS software, which assists in evaluating the relationships among the constructs of the conceptual framework under scrutiny. In line with this methodology, the adequacy of fit between the test model and the theoretical model is assessed through goodness-of-fit indicators. Additionally, standardized and non-standardized impact coefficients are derived from gauging the relationships [46]. Figure 4 illustrates the structural model designed for the evaluation of the impact of leadership agility on entrepreneurial resilience, emphasizing the values of goodness-of-fit indicators.



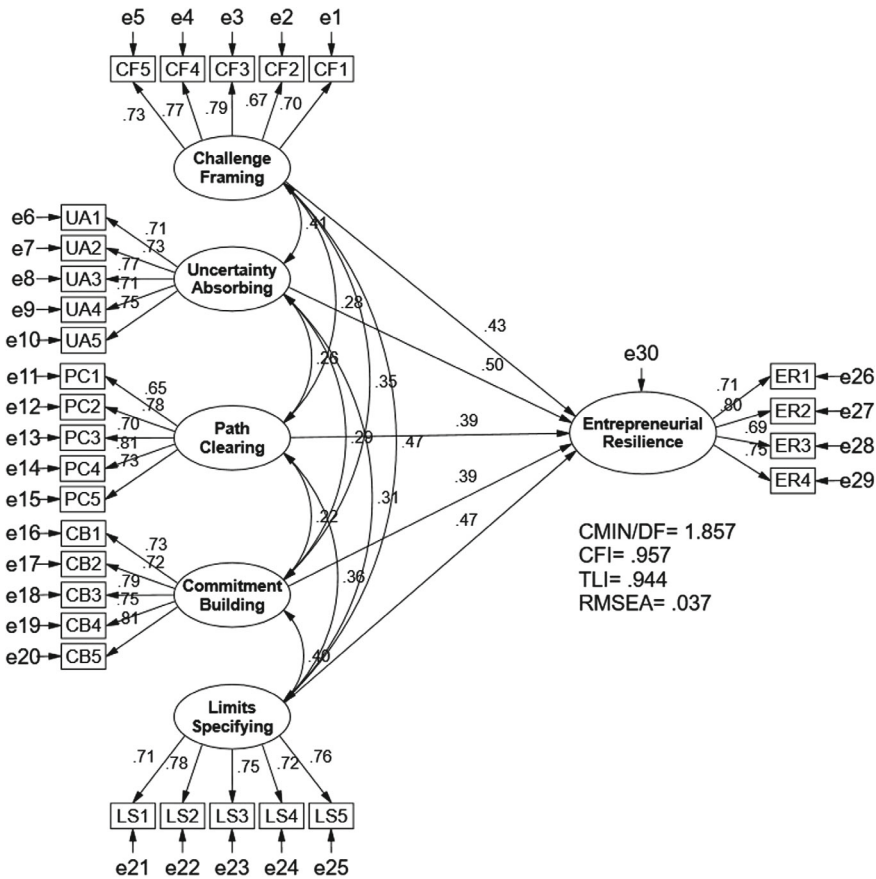


Fig. 4 SEM for the impact of leadership agility on entrepreneurial resilience

As illustrated in Fig. 4, the model's goodness of fit was evaluated using various indices. The minimum discrepancy per degree of freedom (CMIN/df) was found to be 1.857, which falls below the accepted threshold of 3 [81]. The incremental fit indices, specifically the Comparative Fit Index (CFI) and the Tucker-Lewis Index (TLI), displayed values of 0.957 and 0.944, respectively. These values exceed the recommended threshold of 0.90 [82], indicating a good fit for the model. The root mean square error of approximation (RMSEA) yielded a value of 0.037, which is less than the threshold of 0.08 [62], further confirming the model's suitability. Table 2 provides the results of hypothesis testing, shedding light on the significance of the relationships between the independent variables and the dependent variable.

The findings in Table 2 revealed that leadership agility had a notable and statistically significant impact on entrepreneurial resilience. The coefficient of determination ( $R^2$ ) reached a value of 0.573, suggesting that approximately 57% of the variance in entrepreneurial resilience can be attributed to variations in leadership

**Table 2** Path analysis coefficients for hypothesis testing

Paths	B	S.E.	Beta	T	P	R <sup>2</sup>
Challenge framing → entrepreneurial resilience	0.458	0.068	0.431	6.73	0.003	0.573
Uncertainty absorbing → entrepreneurial resilience	0.514	0.066	0.502	7.78	0.000	
Path clearing → entrepreneurial resilience	0.403	0.070	0.387	5.76	0.02	
Commitment building → entrepreneurial resilience	0.411	0.067	0.395	6.13	0.008	
Limits specifying → entrepreneurial resilience	0.483	0.065	0.466	7.43	0.000	

agility. Furthermore, the results indicated variations in the impact of different leadership agility on entrepreneurial resilience. Especially, uncertainty absorbing ( $\beta = 0.502$ ,  $t = 7.78$ ,  $p < 0.001$ ) emerged as the most influential dimension, followed by limits specifying ( $\beta = 0.466$ ,  $t = 7.43$ ,  $p < 0.001$ ) in the second position, then challenge framing ( $\beta = 0.431$ ,  $t = 6.73$ ,  $p < 0.01$ ), Commitment building ( $\beta = 0.395$ ,  $t = 6.13$ ,  $p < 0.01$ ), and path clearing ( $\beta = 0.387$ ,  $t = 5.76$ ,  $p < 0.05$ ) which occupied the last position in terms of impact.

## 5 Conclusion

Leadership agility stands as a potent catalyst for augmenting entrepreneurial resilience in the realm of small and medium-sized enterprises (SMEs). Agile leaders exhibit a remarkable capacity to swiftly and judiciously make decisions in response to ever-evolving circumstances, thereby equipping enterprises with the agility to promptly adapt to challenges and mitigate the deleterious consequences of disruptive events. Joiner [38] underscores the pivotal role of leadership agility in cultivating a culture characterized by innovation and change [38]. This ethos fosters an environment that encourages experimentation and open-mindedness, which in turn enhances an enterprise's capacity to pivot and explore innovative strategies when confronted with unforeseen obstacles. Another facet where leadership agility shines is in resource management, as elucidated by [55]. It ensures the judicious allocation of resources, even in resource-constrained settings, thereby lending indispensable support to the resilience endeavors of SMEs.

During periods of crisis, agile leaders demonstrate remarkable composure, adeptly communicate, and provide effective guidance to steer their organizations through turbulent waters. This not only minimizes disruption but also expedites recovery. Moreover, the practice of agile leadership engenders heightened levels of employee engagement and motivation, as observed by [53], resulting in a resilient workforce that is ardently committed to surmounting obstacles. In addition to crisis management, agile leaders instill a robust culture of learning within their organizations, fostering a proactive attitude toward deriving valuable insights from failures and setbacks. This approach cultivates a growth mindset, whereby challenges are perceived as opportunities for enhancement and adaptation. Furthermore, leadership

agility encompasses a forward-thinking, strategic vision, which equips leaders with the capability to anticipate and proactively address forthcoming challenges, further bolstering an organization's resilience and adaptability.

In conclusion, it is evident that leadership agility exerts a significantly favorable influence on the entrepreneurial resilience of Jordanian SMEs. This influence bestows upon these enterprises the requisite tools and cognitive framework essential for adaptation, rebounding from adversities, and flourishing within the demanding and continually shifting business milieu of Jordan. Consequently, the cultivation of leadership agility emerges as a pivotal determinant in ensuring the enduring success and sustainability of Jordan's small and medium-sized enterprises.

## 6 Recommendations

To harness the positive impact of leadership agility on entrepreneurial resilience in Jordanian small and medium-sized enterprises (SMEs), a multifaceted approach is recommended. Leadership development programs should be designed to equip current and aspiring leaders with the skills and mindset needed for agile decision-making and inspiring innovation. Creating a culture of innovation and adaptability within the organization is paramount, with platforms and processes supporting ideation, experimentation, and the implementation of innovative solutions. Additionally, efficient resource management strategies should be implemented to align with leadership agility principles, especially during resource-constrained situations. Robust crisis management protocols must be developed, and leaders should receive training, while fostering employee engagement and development should remain a priority. Encouraging a learning-oriented environment where setbacks are opportunities for growth is vital, as is a forward-thinking, strategic approach that anticipates future challenges. Regular leadership assessments, collaboration, and knowledge sharing, both within and across SMEs, can further strengthen resilience. Lastly, advocating for government support and policies that facilitate leadership development and SME resilience will create an enabling environment for these enterprises to flourish, ultimately contributing to Jordan's long-term economic stability and prosperity.

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# The Risks of COVID-19 on the Scientific Achievement for the Undergraduate Health Sciences Students



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**Abstract** This study was conducted to provide a comprehensive review on the impact of COVID-19 on undergraduate health sciences student's achievement in Jordan. Covid 19 is considered a serious public health issue that affects people globally. Nowadays health-care practitioners have several obstacles in controlling Covid's dissemination. Therefore, safety precautions have been implemented to prevent the virus from spreading. Despite all the extensive efforts to contain the dissemination of Covid 19, the spread of the virus was out of control due to its high contingency. This pandemic has posed major impacts and disruptions in healthcare systems around the world. Among systems negatively affected by covid 19 are educational systems. As

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a result Undergraduate health sciences student's achievements are predicted to be negatively affected.

**Keywords** COVID-19 · Achievement · Undergraduate · Health sciences

## 1 Introduction

COVID-19 is a respiratory illness caused by the coronavirus SARS-CoV-2, which was first identified in 2019 in China, Wuhan. The method of transmission of Covid 19 occurs by respiratory droplets created when an infected person coughs, sneezes, or speaks. Symptoms might range from moderate to severe in those infected [1–4]. People aged 65 and above are at highest risk of developing Covid 19 as well as people with underlying medical conditions and chronic diseases. Additionally, several people might acquire Covid 19 and show no symptoms at all [5–8]. In such cases it's difficult to track and manage those cases. Some of the safety precautions that were taken to stop the infection from spreading include: social and physical distancing, hand washing, avoiding crowded and poorly ventilated places, home quarantining, and wearing face masks [9–13]. Further, some of the challenges that faced clinicians during the pandemic is diagnosing Covid patients since the common flu and covid 19 had nearly identical symptoms [14–16]. A PCR test was required to accurately diagnose patients with covid19 [1, 17].

## 2 Literature Review

This review consists of three sections. The first two sections will explore Covid 19, a major public health problem across the world, and its mechanism and transmission modes. Finally, the last section will outline historical studies on risks of Covid 19 on scientific achievements of undergraduates in Jordan.

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## 2.1 Covid 19

Nowadays Covid19 is one of the major public health problems across the world. According to new research of [2, 17–21]: corona viruses are viruses with crown like surfaces that infect people at a rapid rate and cause respiratory diseases. There are several types of Coronaviruses that cause respiratory diseases in humans including SARS, Middle East respiratory syndrome (MERS), and the common cold. COVID-19 is a new strain of Corona viruses. It was first identified in Wuhan, China, in December 2019 [19, 22–24]. Since then, the virus has crossed borders and reached countries around the world. Studies of (Cleveland Clinic, 2021) show that around 196,910,000 persons have been infected with Covid 19, and more than 4,850,000 people died from this pandemic [3].

**Modes of Transmission:** According to findings of [4] COVID-19 largely spreads between people by respiratory droplets and direct contact with positively diagnosed person. According to [1] respiratory diseases are transmitted via Respiratory particles 5–10  $\mu\text{m}$  in diameter. This transmission process occurs when the infected person exhales respiratory droplets that are then inhaled or settled on surfaces. The virus enters the body via the mouth, nose, or eyes. Based on studies of the [2] COVID-19 is disseminated in three main ways including: breathing respiratory droplets containing the virus, touching the eyes, nose or mouth with infected hands, or through coughing or sneezing.

Further, findings of [4] show that direct contact with an infected person within 1-m leads to direct transmission of the virus. Moreover, dissemination may occur by fomites, inanimate objects capable of carrying and spreading infectious pathogens, in the sick person's surrounding context.

The reported rate of transmission of Covid 19 is extremely high. According to preliminary study of [2], one individual infected with covid 19 can spread it to an average of 2–3.5 people. According to new research, the rate is much higher, with one case affecting between 4.7 and 6.6 other persons. This point out those COVID-19 cases are rapidly rising with higher rates of infection. A new strain of Covid 19, Omicron, has been identified. In comparison with the previous Covid version Delta, omicron is extremely contagious.

**Symptoms of Covid 19:** According to new research of [1]; COVID-19 patients have reported a wide spectrum of symptoms, ranging from moderate to severe sickness. Symptoms may arise 2–14 days after direct contact with an infected person. Symptoms may range from minor to severe illness that may require hospitalization. The majority of infected persons will develop mild to moderate sickness and recover without the need for hospitalization. People who exhibit symptoms such as Chills, fever, Cough, shortness of breath, headache, loss of taste and smell, sore throat, muscle pain, or runny nose might be infected with Covid.

**Incubation period:** Findings of [5] revealed that symptoms of Covid 19 appear in patients 2–14 days after being exposed to the virus. A person infected with the coronavirus is considered infectious to others for up to two days until symptoms

develop, and they may remain infectious up to 10–20 days according to their immune system.

**Safety Precautions:** In research from [6] there is a range of safety precautions to protect yourself against Covid 19 and minimize the dissemination of the Virus. These precautions include following immunization guidelines, avoiding crowds and inadequately ventilated places, washing your hand frequently, wearing facemasks, and maintaining physical distance.

COVID-19 transmission risks are the highest in crowded and poorly ventilated areas where people may come in close contact with others. Studies have documented that Covid 19 outbreaks were the highest in crowded indoor settings where people gather and hangout. Further, increasing awareness about the complete range of COVID-19 symptoms helps engage people containing the virus. The most prevalent COVID-19 symptoms include fever, dry cough, fatigue, and loss of taste or smell. On the other hand, less frequent symptoms such as red eyes, diarrhea and skin rash might appear in some cases. [7].

There are two mRNA vaccines, Pfizer and Moderna, which are approved by [8]. These vaccines are considered the most critical safety precautions worldwide in containing the virus and slowing the rapid rise in cases. The Centers for Disease Control and Prevention (CDC) mentioned that vaccines against Covid 19 are completely safe and effective. The chance of developing major side effects from Covid19 vaccine is minimal [1]. Medical professionals extensively evaluated these vaccine shots on thousands of individuals from various backgrounds.

## ***2.2 Risk Factors of Covid 19 on Educational Systems in Jordan***

The COVID-19 pandemic is having a detrimental influence on Education worldwide. According to [9] Jordan's government shuttered all schools, kindergartens, and colleges on March 15, 2020. This impacted around 2.37 million students across different governorates. For safety precautions, all universities closed their doors and switched to remote learning. Thus, raising the risk of learning disparity and dropout. Further the council of higher education took several steps to enhance, support, and organize distance education and online courses. Based on the review of [10]. Remote learning had its pros and cons. Lack of motivation and encouragement to attend online lectures, technical issues, and lack of or poor internet access were among the disadvantages stated by [10]. Further, a student from Petra University mentioned that "The broad subjects shared among university students can easily be taught online, but subjects directly related to our major require explanation and focus, and they need to be taught on the campus" [10]. This conveys that many students struggled to understand and learn certain subjects online. Moreover, the success of remote learning depends on various factors including the content of the subject.

**Anxiety, Stress, and Depression:** Anxiety, stress, and depression are known to negatively affect people's mental wellbeing, especially during pandemics. Covid 19 is one of the major factors that had substantial effects on education and the wellbeing of medical students. According to the study of [11], anxiety and depression levels among Jordanian university healthcare students were reported to be significant during the pandemic. Furthermore, findings of [11], reveal that students were greatly affected emotionally. Many students had abnormal anxiety and depression levels. As reported other factors contributed to higher levels of anxiety and depression. These determinants include smoking, lower family income, and drug consumption. Medication consumption was also found to have a positive relationship with greater depression levels. During this pandemic, emotional and financial triggers lead to escalation in anxiety and depression levels. In addition to social and financial losses, Lack of resources, forced social and physical separation, and self-quarantining, are all considered underlying causes of anxiety and depression.

Another study carried by [12] states that the occurrence of depression, anxiety, and stress at various levels was 78.7, 67.9, and 58.7% which is higher during quarantine. According to results of the study, the psychological state of students is a critical factor in determining the students' wellbeing. Moreover, University students' exhibit moderate levels of depression, anxiety, and stress, implying that university students are prone to significant psychological issues during quarantine.

**Readiness of Remote Learning:** After the global crisis of Covid 19, Jordanian universities were forced to adapt to online education and remote learning. The study of [13] assesses the readiness of Jordan institutions to shift to online learning. Findings convey that the infrastructure of Jordanian Universities has posed significant obstacles to professors, administrations, and students during the process of remote learning. Major obstacles faced students and professors since not all students around the kingdom have access to computers or internet connection. Further, Jordan Universities are not fully prepared for this quick shift towards online education since curriculums and subjects do not match the new teaching methods.

### ***2.3 Effects on Academic Performance***

The Quality of online education is a critical issue that needs great attention. Certain practical and technical subjects are not compatible with online learning and need to be taught in campus. Sometimes it's necessary to attend laboratories and other practical courses that couldn't be taught online. Thus, Covid placed a lot of obstacles and difficulties for Medical and pharmaceutical students. According to research findings [14], the COVID-19 pandemic lockdown affected most students' academic performance to varying degrees. Veterinary medical science online education faces a significant challenge in figuring out how to offer practical training. Learning most of the courses online is challenging because they are practical in nature. Students stated that acquiring veterinary skills through an online education system is considered tough. Approximately half of the participants were significantly impacted. Studies

show that 19.9% were significantly affected, 23.3% were moderately affected, and 6.0% were mildly affected. Only 3.3% of individuals said lockdown had no influence on their academic performance. Students mentioned that they faced several problems during remote learning including loss of interest and motivation, lack or poor access of internet, lack of laptops, tablets, and smartphones devices to attend lectures, shortness of time to solve online exams, lack of collaboration and effective communication, feeling lonely, less interaction between students and professors, loss of concentration and feeling bored during online classes.

## **3 Results**

### ***3.1 Demographic Characteristics***

The study participants ( $n = 20$ ) were from Jordan University of Sciences and Technology. Several studies found that COVID-19 has a significant impact on the education process. This study revealed the extent to which COVID-19 affected students and their educational attainment, level of anxiety and depression, difficulty in obtaining information, and risk factors.

The demographic data present in Table 1 showed that the mean age of the participants was 22.3 years, and most of the students were females (80.0%). All the participants have Jordanian nationality (100%) and were undergraduate (100%). In addition, 25% of them are Health Care Management students, 25% are Pharmacy students, 25% are Dentistry students, 15% are medicine students and 10% are PharmD students. 50% of the participants live in Amman, 25% in Zarqa, and 25% in Irbid.

#### **Assessment of participants' anxiety**

Assessing the anxiety of the participants, results are shown in Table 2. It shows that 65% of the participants reported that they got anxiety during their study in COVID-19 pandemic period, while 20% felt a little anxious. On the other hand, 15.0% of them did not feel anxious at all (Table 2).

#### **Assessment of participants' depression**

The depression feeling was assessed, and the results were there are 85% of the participants felt depressed. While the rest (15%) answered that they did not feel any depressed (as shown in Table 2).

#### **Education process assessment**

Assessment of students' learning process during COVID-19 pandemic period was done and it was found that 70% of the participants indicated that the learning process was ineffective and lacked focus as shown in Table 2. Whereas 30% of participants found that it was an effective process. In addition, continuous change in the university

**Table 1** Demographic characteristics of the study sample (n = 20)

No.	Parameter	N (%)
1	<b>Age</b>	22.3
2	<b>Gender</b>	
	Female	16 (80%)
	Male	4 (20%)
3	<b>Study field</b>	
	Medicine	3 (15%)
	Pharm.D	2 (10%)
	Pharmacy	5 (25%)
	Dentistry	5 (25%)
	Health care management	5 (25%)
4	<b>Nationality</b>	
	Jordanian	20 (100%)
5	<b>Living place</b>	
	Amman	10 (50%)
	Zarqa	5 (25%)
	Irbid	5 (25%)

decisions and the confusion of decisions affect the learning process and lead to an ineffective learning process.

### The impact on educational achievement

The responses to the impact on educational achievement during the COVID-19 pandemic are represented in Table 2. The educational achievement of the participants was affected at a rate of 90%. However, 10% of the participants' educational achievements have not been affected.

### Risk factors

There are several risk factors including pandemic fear. In fact, all the participants have concerned about the pandemic (100%). Also, some of the participants have problems with understanding the university major (25%), and this leads to a decrease in their educational achievement (10%). In addition, 20% of the participants answered there is a risk of continuous change in university decisions, and 30% of them indicated that there is an unfair evaluation of the student's achievement.

**Table 2** Statement related to the questions

No.	Parameters	N (%)
1	<b>Anxiety assessment</b>	
	Significant effect	13 (65)
	No significant effect	4 (20)
	No effect at all	3 (15)
2	<b>Depression assessment</b>	
	Significant effect	17 (85)
	No effect at all	3 (15)
3	<b>Education process assessment</b>	
	Ineffective	14 (70)
	Effective	6 (60)
4	<b>The impact on education achievement</b>	
	Significant effect	18 (90)
	No significant effect	0
	No effect at all	2 (10)
5	<b>Risk factors</b>	
	Pandemic fear	20 (100)
	Not understanding the university major	5 (25)
	Constant worry	13 (65)
	Not evaluating a student's achievement in a fair manner	6 (30)
	Continuous change in university decisions	4 (20)
	Decreased educational achievement	2 (10)

## 4 Discussion

This study examined the assessment of the risks of COVID-19 on the scientific achievement for the undergraduate of health sciences students in Jordan University of Science and Technology in Jordan. The surveyed students were representing Amman, Irbid, and Zarqa cities. In Jordan, the authorities imposed drastic measures including lockdowns and quarantines, because of these measures, the education in Jordan has converted from face-to-face to distance education. It was found that the infrastructure in Jordan was not fully ready for the distance education. The educational institutions were weak in resources, which led to impaired organizational response or the ability of the student to participate in a successful educational experience via the Internet [15]. From the participated students' survey, it can be reported that 70% of their learning processes was an ineffective process. While only 30% of participants said that the learning process was effective and got the full benefits and there are no differences from the traditional way. This could be attributed to anxiety of the students due to the feelings of fear on their family from getting infected, tension from the epidemic, constantly changing decisions, weak internet connection,



and facing difficulty in understanding some information due to the lack of practical training [16]. However, in this study it was found that the educational achievement of the participants was affected at the rate of 90%, while only 10% participants have not been affected [11, 17, 18].

## 5 Conclusion

In this study, the assessment of the risks of COVID-19 on the scientific achievement for the undergraduate of health sciences students in Jordan University of Science and Technology in Jordan was examined. It was found that COVID-19 pandemic negatively affected the academic course of the students. Also, the mental health of students is expected to be negatively affected during the COVID-19 pandemic, which negatively affects the education process. It was found that the levels of anxiety and depression were high as a result of their fear of the internet being cut off during exams and not getting the marks they deserved. In addition, they are not used to the new teaching method.

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# The Role of Big Data Analytics Capabilities in Risk Management: An Empirical Investigation of Insurance Companies in Jordan Using Structural Model



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**Abstract** This paper investigates the influence of big data analytics capabilities on risk management within the insurance sector in Jordan. Employing a quantitative cross-sectional research approach, data were collected from 251 insurance company managers at various administrative levels. Structural equation modeling (SEM) was employed to validate the measurement model and ascertain effect coefficients. The research outcomes underscore a significant positive effect of big data analytics capabilities on risk management, with the dimensions ranked by impact in the following

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order: infrastructure flexibility, personal capabilities, and management capabilities. As a result, the study offers a comprehensive set of recommendations geared toward both researchers and insurance sector managers.

**Keywords** Big data analytics capabilities · Risk management · Insurance companies · Jordan

## 1 Introduction

In our ever more interconnected and data-rich world, organizations encounter an expanding array of risks that necessitate sophisticated and forward-thinking risk management strategies [1–6]. Traditional risk management methods, which rely on historical data and manual procedures, frequently prove insufficient when confronting the intricacy and pace of contemporary risks. Nonetheless, the emergence of big data analytics capabilities has heralded a transformative era for risk management [7–12]. Alzaabi et al. [13] have shown that by harnessing the power of advanced analytics, machine learning, and artificial intelligence, organizations now possess the means to bolster their capacity to effectively identify, assess, and mitigate risks [13]. This shift towards data-driven risk management is more than just a technological trend; it signifies a fundamental change in the way organizations protect their interests, make well-informed decisions, and navigate the increasingly uncertain terrain of the business world [14–18].

In Jordan's insurance sector, adopting big data analytics for risk management poses significant challenges, as highlighted by [19]. These challenges include ensuring data quality and reliability, addressing cybersecurity and data privacy with the rise of digital processes, and safeguarding crucial customer information [3, 20–23]. The shortage of data analytics experts further intensifies these challenges, making it hard for insurers to harness the full potential of big data. Striking a balance between analytics benefits and customer privacy is vital. Considering the industry's

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immense data volume and complexity, integrating and adapting to big data analytics presents a major technological and operational challenge.

Effectively overcoming these challenges will empower insurance companies in Jordan to harness the transformative potential of big data analytics for risk management. This will result in more precise risk assessments, timely identification of emerging risks, and the development of proactive risk mitigation strategies. As a consequence, the industry's resilience will be bolstered, and its ability to deliver tailored and cost-effective insurance solutions to the Jordanian market will be significantly enhanced.

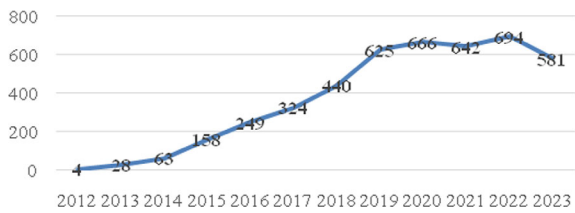
Big data analytics capabilities encompass a diverse range of advanced tools and technologies used by organizations to process, analyze, and extract valuable insights from extensive and intricate datasets [24–27]. Shokouhyar et al. [28] define big data analytics as the examination of large, diverse datasets to reveal hidden patterns, correlations, market trends, and customer insights [28]. Essentially, it's about managing and analyzing intricate datasets that exceed the capacity of traditional tools. This analytics approach is vital for organizations seeking a competitive advantage, making informed decisions, and deriving maximum value from their data.

Definitions of risk management collectively underscore a systematic process characterized by the identification, analysis, assessment, and response to risks with the overarching goal of achieving objectives while minimizing adverse impacts [29–32]. Whether applied to project management, financial institutions, or the general organizational context, risk management is deemed indispensable for making informed decisions and fortifying an entity's capacity to endure uncertainties. As [33], it involves the systematic application of principles, approaches, and processes encompassing tasks such as communication, consultation, context establishment, and the identification, analysis, evaluation, treatment, monitoring, and review of risks. According to [34], risk management is delineated as the process of recognizing, scrutinizing, and responding to project-related risks. It includes the optimization of positive outcomes while mitigating the repercussions of adverse events.

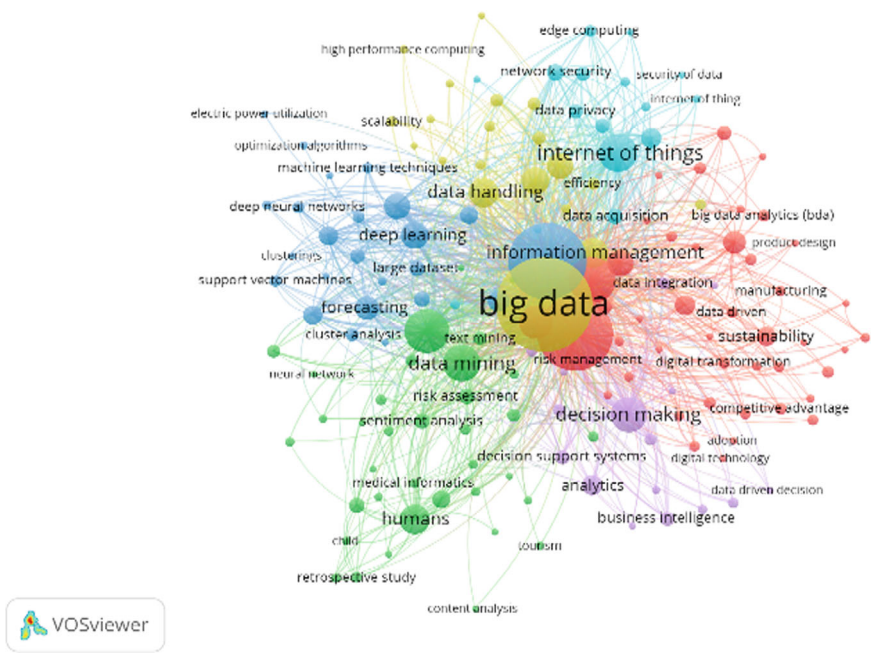
## 2 Big Data Analytics Capabilities and Risk Management

Scholarly articles on big data analytics first surfaced in indexed journals in 2012. Between 2012 and October 28, 2023, 4475 English journal articles with the keyword “Big data analytics” in their titles were indexed in Scopus. From 2020 onward, 2583 articles were added, indicating an increase in publications in recent years, as shown in Fig. 1. Moreover, using VOSviewer software for bibliometric network analysis revealed that prominent keywords in the chosen database include big data ( $f = 2467$ ), big data analytics ( $f = 1881$ ), big data analytics capabilities ( $f = 77$ ), and risk management ( $f = 141$ ), see Fig. 2.

In addition, Santhikumar et al. [27] highlight the potential of big data technologies, including in handling and evaluating large datasets for diverse risk management aspects [27]. Bhattacharya et al. [35] emphasized the role of big data analytics in risk



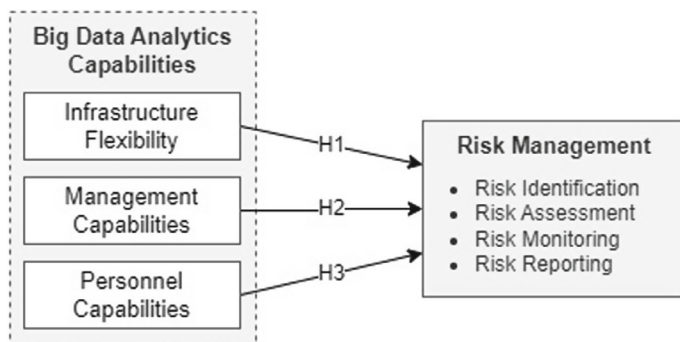
**Fig. 1** Number of articles published from 2012 to 28/10/2023



**Fig. 2** The most used keywords

management and decision-making [35]. Furthermore, Alzaabi et al. [13] discuss big data’s impact on project risk management in UAE’s healthcare sector [13]. Giudici and Mignola [34] highlight big data’s role in enhancing decision-making and risk management in the banking and insurance sectors [34]. Finally, Santhikumar et al. [27] emphasize big data analytics’ role in detecting fraud and risks within organizations [27]. Therefore, this research is dedicated to exploring the impact of big data analytics capabilities on risk management within the insurance companies in Jordan. Figure 3 provides a visual representation of the proposed conceptual framework for this research.

In order to scrutinize the relationships between the four dimensions of big data analytics capabilities and risk management, the research endeavors to verify the following hypotheses:



**Fig. 3** Research conceptual model

**Hypothesis 1 (H1):** Risk management is positively affected by infrastructure flexibility.

**Hypothesis 2 (H2):** Risk management is positively affected by management capabilities.

**Hypothesis 3 (H3):** Risk management is positively affected by personal capabilities.

### 3 Research Methodology

This research adopted a cross-sectional design to investigate the impact of big data analytics capabilities on the risk management of insurance companies in Jordan. The cross-sectional design emphasizes the concurrent collection of research data from sample members during a specific timeframe [36–39]. In this research, data collection through surveys took place from August 28 to October 12, 2023. The research approach employed was primarily quantitative and involved the utilization of a questionnaire developed based on an extensive review of the existing literature. In the data analysis phase, the study applied structural equation modeling (SEM) using the software tool AMOS to scrutinize the collected data.

Data pertaining to the impact of big data analytics capabilities on risk management was gathered from a population of managers of insurance companies in Jordan. Due to the size of the study population, the comprehensive survey approach was not feasible. Hence, the sampling method was deemed necessary. Purposive sampling was chosen as the most appropriate method, particularly when the researcher deals with a large population and needs accurate and specific information on the core variables of research [40–42]. A sample size of 200 respondents was determined based on the guidelines of [43]. Consequently, an electronic version of the survey was developed and sent through official e-mail to 350 managers of insurance companies in Jordan. In total, 288 responses were received, with 37 responses deemed disproportionate for statistical analysis. After the exclusion of these responses, the final sample for

this research comprised 251 respondents, representing a responding rate of 71.7% of the total questionnaires sent.

The primary instrument employed in this research investigation was a self-administered questionnaire. This questionnaire encompassed several sections, including a cover letter outlining the research's objectives, emphasizing the voluntary nature of participation, and underscoring the commitment to ethical research considerations. Additionally, a segment of the questionnaire was dedicated to the collection of categorical demographic information from the respondents, while two other sections were designated for gathering data related to the primary research variables. To gauge respondents' perspectives on the research variables, a five-point Likert scale was utilized. This scale ranged from a minimum rating of 1, indicating "strongly disagree," to a maximum rating of 5, signifying "strongly agree."

In this research, big data analytics capabilities served as the independent variable, encompassing a set of items derived from [28]. Meanwhile, big data analytics capabilities were conceptualized as a second-order construct branching into three distinct first-order constructs. The first-order constructs, each exploring various facets of big data analytics capabilities, included infrastructure flexibility with six items, which measures the ability of an organization's IT infrastructure to adapt and expand to meet the evolving needs and requirements of big data analytics operations; management capabilities using five items, which measures the extent to which the processes, tools and strategies that organizations use to effectively oversee, manage and improve big data initiatives are applied; and personal capabilities with six items, focusing on the skills, knowledge and attributes individuals need to work effectively with and analyze large and complex data sets.

On the other hand, the dependent variable in this research was risk management, with the items for measurement obtained from [33]. Risk management was conceptualized as a second-order construct branching into four distinct first-order constructs. The first-order constructs, each exploring various facets of risk management processes, included risk identification, which represents an organization's systematic ability to identify and catalogue potential risks that could affect its objectives or operations; risk assessment using four items, which involves assessing the potential impact and likelihood of risks to determine their importance and prioritize them for further risk management actions.; risk monitoring with four items, expressing ongoing processes for tracking and systematic monitoring of identified risks and associated risk management strategies and procedures; and risk reporting with three items, referring to the procedures for documenting, communicating and presenting information about identified risks, their potential impact, mitigation strategies, and the overall status of risk management to various stakeholders within the organization.



## 4 Research Findings

To assess the relationships between the constructs and their observed items, confirmatory factor analysis (CFA) was employed in this research. The estimation process encompassed an overall goodness-of-fit assessment, as well as individual evaluations of the validity and reliability of the research instrument. As advocated by [44], CFA is a valuable technique for grouping observed variables into their respective structures, thereby enhancing the model's capacity for generalization. The outcomes of the assessments of item and construct validity and reliability related to the impact of big data analytics capabilities on risk management are presented in Table 1.

The loadings of the items, as revealed in the results presented in Table 1, fell within the range of 0.642–0.824. These values indicated that all items were deemed acceptable and were retained within the model, as they exceeded the commonly recognized threshold of 0.50 [45–48]. Convergent validity was evaluated using the average variance extracted (AVE), and the results demonstrated that the AVE values ranged from 0.529 to 0.617. These results comfortably surpassed the minimum threshold of 0.50 [14, 49, 50], confirming the convergent validity of the research instrument. To ascertain discriminant validity, the method of comparisons, as advocated by [51], was applied. The results of these comparisons showed that the values of AVE outperformed the maximum shared variance (MSV) values, and the square root of AVE was greater than 0.70 and exceeded the correlation values between the remaining variables in the model. Hence, it can be deduced that the measurement model exhibited discriminant validity.

In terms of reliability, composite reliability (CR) was evaluated using McDonald's Omega coefficients [10, 52, 53]. The results demonstrated that the CR values ranged between 0.789 and 0.876, surpassing the minimum threshold of 0.70 [54–56]. This indicates that the model, which assesses the impact of big data analytics capabilities

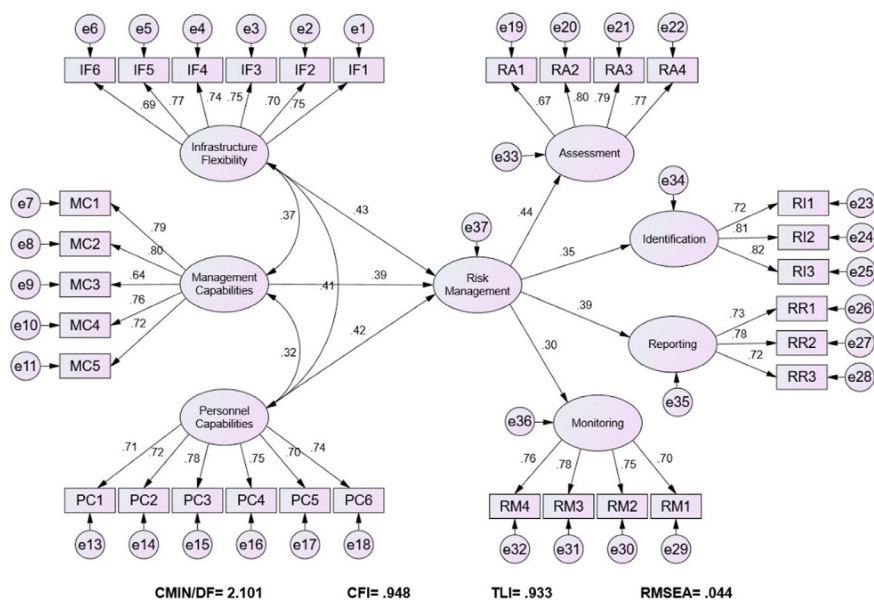
**Table 1** Summary of measurement model evaluation

Variables	Items	Loadings range	AVE	MSV	$\sqrt{\text{AVE}}$	CR	VIF
Infrastructure flexibility	[IF1–IF6]	[0.687–0.775]	0.529	0.493	0.734	0.875	1.958
Management capabilities	[MC1–MC5]	[0.642–0.802]	0.558	0.503	0.747	0.863	2.113
Personnel capabilities	[PC1–PC6]	[0.703–0.783]	0.541	0.512	0.736	0.876	2.346
Risk identification	[RI1–RI3]	[0.716–0.824]	0.617	0.522	0.785	0.828	–
Risk assessment	[RA1–RA4]	[0.674–0.803]	0.581	0.488	0.762	0.847	–
Risk monitoring	[RM1–RM4]	[0.702–0.782]	0.563	0.508	0.750	0.837	–
Risk reporting	[RR1–RR3]	[0.721–0.779]	0.555	0.518	0.845	0.789	–

on risk management, achieved satisfactory levels of validity and reliability. Moreover, with regard to the independent variables, specifically the dimensions of big data analytics capabilities, it was determined that they were not afflicted by multicollinearity. The variance inflation factor (VIF) values were found to be below the generally accepted upper limit of 5 [57].

SEM is a comprehensive statistical approach to test the relational hypotheses among endogenous and exogenous constructs. Among several software packages for SEM, the research hypotheses were examined using AMOS software to facilitate the assessment of relationships between the constructs of the study's conceptual model. In line with this methodology, the adequacy of fit between the test model and the theoretical model is assessed through goodness-of-fit indicators. Additionally, both standardized and non-standardized impact coefficients are derived to gauge the relationships [40, 49, 58]. Figure 4 illustrates the structural model designed for the evaluation of the impact of big data analytics capabilities on risk management, emphasizing the values of goodness-of-fit indicators.

As illustrated in Fig. 2, the model's goodness of fit was evaluated using various indices. The minimum discrepancy per degree of freedom (CMIN/df) was found to be 2.101, which falls below the accepted threshold of 3 [59]. The incremental fit indices, specifically the Comparative Fit Index (CFI) and the Tucker-Lewis Index (TLI), displayed values of 0.948 and 0.933, respectively. These values exceed the recommended threshold of 0.90 [60], indicating a good fit for the model. The root mean square error of approximation (RMSEA) yielded a value of 0.044, which is less



**Fig. 4** SEM for the impact of big data analytics capabilities dimensions on risk management

**Table 2** Path analysis coefficients for hypothesis testing

Paths	B	S.E.	Beta	T	P	R <sup>2</sup>
Infrastructure flexibility → risk management	0.514	0.056	0.430	9.18	0.000	0.712
Management capabilities → risk management	0.426	0.057	0.394	7.47	0.000	
Personnel capabilities → risk management	0.488	0.055	0.416	8.87	0.000	

than the threshold of 0.08 [22], further confirming the model's suitability. Table 2 provides the results of hypothesis testing, shedding light on the significance of the relationships between the independent variables and the dependent variable.

The findings in Table 2 revealed that big data analytics capabilities had a notable and statistically significant impact on risk management. The coefficient of determination (R<sup>2</sup>) reached a value of 0.712, suggesting that approximately 71% of the variance in risk management can be attributed to variations in the dimensions of big data analytics capabilities. Furthermore, the results indicated variations in the impact of different dimensions of big data analytics capabilities on risk management. Specifically, infrastructure flexibility ( $\beta = 0.430$ ,  $t = 9.18$ ,  $p < 0.001$ ) emerged as the most influential dimension, followed by personnel capabilities ( $\beta = 0.416$ ,  $t = 8.87$ ,  $p < 0.001$ ) in the second position, and management capabilities ( $\beta = 0.394$ ,  $t = 7.47$ ,  $p < 0.001$ ) occupied the last position in terms of impact.

## 5 Discussion and Conclusion

The research findings support the assumption that big data analytics capabilities have a positive impact on risk management. All dimensions of big data analytics capabilities were found to affect risk management significantly and positively. By analyzing extensive and diverse datasets, organizations can achieve a deeper and more precise understanding of potential risks. This increased accuracy allows for more objective risk estimation and the development of more effective risk mitigation strategies, as noted by [27]. Big data analytics capabilities enable the processing and analysis of data in real-time or near real-time, allowing organizations to detect emerging risks as they happen. This proactive approach empowers them to swiftly respond to potential disruptions, in accordance with [35]. Additionally, the integration of big data analytics into risk management often leads to cost reduction by optimizing resource allocation and minimizing losses associated with unforeseen risks. Furthermore, organizations can leverage big data analytics capabilities to identify correlations and dependencies between different risk factors, as highlighted by [13]. This knowledge is invaluable for diversifying risks, enabling organizations to distribute their risks more effectively.

In summary, big data analytics capabilities have brought about a significant transformation in the field of risk management. They have achieved this by enhancing the accuracy of risk assessment, facilitating timely risk identification, improving

risk diversification, and reducing the costs associated with risk management. The data-driven insights harnessed through big data analytics empower organizations to make more informed and proactive decisions, ultimately leading to more effective risk mitigation and greater resilience in the face of the dynamic business landscape. This underscores the pivotal role of big data analytics in modern risk management practices.

## 6 Recommendations

The integration of big data analytics capabilities into risk management signifies a transformative shift towards data-driven decision-making and more effective risk mitigation. To fully capitalize on the potential advantages, organizations need to make several key considerations. First and foremost, they should invest in a robust data infrastructure, ensuring the presence of data lakes, data warehouses, and the necessary hardware and software components. Maintaining data quality is crucial, necessitating the implementation of strong data governance practices to ensure the reliability and accuracy of the data. Data security and privacy must be a top priority, especially when handling sensitive information, and compliance with relevant regulations is a non-negotiable requirement. Streamlined data integration processes are essential for consolidating data from diverse sources, fostering a comprehensive understanding of risks. Equipping employees with the necessary skills through training and development programs is vital to harnessing the full potential of data analytics. Lastly, establishing a data governance framework, regular risk reporting mechanisms, and cultivating a proactive risk culture are foundational steps in making data-driven decision-making and risk mitigation integral components of organizational processes.

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# Job Immersion and Its Impact on Organizational Citizenship Behavior: An Applied Study on the Jordan Hotels Association



Hazem Khaled Shehadeh and Rasha Fatima Ismail Saleh

**Abstract** This study aims to identify job immersion and its impact on the behavior of organizational citizenship, an empirical study applied on the Jordanian Hotels Association. The descriptive analytical approach is adopted for the study, and the study sample is selected according to the comprehensive enumeration method of all the staff of five star hotels in Amman. The results show a rise in the level of job immersion, with all its dimensions (knowledge immersion, emotional immersion, behavior immersion), in addition to a rise in the level of organizational citizenship behavior among the staff of five star hotels in Amman, and the results show that there is an impact of statistical significance at the level of ( $\alpha \geq 0.05$ ) for job immersion with its dimensions (knowledge immersion, emotional immersion, behavior immersion) on organizational citizenship behavior in the five star hotels in Amman. The study recommends promoting emotional immersion among the staff through providing a set of comforting messages for the employees during work hours, and use modern tools and technologies in work to minimize pressure on them, so that they would perform their duties with ease and comfort.

**Keywords** Job immersion · Organizational citizenship behavior · Jordanian hotels association

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## 1 Introduction

The various ways organizations are managed have different levels of success. Sometimes you come across a very successful organization, while other times you come across one that is the exact opposite of successful. Some organizations are more successful than others because their employees, board of directors, and shareholders have been with them for a long time, even if they face difficult situations. This text is talking about a situation where people are not paid for their work and they do extra tasks willingly. This is because of a behavior called “functional citizenship behavior” where people believe in fairness and equality. They compare their own effort with the results they get and compare their results with others [1]. Organizational citizenship plays a role in the work environment, especially in the tourism industry [2]. It can affect the burnout rate, which can either worsen or improve depending on how satisfied employees feel about fairness in their work interactions [3].

The people in an organization are very important [4]. The organization needs them to do its work and reach its goals [5]. Organizations in different industries are currently dealing with a lot of competition in order to attract skilled people [6]. To do this, they offer benefits and rewards [7]. By motivating their employees, organizations can improve their performance [8].

So, psychologists think that when people are really focused on their job, it's because they have certain needs and those needs are being met at work. The best way to study job immersion is to look at social factors, like how people try to fit into society and find values that are important to them [9, 10]. He does it because he wants to accomplish it for its own sake.

## 2 Study Problem

If employees are not engaged in their job, it can affect how much they care about the company [11]. This can cause the company to fail and get smaller, which can eventually lead to it shutting down. People in the hotel industry may not be motivated to work hard because they have low salaries and lack the skills needed for better pay [12]. This lack of motivation can affect their commitment to their job [13, 14].

The hotel industry in Jordan has recently undergone significant changes to help improve the economy. The country has become more open to other countries, which has attracted many tourists and businesses [15, 16]. This has created a desire for luxury accommodations. Job immersion among workers in the hotel sector has become important in order to meet the needs of guests and achieve the goals of the

organizations involved [17, 18]. Researchers and specialists have taken an interest in this issue because it affects individuals, organizations, and the overall productivity of the country [19]. According to a study by [20], job immersion is important as it has an impact on an individual's life. People who are highly immersed in their jobs focus a lot on their work and see it as a measure of their success and self-worth. On the other hand, people who see their jobs as just something they have to do may prioritize other things in life [21]. Being highly immersed in a job can lead to increased productivity, as long as certain factors are present, such as believing in and agreeing with the goals and values of the organization, being willing to put in a lot of effort for the organization's benefit, and wanting to remain a part of the organization [22]. The positive effects of being highly immersed in a job, both in terms of material and personal well-being, are important in determining the standard of living for employees and owners [23].

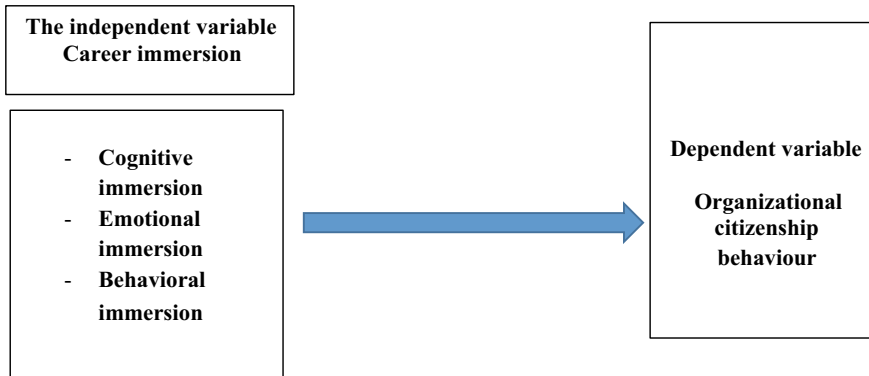
In light of the research problem, the main research question that can be answered is: ***“Does functional immersion (cognitive immersion, emotional immersion and behavioral immersion) have an effect on organizational citizenship behavior in Jordan Hotels Association?”***.

### 3 Importance of the Study

We hope that many researchers and scholars will use this study as a reference. It can help add to the Arabic library and be used as a database for future studies. This helps researchers understand more about how organizations behave and find solutions to improve it.

This study aims to help the people in charge of Jordanian hotels. They want to understand and promote job immersion, which will affect how employees behave in the organization. We hope that the suggested ways will help improve job involvement and encourage hotels decision makers to create training programs. These programs will teach employees about positive behavior and how to improve it. There is also a chance to change work systems and prevention methods so that we can adapt to environmental changes and improve the workers' standard of living.

## 4 Study Model



## 5 Study Hypotheses

The study seeks to validate the following null hypotheses:

**H01 Main Hypothesis:** There is no statistically significant effect at the level of significance ( $\alpha \geq 0.05$ ) of job immersion with its dimensions combined (cognitive immersion, emotional immersion, and behavioral immersion) on organizational citizenship behavior in the Jordan Hotels Association.

## 6 Theoretical Framework

### 6.1 The Concept of Job Immersion

Work job immersion is one of the points that assistance to grasp the way of behaving of people in various associations and foundations, yet the idea of occupation immersion is portrayed by uncertainty and the disparity of wording that attempted to characterize it. By taking a gander at past examinations, obviously researchers and scientists vary in their meaning of occupation immersion because of the distinction in their perspectives and the distinction in their specializations. Notwithstanding the requirement for good friendly relations to assist with molding the singular's mentality towards work, [24, 25] fostered the fundamental logical structures for parts of occupation immersion, and characterized it as the level of mental similarity of the person with his work, and the significance of work in the general picture of oneself, either with the authentic degree of the definitions that cast the systems of occupation job immersion, so [26] characterized it as the level of the singular's truthfulness and combination with his work that influences him to rehearse positive conduct in the association and

his powerful commitment to accomplishing his ideal objectives. Concerning [19], he characterized it as “It is the job immersion of the people working inside the association and their physical, close to home and mental connection to it, which brings about the accomplishment of the ideal objectives of the association”, as [9] in late examinations characterized it as how much the worker converges with his work that he activities and feels its significance, and it is estimated by how much he gets furthermore, the connection between work immersion and a few factors has been featured in various investigations, where the investigation of [12] showed the connection between work job immersion and day to day burdens, as he utilized proportions of occupation immersion and proportions of everyday bothers to show the connection between them, too the investigation of [27] showed that there is a good connection between social direction and occupation immersion, and that people’s consciousness of the significance of social direction adds to making position immersion more good for accomplishing hierarchical objectives and working on by and large execution.

Hareem [5] presumed that there is a genuinely critical relationship between social work inclusion and burnout. There is a genuinely critical connection between close to home practical commitment and useful burnout. There is a measurably huge connection between mental practical commitment and utilitarian burnout.

The investigation of [3] likewise affirmed that the levels of mental burnout among the nursing staff working in Hebron medical clinics are high, and that there are contrasts in the levels of mental burnout credited to sex for females, as well as contrasts in the levels of mental burnout of the conjugal status for wedded couples, and there are no distinctions measurements credited to scholastic capability.

The consequences of the [19] study showed that there is an elevated degree of occupation job immersion among the employees of the college under study, and the outcomes likewise showed that there is a positive connection between the degree of occupation inundation and the factors old enough and business history, and there is an opposite relationship with the factors of orientation, scholastic position, and work environment.

## **6.2 Dimensions of Job Immersion**

Work immersion is a three-layered idea in view of:

1. Emotional immersion: Taking a gander at profound inundation, we find it connected with the degree of close to home reliability that makes the representative love the administration, and the pessimistic effect that will occur for him because of find employment elsewhere or carelessness towards his work [28]. It depends for his own, since he believes the task to be the main need of his life, and any disappointment in it is a disappointment throughout his life, by expanding the sensations of having a place with the goal that the worker is glad for his having a place with the association and doesn’t think by any means of leaving it or thinking about another association regardless of whether he is

serious areas of strength for offered offers from different associations [24, 29]. Close to home immersion and excitement at work: a feeling area of strength for of enthusiasm attempts to explode individual energies to achieve the expected errands [30].

2. Behavioral immersion: coming about because of the propensities for hierarchical conduct through sharing norms and a good judgment of the solidarity of the association with its vision, mission, and fundamental objective, improving steadiness in the frameworks in which it works, raising the degree of responsibility towards them with normal purposes, and upgrading the implications of hierarchical faithfulness for every one of its representatives and pushing them to give a valiant effort feeling that goes past their own advantages to accomplish the interests of the association [31, 32]. Social extravagance, genuineness, and commitment: they are trustworthiness and giving with fulfillment and attempting to give the expected work and undertakings in the most ideal way.
3. Cognitive immersion: Mental submersion results from the representative's capacity to partake in the dynamic cycle, whether because of commonsense experience during that time of work in which he rehearsed in a similar field, or through examinations and exploration directed, which benefit the association and recognize it from others like it in work [33]. Information is the fortune on which the strength of the association is based, whether in viable or logical terms. Mental submersion and coordination in work is the excitement and direction of people with all their energy to achieve their work, as well as taking part in the gig related dynamic cycle [6, 34, 35].

### **6.2.1 Factors Influencing the Promotion and Development of Job Immersion**

Factors influencing job immersion assume a significant part in advancing and creating job engagement through the accessibility of desire and information that help staff and empower them to take part in their work, and try to meet the values that ask them to engage in work [11].

### **6.2.2 The Relationship of Job Immersion with Job Resources and Quality of Services**

Stimulating and reinforcing work resources in a work environment positively leads to an increased engagement of workers which is stimulated through work resources [9].

### 6.3 *The Concept of Organizational Citizenship Behavior*

**Idiomically:** it is the positive discretionary execution that tries to move forward the organizational performance and the viability of the organization, and the representative is not required to formally perform it, such as getting official rewards, and it is not reasonable to penalize him for not doing it [9].

**Procedurally:** the researcher characterizes organizational citizenship behavior as a number of positive voluntary practices and behaviors that look for to assist and not to fulfill person wants and don't anticipate any organizational remunerate in return for doing so, and are not rebuffed for not practicing it, but work to epitomize the soul of participation and interdependence inside the organization, in expansion to that it energizes to lock in within the organization in interest of its objectives and victory, and it has several names, counting benevolence, kindness, and it implies the degree to which an individual tries to take after the finest authority strategies [30, 35].

Zaiter [1] affirmed that organizational citizenship behavior has a viable part in decreasing organizational criticism among staff.

#### 6.3.1 **Dimensions of Organizational Citizenship**

Figuring out the size of organizational citizenship behavior depends on a few aspects, with the main ones being how people behave towards the organization itself and how they behave towards their fellow employees. These aspects include:

Altruism means when employees help their coworkers without being paid. This includes solving any problems they may have while working.

Courtesy means being polite and respectful towards others, especially among employees. It helps to make their relationship better and stronger, and also fulfills their interests.

Loyalty means how much someone feels connected and identifies with their organization. It's about their mental state and their relationship with the company they work for. It also includes their attitude towards being loyal to the organization and how they show their support for its success and survival. [13] conducted a study.

The findings from the [2] showed that there is a strong connection between certain aspects of knowing things without consciously realizing it (qualifications, training, and experience) and being creative.

**Table 1** Measuring internal consistency

Paragraphs	The number of paragraphs	Cronbach alpha coefficient
Cognitive immersion	7	0.762
Emotional immersion	8	0.706
Behavioral immersion	7	0.792
The dependent variable (organizational citizenship behavior)	10	0.855

## 7 Study Methodology

### 7.1 The Study Population and Its Sample

This research focused on workers in fancy hotels found in Amman. Amman has a total of 27 fancy hotels. The study included employees from all types of jobs, without any differences.

We handed out surveys to 27 hotels. We used electronic methods to decide which hotels to survey. In total, we gave out 540 surveys.

The people who took part in the survey were different in terms of their personal qualities. We looked at five specific qualities to determine this: gender, education level, age group, years of experience, and job title. Table 1 displays the amount and frequency of each category as a percentage.

### 7.2 The Validity and Reliability of the Questionnaire

According to Table 1, the Cronbach Alpha Coefficients for the items of the variables are between 0. 706 and 0855 All of them meet the condition of being greater than 0. 7 This shows that the questionnaire items are reliably related to each other.

### 7.3 Multicollinearity Test

Looking at Table 2, we can see that the variance inflation coefficients for the independent variables are all lower than 10. The Tolerance coefficient is higher than 0. 1, which means there is no multiple linear correlation in the data. Various types of linear regression tests were performed to confirm this.



**Table 2** Variance inflation facto (VIF & tolerance)

Variable	Inflation factor (VIF)	Tolerance
Cognitive immersion	1.095	0.913
Emotional immersion	1.692	0.591
Behavioral immersion	1.662	0.602

## 8 Testing the Study Hypotheses

We test the main hypothesis with a certain level of confidence ( $\alpha \leq 0.05$ ), and these are the findings:

- The F value from a table was used to compare it with the F value calculated from the analysis to make sure the regression is significant.
- The significance of the test was compared to the significance level used in the study. Table 3 shows that the significance level for F was lower than the approved level of significance. This means we reject the main hypothesis and accept the alternative. The alternative hypothesis states that there is a significant effect of job immersion on organizational citizenship behavior in five-star hotels in Amman.
- According to Table 3, there is a strong positive correlation between the independent variables (cognitive immersion, emotional immersion, and behavioral immersion) and the dependent variable (organizational citizenship behavior). The correlation coefficient is 0.664, which falls within the range of 0.5 to 0.7, indicating the strength of the correlation.
- The coefficient of determination, also known as  $R^2$ , is a measure that represents how well the dimensions of the independent variable (cognitive immersion, emotional immersion, and behavioral immersion) explain the dependent variable (organizational citizenship behavior). In this case, the coefficient of determination is 0.415, which means that the independent variables explain 41.5% of the organizational citizenship behavior.
- From the table, we can see that the significance level for the dimensions of cognitive immersion and behavioral immersion is statistically significant at a level of ( $\alpha \leq 0.05$ ), for each one.
- The findings from Table 3 revealed that the emotional connection factor does not strongly impact how people behave at work. This is because the significance level of the factor is higher than 0.05, specifically 0.0851.
- The value of the constant B was 1.270, and it is important for creating the regression equation for the variables.

Based on the results above, the equation for how the independent variable's dimensions relate to the dependent variable is:

$$\text{Organizational citizenship behavior} = 1.270 + 0.256 \text{ Cognitive immersion} + 0.420 \text{ Behavioral immersion}$$

**Table 3** Results of multiple linear regression analysis to test the hypothesis

Dependent variable	R correlation coefficient	R <sup>2</sup> coefficient of determination	F calculated	Degrees of freedom	Significance level sig.	The independent variable career immersion	B value	T value	Significance level sig.
Organizational citizenship behaviour	0.664	0.415	109.754	3	0.000	Cognitive immersion	0.256	8.611	0.000
				465		Emotional immersion	0.008	0.188	0.851
				468		Behavioral immersion	0.420	10.473	0.000

**Table 4** The results of the gradual linear regression analysis of the hypothesis

Form	Career immersion	R	R <sup>2</sup>	F calculated	Significance level sig.
1	• Behavioral immersion	0.564	0.319	217.600	0.000
2	• Cognitive immersion	0.644	0.415	164.955	0.000

The linear regression analysis found that there are two sets of measurements of the independent variable that affect the dependent variable. These measurements are shown in Table 4, and each set has a different level of explanation. The way people behave and participate in their work helps explain how they contribute to the organization. The behavioral immersion variable has the most influence on organizational citizenship behavior, as it alone explains 31.9% of the dependent variable. This is higher than other factors that also influence organizational citizenship behavior. The amount of explanation provided gets better in the second group when we include the cognitive immersion element from the first group. As a result, the explanation ability of the second group goes up to 41.5%. This means that being fully engaged in our thoughts can also affect how we behave at work. However, the test did not reveal that the level of emotional involvement has any meaningful impact on how employees contribute to their organization.

## 9 Discussing the Results

What is the effect of job immersion in its dimensions on organizational citizenship behavior?

The different aspects of the job, such as thinking, actions, and feelings, had a strong impact on how employees behaved in terms of showing loyalty to the organization, helping others, and being polite. This was especially true for employees working in luxury hotels in Amman. The text means that when employees become more involved in their jobs, it shows how much their behavior as citizens will change. Job immersion helps employees to behave more like responsible citizens. It is responsible for about 41.5% of this behavior increase. There are other things that can help people become more responsible citizens. Being fully engaged in behaviors contributes the most to being a good citizen, while thinking deeply about things also helps. However, there is no evidence to show that feeling strongly about something affects how we behave. The employee using all of their skills and abilities will help them succeed in their career. This will also improve how they behave and contribute to the company. The research supported what was discovered in [17]. The study found that when faculty members are completely focused on their job, it greatly improves their dedication to their work.

## 10 Recommendations

- Making the employees feel more connected to their emotions by offering them various sources of entertainment and comfort so they can enjoy their work.
- Using modern tools and technology at work to make things easier for employees and help them do their jobs comfortably and confidently.
- Giving employees money and support to make them feel part of the hotel and want to work harder to make customers happy.
- Teaching employees to do their job really well and giving them the right skills to make customers happy and build strong connections with them.
- Continuously remind and explain to employees what the hotel's goals are, and how the plans are made to help achieve those goals. This will help the employees stay more focused on reaching the goals.

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# The Effect of Green Marketing Practices on Marketing Performance of Electrical Home Appliances Sector in Jordan



Zakaria Azzam and Sami Almumani

**Abstract** Focusing on Amman, Jordanian household electrical appliance companies, the objective of this research is to examine the influence of executing green marketing tactics on marketing performance. Main components of green marketing—such as corporate social responsibility, activist organizations, ecologically sound goods that do not pose a threat, energy-conserving goods, goods that can be easily fixed or substituted, and, ultimately, consumer awareness—will be examined. Descriptive analytical techniques were selected by the researcher as the best-suited methodology in attaining this objective. In Amman, 135 questionnaires were dispersed amongst household electrical appliance companies after undergoing revision by a group of specialized professionals. Only 115 of them proved valid and were utilized for analysis purposes. Through implementation of the SPSS program, the researcher correctly utilized statistical methods to examine the data. Through statistical analysis, all studied dimensions of green marketing implementation, including social responsibility, pressure groups, environmentally safe products, energy efficiency, reparability, and consumer environmental awareness, showcased a significant impact on marketing performance with a  $0.05 \geq$  level of significance. The study highlighted significant results that emphasized the importance of green marketing implementation. Household electrical appliance companies can significantly benefit from effectively applying green marketing throughout their transactions. The study suggests focusing on boosting activation, integrating green marketing elements, and persisting with such practices to achieve cost reduction, competitive edge heightening, market share augmentation, and the sustained provision of superior products. This, in turn, fosters increased customer loyalty while boosting companies' profits.

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**Keywords** Green marketing • Marketing performances • Jordan • Electrical home appliances sector

## 1 Introduction

Efforts to protect natural resources and preserve sources of energy from depletion have become a significant ethical principle amidst a global concern for the environment [1, 2]. The idea is to maintain balance in nature for present and future generations, whilst also promoting economic growth and societal well-being [3, 4]. In response, experts in economics and environmentalism have been emphasizing the importance of efficient use of natural resources and responsible disposal of industrial and human waste to mitigate harmful impacts on the environment [5, 6]. These actions have become increasingly urgent as the consequences of environmental harm continue to unfold, affecting not only human communities, but also plants, animals, and the planet as a whole, as we consume inordinate amounts of resources on a daily basis [7–10].

### 1.1 Study Problem and Research Questions

Many organizations fail to prioritize social responsibility, consumer protection, or green marketing due to various environmental issues, including weak environmental awareness and excessive consumption of natural resources for quick profits [11–13]. As a result, consumer consumption patterns have been affected, making it tough to regulate this issue [14–16]. The study presents several questions to highlight the issue, taking into account the aforementioned factors:

- The marketing performance of household electrical appliance organizations in Jordan may be affected by the application of social responsibility concepts. Would this assertion hold true?

### 1.2 Study Significance

Green marketing is of utmost importance in environmental conservation and can have a big impact on the environment and society as a whole [17–19]. It is crucial for Jordanian businesses to prioritize protecting the environment and avoiding harm. Encouraging a green marketing culture within organizations is a key factor in improving marketing performance. The benefits and gains of embracing green marketing are significant and cannot be ignored by businesses. Potentially holding the organization at the pinnacle of the competitive hierarchy, strategic positioning can be a key



to market domination. In parallel, it aids ecological conservation and promotes the economical usage of organic resources.

### 1.3 Study Framework

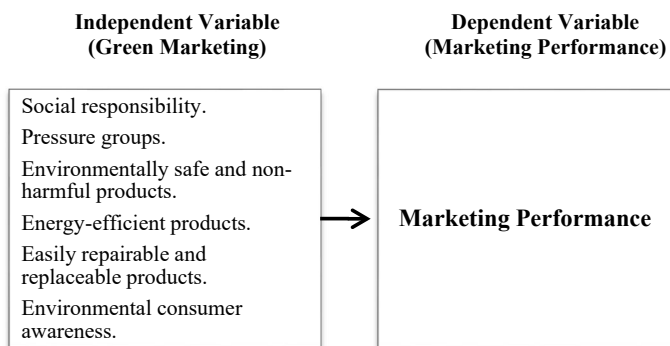
Referring to previous studies [1–27] (Fig. 1).

## 2 Green Marketing Concept

From the production concept that emphasized producing what could be produced, assuming demand exceeded supply at the time, marketing concepts have since evolved over several stages. The selling concept was the second stage, which elevated competition as the focus shifted towards selling whatever could be produced [18–21]. It all began with the crude marketing idea, but with time, it morphed into a newfangled notion that revolves around catering to the necessities and yearnings of customers, thereby making them the leaders of the market [22–25]. Green marketing, on the other hand, is characterized as a methodical and comprehensive system of marketing whose principal objective is to influence the predilections of communities to opt for eco-friendly products, with the aim of safeguarding the environment, consumers, and the community, whilst simultaneously guaranteeing wealth for the corporation [26–28].

Green marketing focuses on:

- The organization.
- The consumer.
- Society.



**Fig. 1** Study framework

- The environmental dimension.

From the above, it can be concluded that:

- Green marketing is both humanitarian and environmental.
- Green marketing aims to gain customer loyalty and satisfaction.
- Green marketing is an important link between the organization and society, enhancing the organization's image.
- Green marketing is an important indicator of commitment to processes that adhere with legislative, legal, and non-governmental pressure group requirements.

## ***2.1 Importance of Green Marketing***

New means of satisfying unlimited needs had to be developed, as resources are limited compared to unlimited needs [29–31]. This development is linked to the growing interest in green marketing, which can be traced back to economic concepts [32]. These concepts state that economics is the study of how humans attempt to satisfy unlimited needs with limited resources [33]. To ensure efficient resource use, production and marketing workers had to innovate [34]. By maximizing marketing possibilities and optimizing resource usage, the focus was on meeting as many needs as possible [35]. With the implementation of green marketing, the organization maintains its ties to both customers and society while also conserving the environment and natural resources. This approach ensures an efficient use of resources [36].

Several advantages, as highlighted by Al-Bakri in this context, emerge when green marketing is put into action [10, 37–39]:

- Owner satisfaction and marketing opportunities.
- Achieving security in product delivery and operations management.
- Social acceptance of the organization.
- Sustainability of activities, competitiveness, and facing competition.

## ***2.2 Objectives of Green Marketing***

Green marketing has positive effects and objectives as follows:

1. Achieving environmental benefits.
2. Achieving economic growth.
3. Achieving consumer benefits.
4. Achieving strategic benefits.
5. Achieving producer benefits.

## ***2.3 Elements of Green Marketing Mix***

Elements of green marketing mix have been introduced due to criticisms regarding environmental neglect in the traditional marketing mix. Green marketing is a recent shift in the industry and includes the following [27, 40, 41]:

### **1. Green Product**

To promote environmental sustainability, green products make use of recyclable materials with little packaging, thereby minimizing toxicity. They are renowned for their compatibility with the environment, dramatically reducing pollution compared to other options.

- Human, animal, and plant health are not negatively impacted by them.
- Frequent replacements are unnecessary due to their lengthy lifespan, resulting in decreased waste.
- Compared to other options, their impact on the environment is quite minimal.
- Avoiding usage of rare or hard-to-extract natural resources, they are made from easily attainable raw materials.
- To lessen waste, they reduce packaging by a minimum.
- Conserving natural resources is achieved by reducing product weight and size.
- Contributing to resource conservation, they make use of recycled materials sourced from discarded products.
- In operation, they conserve non-renewable energy sources and are therefore quite energy efficient.
- During use or disposal, they are environmentally safe and do not cause any harm.
- With effortless assembly and removal, these can be repurposed time and again.

## ***2.4 Green Pricing***

Attention must be paid to modifying production lines, cooling processes, and waste disposal methods to ensure efficient energy use and environmentally sound practices are in place when creating green products [2, 3, 42]. This requires additional effort and cost in research and development, resulting in higher production costs [1, 4, 5, 43]. Ultimately, these efforts reduce waste and prevent manufacturing devices from contributing to global warming [7, 11, 44].

## ***2.5 Green Distribution***

Temporal and spatial utility make up distribution—it ensures products reach consumers at the right price and place, in addition to being of the desired quality [8–10, 45]. Green distribution considers environmental concerns while prioritizing

cost-effective storage management [13, 15, 40]. Transportation is another pivotal aspect of distribution and deserves attention for multiple reasons [17, 22, 33, 46]:

- Promoting environmentally conscious transportation options.
- Using environmentally friendly transportation modes that use biofuels.
- Efficient transportation route selection and the use of appropriately sized transportation mediums.
- Shared transportation for materials and products.
- Securely fastening materials and products during transportation.

## ***2.6 Green Promotion***

Green marketing poses a challenge in effectively conveying information to the surrounding environment [12, 16, 47]. The target market must be approached through careful selection of communication means and information due to increasing consumer awareness and responsibility towards the environment [18, 21, 32, 48]. This level of precision in reaching the community is a result of the promotion or communication process being oriented around environmental concerns [14, 19, 27, 28]. One key element of the green marketing mix is green promotion, which organizations use to express their environmental values [20, 23, 36, 49].

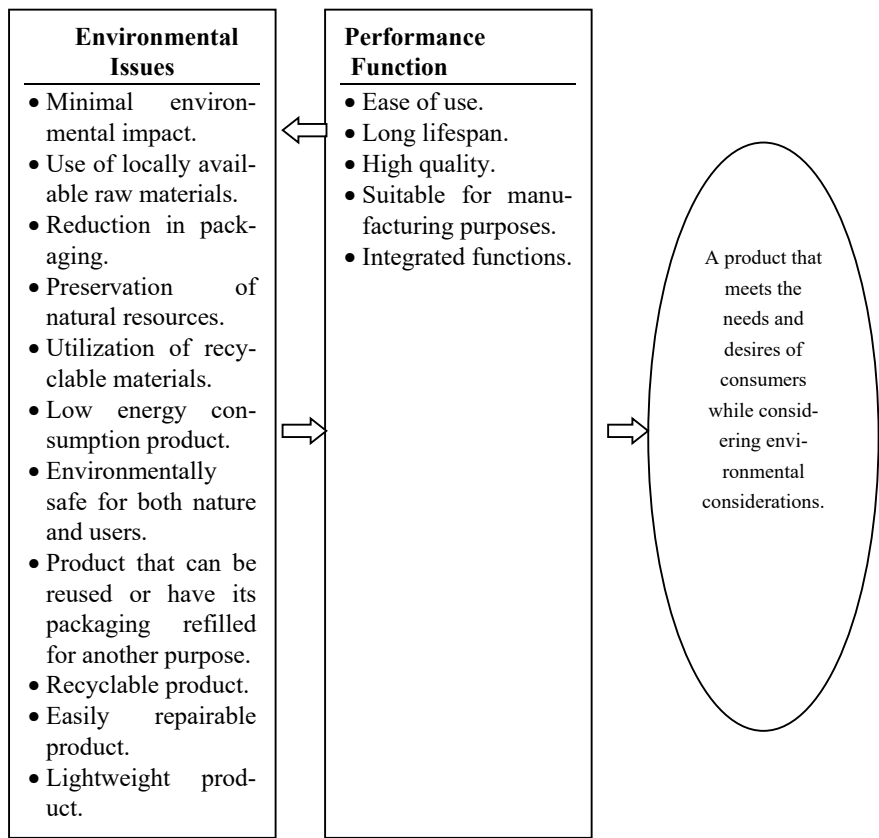
## ***2.7 Green Advertising***

Green marketing involves organizations promoting themselves or their products to potential customers using paid media as a non-personal form of advertising [25, 46]. Alternative and non-traditional media channels are often preferred by businesses engaged in green marketing [37, 47]. This strategy is necessary because traditional media outlets may not effectively reach the audience interested in environmentally friendly products [41, 48].

Satisfying customer needs and environmental considerations are aligned, as demonstrated by Fig. 2's representation of the correlation between green product attributes and performance functions.

## ***2.8 Marketing Performance Concept***

An organization's operations are best reflected by its marketing performance, which should be separated into good and poor categories based on a review of their vision, mission, policies, programs, budgets, and planning process [40, 49]. To maintain their presence and effectiveness and achieve their goals, including survival, continuous



**Fig. 2** Integration between green product principles and performance functions

adaptation, growth, and competitiveness, management must understand the significance of marketing performance. In doing so, they can enhance their competitive ability in the market.

**Ho: In the sector of household electrical appliances in Jordan, there is no significant correlation between marketing performance and the implementation of green marketing concepts, with a significance level set at ( $0.05 \geq \alpha$ ).**

**Table 1** Distributed, retrieved, and analyzable surveys

Distributed	Retrieved	Response rate	Valid questionnaires for analysis	Rate number of valid questionnaires
130	115	88%	115	88%

### 3 Methodology

#### 3.1 Study Population and Sample

Household electrical appliances companies in Amman, amounting to (23) businesses as recorded by the Jordan Chamber of Commerce Library in 2014–2015, comprised the study population. Included in this population were general managers, deputies, assistants, procurement and marketing managers, as well as sales managers and employees who work for these companies.

Of the (19) companies involved in the study, (130) questionnaires were circulated, with a recovery rate of 88%, meaning that (115) valid questionnaires were returned and analyzed. Unfortunately, (15) questionnaires could not be accounted for. Table 1 demonstrates this outcome. The most fitting sampling method was implemented for the research.

#### 3.2 Study Sample Characteristics

Answers about the study's information were extracted in the following manner: the frequencies and percentages used to describe the sample.

##### 1. Gender

In the household electrical appliances industry, males dominate the managerial positions, displaying a higher percentage compared to females, as the table reveals. This could be attributed to the type of work (Table 2).

The household electrical appliances sector seems to have a predominantly male workforce, as the table reveals a higher percentage of male managers. This implies that females are underrepresented in managerial roles in this industry, likely due to its inherent qualities.

**Table 2** Distribution of the study sample by gender frequency percentage

	Frequency	Percentage (%)
Male	82	71.3
Female	33	28.7
Total	115	100

**Table 3** Distribution of the study sample by age frequency

	Frequency	Percentage (%)
Less than 30 years	9	7.8
30–39 years	44	38.3
40–49 years	48	41.7
50 or more years	14	12.2
Total	115	100

## 2. Age

Ages vary within the sample, with just 7.8% being under 30 years old. The largest age range falls between 40 and 49 years old, accounting for 41.7% of the sample. 38.3% of the sample fall between (30–39 years). The remaining participants are over 50 years old, giving a clear indication that the bulk of the sample is advanced in age (Table 3).

## 3. Educational Level

It has been noted that the most prevalent educational background within the sample group is a bachelor's degree, accounting for a sizeable 2.65%. Other educational accomplishments include a diploma, accounted for by 16.5% of the population, with a master's degree accounting for a notable 7.8%. Moreover, 8.7% of the population are Tawjihi holders, and lastly, there are other educational qualifications present among the remaining individuals (Table 4).

## 4. Years of Experience

There is a considerable amount of experience amongst the sample group, with members demonstrating a range of expertise. Some, or approximately 19.1% of them, have less than five years of experience, while the same percentage of participants has experience ranging from six to ten years. Another 34.8% of respondents have experience spanning from 11 to 15 years, and the remaining 27% have taken on projects for a minimum of 16 years. This would suggest that the participants' practical knowledge levels are directly correlated with their age, which is comparatively higher (Table 5).

**Table 4** Distribution of the study sample according to educational level

	Frequency	Percentage (%)
High school diploma (Tawjihi)	10	8.7
Diploma	19	16.5
Bachelor's degree	75	65.2
Master's degree	9	7.8
Other	2	1.7
Total	115	100

**Table 5** Distribution of the study sample according to years of experience

	Frequency	Percentage (%)
5 years or less	22	19.1
6–10 years	22	19.1
11–15 years	40	34.8
16 years or more	31	27
Total	115	100

**Table 6** Distribution of the study sample according to job level

	Frequency	Percentage (%)
General manager	4	3.5
Assistant/deputy general manager	8	7
Department manager	25	21.7
Section head E	24	20.9
Employee	54	47
Total	115	100

**Table 7** Distribution of the study sample according to the company's interaction with green (environmentally friendly) electrical appliances

	Frequency	Percentage (%)
Yes	115	100
No	–	–
Total	115	100

## 5. Job Level

Of the sample, 47% are employees, with another 3.5% holding the title of general manager and 7% overseeing as assistant/deputy general managers. Meanwhile, 21.7% of the group are department managers and 20.9% hold the position of department heads (Table 6).

## 6. Does the company deal with green (environmentally friendly) electrical appliances?

It has been found that all the companies under study deal with green electrical appliances (Table 7).

## 3.3 Study Tool

Using a descriptive analysis approach and the SPSS system, the researcher aimed to accomplish the objectives of their study while testing hypotheses. After studying the



**Table 8** Relative importance degree scale

Importance	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
The grade	5	4	3	2	1

**Table 9** Value of Cronbach alpha

Number	Variables	Questions	Cronbach's alpha
1	• Social responsibility	(1–7)	0.756
2	• Pressure groups	(8–16)	0.846
3	• Environmentally safe and non-harmful products	(17–23)	0.845
4	• Energy-efficient products	(24–29)	0.915
5	• Easily repairable and replaceable products	(38–45)	0.928
6	• Environmental consumer awareness	(46–51)	0.938
7	• Social responsibility	(52–60)	0.761

theoretical literature and past research, a questionnaire was created. This questionnaire was utilized to scrutinize the influence of the application of green marketing on the marketing performance of companies who produce household electrical appliances in Amman. The questionnaire was tested to assure that the objectives of this study were attainable.

To gauge each question's significance, a Likert scale was employed, with varying degrees of agreement to choose from. The questionnaire's solution grades were established as such: five levels in total [50] (Table 8).

## 4 Results and Analysis

An excellent ratio of Cronbach's Alpha test was used to determine the reliability of our measurement tool. With a value of  $\alpha = 0.947$  for the entire questionnaire, we've exceeded the acceptable ratio of 0.60 [28]. Additionally, the following values of  $\alpha$  were calculated for each variable (Table 9).

## 5 Results and Discussion

The main hypothesis of the study was put to trial through multiple regression analysis, and the results that ensued are as follows (Table 10).

In regards to the marketing performance of organizations in the household electrical appliances sector in Jordan, the table above shows that there is a noteworthy effect of green marketing according to the calculated F value of 83.877. This value

**Table 10** Hypothesis testing

C.F.	Sig. – F	N	r	r <sup>2</sup>	Independent variable	B	t	Sig.	Beta
83.877	0.000	6,108	0.907	0.823	Social responsibility	0.419	4.655	0.000	0.42
					Pressure entities	0.546	5.978	0.000	0.641
					Safe and non-harmful products	0.089	2.278	0.025	0.105
					Energy-efficient products	0.21	2.797	0.006	0.326
					Products easy to repair and replace	0.268	3.20	0.002	0.392
					Environmental consumer awareness	0.185	3.344	0.001	0.228

also suggests that there is statistical significance at a 0.05 level and results in the rejection of the hypothesis. A strong and positive correlation is shown with the statistically significant value of  $r = 0.907$  at a 0.05 level. Additionally, there is an explanation of 82.3% of the variance in the dependent variable by the independent variables.

## 6 Recommendations

The researcher has some recommendations based on statistical analysis and the theoretical framework from the field study:

1. In Amman, it's important for businesses promoting domestic electronic devices to implement eco-friendly advertising tactics.
2. Investing in employee training to enhance their sense of social responsibility is one of the essential ways to promote the concept of social responsibility and strike a balance between public interest and the interests of the company.
3. The Standards and Metrology Organization, Ministry of Industry and Trade, and the Royal Scientific Society are regulatory bodies that demand companies to maintain their cooperation and dedication. Additionally, companies must keep in touch with non-government groups that exert pressure.
4. Providing eco-friendly and safe household electronic appliances must remain a top priority for companies.
5. Keep supplying the market with energy-saving appliances is vital to decrease energy consumption.

6. In Jordan, it is paramount for companies marketing and selling electrical appliances for homes to make sure that the appliances they provide are easy to repair and replace, provide upkeep services, and give swift post-sales support.

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# Representations of Love and Passion in Classical Arabic Literature in *Qīṣaṣu* *Kitbi Maṣārī‘i Aloshaqi* by Alsiraja Alqarīʾ as a Case Study



Raihan Ismail AL-masaeid and Khiratt Hamad AL-Rshoud

**Abstract** Arab heritage has an undeniable focus on the subject of love; a discourse that has been beautifully articulated in Arabic literature through both poetry and prose. The stories of lovers have been especially capable of capturing human emotions in their purest form. The purpose of this paper is to explore this rich heritage and showcase the extent to which Arab literature has excelled in crafting their own unique literary arts. These works are intricately linked with the literature of the soul, portraying deep meanings that touch the hearts of many. In this context, *Qīṣaṣu Kitbi Maṣārī‘i Aloshaqi* by Alsiraja Alqarīʾ [stories of those who struggled and fell victims of love] serve as a model for studying their critical view of love and its various manifestations. Within the pages lie numerous tales that weave together in distinct currents. Some speak of historical figures, renowned in Arabic literature for their amorous exploits. Others center on characters who are consumed by their passion, to the point of lunacy. Finally, there are those that follow the journeys of mystic heroes. Regardless of focus, each tale in these works captures the duality of crisis and resolution, be it through exacerbating characters' struggles or driving them toward relief. Interpretation of the text's themes hinges on a crucial juncture, revealed in the closing pages of this academic paper.

**Keywords** Arab heritage · Protagonists · Love · Stories · Critical interpretation

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## 1 Introduction

Ancient and advanced civilizations alike have always held love as a fundamental social phenomenon, unchanged in its core since ancient times. Love has developed a cultural prominence over time, laying a foundation of clarity, maturity, and transcendence beyond differences in gender, appearance, and color. Through love, social class barriers have crumbled and distances among people have narrowed. Truly, love is a sacred feeling that remains unshakable [1].

Among the primary themes in Arab heritage is passion, which has been a dominant focus in Arabic literature, both in poetry and prose. Human experiences are closely linked to the stories of lovers and their struggles, which is why these anecdotes are among the most expressive forms of human expression. At the outset, Arabs shared the stories of poet-lovers orally, depicting their anguish and pain due to their longing for love. Expressing the emotional turmoil and romantic woes of the lover, oral narratives were often told with a creative flair that left a lasting impression on generations of Arabic writers. For those under the enchantment of love, it is a powerful tool for conveying their deepest feelings and emotions. In Arabic culture, the term lover is akin to a vine, wilting from the intensity of their love. As with any tree, love starts vibrant, but inevitably fades [2]. Love, when hidden, can lead to agony and demise, as numerous casualties of love have succumbed to the pains of discretion. A poignant illustration of this is the narrative of ‘Umar ibn Maisara in Al-Qali’s book “Al-Amali,” where Maisara kept his love a secret till his last breath. Ibrahim ibn ‘Uthman Al-’Athari, who used to reside in Kufa, narrated: “I saw ‘Umar ibn Maisara, and it was rumored that he was in love”. People used to ask him about his condition, and he would respond [3]:

yusāyilunī dhū ʿallūbī ‘an° tūli ‘alātī  
wamā ʾaānā biʾal°mub°dī lidhī ʿallūbī ‘alātay  
sāāk°tumuhā šab°ra°n°a ‘alay ḥurī jam°rihā  
wāās°turuḥā ʾaidh° kāna fī ʾalsīt°ri rāḥatay

### Translation

[They ask me, with the soft-hearted, about the length of my affliction,  
But I am not one to reveal the cause of my affliction.  
I will keep it concealed, patiently enduring its scorching heat,  
And I will guard it, for in concealment lies my comfort].

Love is a complex expression of human feelings that stems from personal impulses and is inherently rooted in human nature. It is also intricately intertwined with social norms, traditions, and heritage. When it comes to romantic love, it is primarily focused on one’s significant other and the desire to please both oneself and the beloved [4]. This pursuit of love shares a connection and sense of harmony with religious beliefs, as both strive for peace on personal, family, and societal levels by promoting strong bonds and instilling a sense of calm. The holiest of human emotions is love, and it is the primary objective of religion. Prophets have been known to build



their messages on this foundation, which is reflected in Jewish scriptures, and serves as an enchanting bridge between history and poetry. Christianity also highlights the concept of spiritual love, where love is elevated to its utmost degree. When love intensifies to the level of passion, it paves the way for concerns that can “disrupt the mind, corrupt the body, and make the wise go insane” [5].

Since the early days, love stories have existed. In the form of poetry, these epic tales retell various characters and events in a concise and complete narrative structure. Among these highly romantic stories, one finds tales of longing, the desire for the return of loved ones, playful flirting, the recounting of adventures with the beloved, and the detailing of the lover’s journey. These romantic stories of the past, especially before the introduction of Islam, were renowned for their purity, as can be seen in the classic tale of ‘Antarah and ‘Ablah or the story of Al-Murqash Al-Akbar. Yet in stark contrast, other stories were more focused on the physical aspects of love [6], such as the tale of Al-Murqash Al-Asghar and Imru’ al-Qays.

Introducing new spiritual and social ideals of love while preserving some customs, traditions, and values from pre-Islamic times, Islam emerged. The Quran conveyed supreme meanings of love through diverse mediums such as words, gestures, narratives, or implications, presenting spiritual and social values. Love’s root, verb, and other words derived from it are frequently utilized throughout the Quran. Islam recognized and purified human emotions to avert errors and safeguard the human race and its descendants. In traditional tales, love between men and women was not typically referred to, except in stories featuring Yusuf (Joseph), Sulaiman (Solomon) and the Queen of Sheba, and Musa (Moses) and the daughters of Shu’ayb. However, the love exhibited by the esteemed Prophet Muhammad, peace be upon him, was truly remarkable and unparalleled. He displayed great warmth and affection towards humanity, his closest companions, and his family members. The love and care he had for women was highlighted in his admiration and love for Lady Khadijah, whom he cherished for her upright character, honesty, and trustworthiness. His admiration was undoubtedly reciprocated by Lady Khadijah, and he returned her love with ample tenderness and affection.

During the Umayyad period, the growth of romantic flings spread like wildfire, captivating the minds of the Arabs and transforming into a social phenomenon from a personal and obscure experience. Each romantic involvement had a tale that was recounted by the passionate bards, referred to by speakers as “Al-Mutayyamin”—who were unwavering in their affection and devoted to their paramours. Their emotions gripped them so immensely that they agonized over the agony of unreciprocated love until they were impoverished and feeble, frequently leading to their demise. Their emotions and steadfastness remained strong and unflinching, despite the situation at hand. Their loyalty and faithfulness were unyielding, and they weren’t forgotten. The Abbasid era saw the tradition of oral love tales transform into written literature, documented in books. From these works emerged stories rife with the tragedies of love, loss, and the pain of lovers yearning and longing for one another. Expressed through poetic excerpts, short anecdotes, and brief romantic narratives, some tales could be condensed into mere lines, yet they remained beloved in Arab society.

In heritage sources, stories have gained a high and esteemed status. Some of these tales have transformed into a network of interconnected narratives so alike to historical news in structure and style that they are nearly undistinguishable. These are accounts where fact blurs with legend and actuality intertwines with fantasy. Love story writers arrange their works into chapters, creating avenues in which they can relay wonders, describe marvels, and utilize various techniques. One such approach is:

- “Kitab al-Zuhra” by Ibn Dawud al-Zahiri.
- “Tawq al-Hamama fi al-Alfah wal-Ulaf” by Ibn Hazm al-Andalusi.
- “Musa’ir al-‘Ushshaq” by al-Sarraj al-Qari.
- “Tazyin al-Aswaq fi Akhbar al-‘Ushshaq” by Dawud al-Antaki.
- “Risalat fi al-‘Ishq wal-Nisa” by al-Jahiz.
- “Rawdat al-Muhibbin wa-Nuzhat al-Mushtaqin” by Ibn Qayyim al-Jawziyya.

Throughout literary history, a narrative genre consisting of lovers and romantic tales has prevailed. Deriving its elements from the temporal and spatial realities of the time, these tales mixed truth with fabrication. Utilizing a storytelling narrative style, the stories expanded in events, created suspense, captured the audience’s attention and attempted to instill empathy by presenting themselves as retellings of actual events. As a result, readers feel closer to the characters who were prominent figures in ancient Arab literature.

Contained within Arabic heritage is proof of the remarkable craft of Arab storytellers who created literary works unlike any other. These works, unique to Arabic literature, embraced narratives that focused on the purest of human emotions and elevated them to a level of importance that rivals any other form of Arabic literature. Central to their purpose was the exploration of uncharted lands in order to piece together a stunning and cohesive picture of ancient Arabic literature [7].

The depiction of love and its different aspects in *Qishaṣu Kitbi Maṣari’i Aloshaqi* by Al-Sarraj Al-Qari’ is an ideal model for study since it features stories of lovers’ hardships. This famous Arabic oeuvre expertly explores the theme of love and passion and is recognized as one of the most prominent works in Arabic literature. *Qishaṣu Kitbi Maṣari’i Aloshaqi* is widely regarded as the principal source of lover’s anecdotes, presenting a range of perspectives on love that remain unparalleled. These stories offer a quintessential representation of passionate love, a fundamental theme inherently associated with an inescapable destiny [8].

This is evident from the semantic framework of the book’s title, composed of the two words “muṣāri’u” (Struggles) and “al-‘ushāqu” (Lovers). Within stories, the two words comprising the title ignite an expectation horizon, geared towards sparking interest in the reader and linking it to the linguistic context [9]. This title acts as a condensed sign with a semiotic dimension of great significance. However, the correlation between the title and the content does not manifest itself instantaneously, except to the one who searches for coherence within the text [10]. A mere inquiry of consistency will not satisfactorily suffice.

In the book *Qishaṣu Kitbi Maṣari’i Aloshaqi*, the subject of love is explored through various love stories from different periods. Contrary to one researcher’s claim that

the author, Al-Siraj, fails to present a clear perspective on love and instead opts for excessive verbosity, a closer examination of the text reveals that this opinion is misguided [11]. The book's size is proportional to its focus on love, and it successfully portrays the reality of love through its stories. Mustafa Abdulwahid, in his book *Dirasatu Alhubi Fi Aladab Alarabi* [The Study of Love in Arabic Literature], views verbosity and excess as being in contrast with this approach. The book's stories are thoughtfully chosen to facilitate the effective communication of ideas to the reader, avoiding philosophical complexities and theoretical jargon.

Intriguingly, the tales of love tucked inside the book went beyond just familiar interpretations of human emotions, as seen in the likes of "Al-Zahrah" by Ibn Dawood and "Tawq Al-Hamamah" by Ibn Hazm. Instead, they permeated into the domain of divine love that bloomed during the Islamic era, with a dash of philosophy and Sufism that led to its synthesis, and entailing romantic narratives of creatures such as jinn, birds, and more. The essence of love resounded quite masterfully and passionately throughout the pages of the book as showcased by the writer, Al-Siraj Al-Qari. In section one, titled *Aslu Alishqi Wama Thukira fih* [the origin of love and what is mentioned about it], the author opens with Caliph Al-Ma'mun's inquiry to Yahya ibn Aktham [12] regarding the nature of love. Yahya's response defined love as "swanah [13]," an experience that captures the heart and affects the soul. The author then poses the same question to Thumamah [14], who describes love as a pleasant companion, a comforting friend, and a kingdom with gentle paths, mysterious ways, and just rulings, among other qualities [15].

Al-Siraj's unique approach to presenting information through questions and answers is a surefire way to grab a reader's attention. By employing a more anecdotal style rather than a straightforward one, Al-Siraj's work allows readers to freely analyze and interpret the rich and diverse content of the book. This storytelling approach has been employed by many ancient authors and is refreshing to see in a modern context. The book not only delights readers but also encourages them to contemplate the essence of love and the importance of promoting chastity in all forms of relationships. The stories in the book *Qışaşu Kitbi Maşari 'i Aloshaqi* follow various directions [16]:

- **Firstly: Regarding historical figures mentioned in Arabic literature who became famous for their love, such as the stories of "Qais and Lubna," "Qais and Laila," "Jamil and Buthaina," "Kuthair and Azza," and "Aruwa and Afraa" [17].**

In the tales of these poets' amorous experiences, one can observe a likeness in the fundamental structure, essential attributes, constituencies, and discourse strategies. In brief, the commonality is portrayed as follows: a youthful male, hailing from a desert locale, habitually falls head over heels for his cousin or a girl from a disparate tribal affiliation. He proposes marriage, but her kin turn down his advances due to destitution or infamy for admiring her. In turn, he experiences unbearable anguish, ultimately transforming into a lovesick embodiment, which in due course leads to the disclosure of his predicament and the dissemination of his story throughout his community, and so forth.

In the popular imagination, these poets and others who celebrated love were depicted as lovers, and tales circulated about them. Their revealing verses were praised by people as love often began with a glance or meeting in these stories. Chaste love is the focal point of these stories with a pure and profound focus on purity and innocence. Despite deprivation, this sincere emotion endures. Connected at their core to deprivation and religious consciousness of pure spirits, virgin tales are built upon the cornerstone of chastity. Unique in their expression of raw emotions, these virgin narratives seamlessly blend natural beauty with a Sufi sense of wonder. Simply put, they are the first embodiment of Sufi love.

Entering the realm of historical fiction, these exceptional tales feature real-life figures from days gone by [18]. While remaining grounded in reality, their narratives are imbued with the creative genius of their storytellers, who artfully depart from the strict confines of historical accuracy [19]. Tapping into the boundless well of human emotion, these tales delve into the intricacies of love, with its toxic mix of dreams, disappointments, and jealousies that can obscure one's perception of life's true essence [20]. Whether presented in the form of dynamic imagery, evocative prose, or captivating storytelling, the language of love consistently conjures images of a devoted pair [21].

### Firstly

- Included in this category are tales of religious origin, such as the account of Yusuf and Zulaykha—the Aziz's wife [22]—and those detailing the Children of Israel [23], as found in the book *Qışaṣu Kitbi Maṣari 'i Aloshaqi*. Upon closer examination, these narratives demonstrate that their purpose extends beyond portraying strength and weakness. Rather, they are permeated with values that emphasize purity and trustworthiness. As stated in [24], “The writer has successfully crafted emotionally-driven stories that aim for reform and purity”.

### Secondly

- Madmen driven to madness by their passion are featured as protagonists in these tales. They typically reside in psychiatric hospitals or monasteries, often bound or restrained, frequently found sitting in the shade of a wall or under a tree. These deranged individuals are commonly selected from the ranks of the insane [25].

### Thirdly

- Devotion to young boys is a recurring theme within the narratives of Sufis [26], who themselves are the focus of the plot. It is known that some characters met their tragic end due to their beloved boys passing away. These tales differ yet allude to an apparent correlation existing between the Sufi cohort and attractive young boys, thereby exposing a contrast between this relationship and the expected principles of seclusion and detachment upheld within the Sufi lifestyle. Indeed, the mere inclusion of these stories insinuates an ethical transgression taking place. Distinct from worldly desires and materialistic longings, the Sufis are ardent admirers of God. Their love is an extraordinary kind of love—divine love. This spiritual love accompanies the soul's ascension, and it is enduring and based on an

unwavering faith in divine love. For the Sufis, the primary foundation of their life and the symbols associated with it is love. This love comprises two fundamental elements—the emotional and the intellectual elements, reflected in the purity of the soul [27]. Unlike human love and passion, which arise from emotions, and feelings experienced on beholding a beloved, the Sufi's love is the connecting bond between two hearts.

#### Fourthly

- Aspects that entertain and persuade are integrated into artistic stories that flow freely [28].

## 2 Conclusion

It can be concluded that the stories of *Qiṣaṣu Kitbi Maṣari'i Aloshaqi* and the narratives it contains about love the pains of separation, the conditions of lovers, emotional thirst, and psychological tension are built on the duality of resolution and crisis. This duality interacts strongly, either to deepen the crisis of the central character and intensify it or to assist them in overcoming the crisis and accelerating their fate towards resolution [29]. The specific point where this is determined is imposed by the interpretation of the text, whether in poetry or prose.

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# Improving Timetable Quality Through Multi-objective Optimization: A Case Study on Post-enrolment Course Scheduling



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**Abstract** The study proposes a fresh method for organizing course schedules after students have enrolled in their courses. This is done by converting a standard approach into a multi-objective case study. The original objective of minimizing conflicts is still essential, but a second objective of reducing students' free time slots is also considered. This second objective goes against the initial flexible constraints. To achieve this, the researchers used an algorithm called NSGA-II, which was modified to work

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with a variable population size based on the lifespan of each individual. This lifespan is determined when the individual is created. The new algorithm, named NSGA-II VPS, performed better than NSGA-II when tested on a complex optimization problem.

**Keywords** NSGA-II · Multi-objective · Course timetabling

## 1 Introduction

Multi-objective optimization problems require finding a range of solutions that balance multiple conflicting constraints to evaluate potential solutions. By generating sets of non-dominated solutions, decision-makers have various options for determining the best solution. Many algorithms are available to address multi-objective problems, and this study focuses on course scheduling as a case study. The primary challenge in creating an educational timetable is accommodating a fixed number of activities within limited time slots and spaces. Petrovic and Burke [1] have added categories such as multi-criteria approaches, case-based reasoning approaches, and hyper-heuristics/self-adaptive approaches [2, 3]. Various techniques have been discussed in academic literature for creating course schedules [4]. Most researchers approach the problem as a single objective and use weighted methods [5–14].

Al-Sartawi et al. [15] are among the few researchers who have examined course scheduling as a multi-objective case study. Their proposed model considers two practical factors to manage conflicts in lectures: (i) scheduling subject sections in a way that balances student registrations and (ii) accounting for failure rates and the frequency of teaching a subject. They used commercial software to solve the model and applied it to a course-timetabling problem. Badri [16] took a two-stage optimization approach to maximize faculty course preferences in scheduling lectures for courses and then faculty time preferences in scheduling courses to specific time slots. Hertz and Robert [10] broke down the university timetable problem into smaller sub-problems to simplify the overall process.

Al-Sartawi et al. [12] also proposed a two-stage approach to tackle the university course scheduling problem, represented as an integer programming problem. The more difficult and computationally complex constraints are relaxed in the first stage, while the remaining complex constraints are addressed in the second stage. By dividing the problem or relaxing some constraints, the scheduling process is simplified compared to solving the problem entirely at once. However, the quality of the solutions may be affected by decomposition. Daskalaki and Birbas [17] developed a multi-objective model that considers the distance between instructors' and students' activities and the idle rate of classrooms. The coding and population initialization of the genetic algorithm was improved using a BFS algorithm to minimize the distance traveled by students and instructors. The model was tested and found to effectively reduce the flow of people during course scheduling, reducing the



risk of disease transmission in universities. Palma and Bornhardt [18] proposed a hybrid genetic algorithm, the multi-objective fuzzy-based adaptive memetic algorithm, which combines local search techniques such as tabu search and various artificial intelligence techniques to solve complex optimization problems.

The structure of the paper is as follows: The university course scheduling problem, along with various existing and innovative constraints, is introduced in the subsequent section. NSGA-II VPS is then presented in Sect. 3, followed by the introduction of the lifetime calculation approach for individuals in Sect. 4. Section 5 presents the simulation results, and the conclusion and future work are discussed in Sect. 6.

## 2 Problem Description

Scheduling university courses is a significant optimization challenge in the field of education. The objective is to allocate lectures to specific spaces and time slots while adhering to rigid and flexible constraints. Flexible constraints refer to desired conditions that should be met if possible, while rigid constraints are non-negotiable requirements that must be satisfied to achieve a feasible solution. The university course scheduling problem examined in this study was adapted from [9]. While the rigid constraints were left unchanged, a new soft constraint was added, increasing their number. The original problem is discussed in Sect. 2.1, while Sect. 2.2 provides more detailed information on the newly added soft constraint.

### 2.1 Original Problem

Socha et al. introduced the university course timetabling problem in 2002, which was the foundation for the initial international competition. The problem consists of hard and soft constraints, which are enumerated below:

- Students cannot be assigned to attend two courses simultaneously.
- The assigned classroom must fulfill the specific needs of the course.
- The capacity of the assigned classroom must be sufficient to accommodate the number of students enrolled in the course.
- Each classroom can only accommodate one course during a specific time slot.

The subsequent soft constraints are assigned the same level of punishment:

- The final course of the day for a student is allotted to the last time slot.
- A student has three or more consecutive classes.
- A student has only a single course planned for a day.

The initial issue consists of the following components:

- $N$  courses, which are denoted as  $e = \{e_1, \dots, e_N\}$

**Table 1** The characteristics of a dataset

	Small	Medium	Large
Number of event	100	400	400
Number of room	5	10	10
Number of feature	5	10	10
Approx features per room	3	3	5
Percent feature use	70	80	90
Num students	80	200	400
Max events per student	20	20	20
Max students per event	20	50	100

- 45 distinct timeslots
- R rooms
- F characteristics of rooms
- M students.

The primary objective is to satisfy the hard constraints while minimizing the number of soft constraint violations. In real-life situations, it is generally impossible to satisfy all soft constraints, but minimizing the violations can result in better solutions [19]. Table 1 presents detailed information on all instances.

2.2 *New Soft Constraints*

In order to enhance the university timetable and make it more efficient, a new soft constraint was introduced to minimize the total number of gaps between consecutive courses for all students in a day. This can help to reduce the overall waiting time for students between classes. However, this new constraint may conflict with the original requirement of each student having at least two consecutive courses. Thus, the new constraint was implemented in a way that would not compromise the existing constraint. An example has been provided below to illustrate how the new constraint is evaluated for all scenarios (Table 2).

We categorized timeslots into two groups: good and bad timeslots. For example, let’s take Student A, who has five waiting timeslots, namely TS3, TS5, TS6, TS7, and TS8. TS3 is considered a good timeslot among these timeslots since it is situated

**Table 2** Student’s matrix example

	T1	T2	T3	T4	T5	T6	T7	T8	T9
Student A	1	1	0	1	0	0	0	0	1
Student B	1	0	0	0	1	1	0	0	1
Student C	0	0	0	0	1	0	0	1	0

**Table 3** Freely timeslot calculation

	T1	T2	T3	T4	T5	T6	T7	T8	T9	Total good timeslots	Total bad timeslots
Student A	1	1	0	1	0	0	0	0	1	1	4
Student B	1	0	0	0	1	1	0	0	1	0	5
Student C	0	0	0	0	1	0	0	1	0	0	2
Total										1	11

**Table 4** The most efficient way to display the timetable

	T1	T2	T3	T4	T5	T6	T7	T8	T9	Total good timeslots	Total bad timeslots
Student A	1	1	0	1	1	0	0	0	0	1	0
Student B	1	1	0	1	1	0	0	0	0	1	0
Student C	0	0	0	0	1	1	0	0	0	0	0
Total										2	0

after two consecutive timeslots. Conversely, TS5, TS6, TS7, and TS8 are considered bad timeslots because Student A has to wait for four timeslots between TS4 and TS9. We used the same method for Students B, and C. Table 3 describes this procedure. The purpose of this method is to enhance the quality of the timetable and make it more efficient by reducing the waiting timeslots between consecutive courses for all students on the same day.

This study considers the total number of bad timeslots for all students as the value of the new soft constraint. So, for instance, if we take into account students A, B, and C, the value of the new soft constraint is 11. If the solution is optimal, then the value of the Socha soft constraints and our new soft constraints is zero. Table 4 presents the optimal solution.

The original soft constraints proposed by Socha allow a maximum of two consecutive courses and do not consider the waiting time between courses, contrasting with the newly introduced soft constraint. However, adding this new constraint results in a more compact timetable with fewer waiting timeslots, leading to a more desirable solution compared to using only the original soft constraints.

### 3 NSGA-II with Variable Population Size (NSG-II VPS)

This research introduces a modified version of the NSGA-II algorithm that utilizes a GA with a population size that can vary. While the GA is a successful optimization technique [20], it is highly dependent on its parameters, such as the population size, crossover rate, and mutation rate. Smartly regulating these parameters can influence the GA's performance, resulting in a balance between depth and breadth search.

Inadequate parameter settings can result in an imbalanced relationship between depth and breadth search, causing suboptimal performance during the search process [21].

Srinivas and Deb developed the NSGA algorithm in 1998, which was later enhanced by Deb et al. in the form of NSGA-II. The NSGA-II algorithm improved upon the original by introducing an archive for storing the best solutions and an adaptive assignment rule that considers both the rank and distance of each solution. The main difference between the two algorithms is that NSGA-II has an archive feature.

In this research, we have modified NSGA-II by introducing a variable population size instead of a fixed one. The lifetime of each individual is determined based on its quality and population characteristics at the time of its creation, as explained in Sect. 4. The proposed NSGA-II VPS structure, illustrated in Fig. 1, uses different population sizes, with each individual having a lifetime evaluated in generations. Individuals remain in the pool during their lifetime, and the mating process selects parents using the Roulette Wheel Selection (RWS) method, while the crossover and mutation rates are constant. Figure 2 visually depicts the NSGA-II VPS process from time  $t$  to time  $t + 1$ . Since the computational speed of GA is affected by the population size, we have applied self-tuning to the NSGA-II algorithm based on the search progress, with a minimum and maximum value.

## 4 Lifetime Calculations

Upon creation, an individual's lifespan is assessed using one of three methods: proportional, linear, or bi-linear. After reviewing the findings from previous research [22], we opted to use the bi-linear approach in our NSGA-II VPS because it addresses the limitations of the proportional and linear techniques.

## 5 Simulation Results

The NSGA-II VPS algorithm was executed on an Intel Pentium 4 2.33 GHz computer using Matlab. To determine the algorithm's parameters, initial experiments were conducted on the standard benchmark course timetabling problem proposed by the Metaheuristic Network. The proposed algorithm was tested for 10 iterations for each dataset, and the parameter settings used in the experiment are presented in Table 4. Table 5 compares the final results between NSGA-II (the standard algorithm) and NSGA-II VPS (the proposed algorithm) on the standard course timetabling problem. The results demonstrate that NSGA-II VPS outperformed NSGA-II with the same parameter settings.

The primary objective of this research paper is to enhance the quality of timetables by introducing a new constraint and algorithm. The research findings (Table 6) suggest that the NSGA-II VPS algorithm is more suitable for smaller datasets due to

**Parameters:**

Pt: parent population

Qt: Offspring population

Fm: Different nondominated fronts,  $m=1,2,3,\dots,M$ 

N: size of population.

PAt: Population Archive (size is H).

tmax: Maximum number of generation.

t=0

MinLT: Minimum lifetime.

MaxLT: Maximum lifetime.

**Begin**

Randomly generate initial solutions Pt

Calculate lifetime for each individuals in Pt

While ( $t < tmax$ )

{

Increase the age for each individual by 1

Update archive PAt [Best individuals from Pt]

Qt =Mating Pool [generate new offspring based on crossover and mutation rate].

Calculate lifetime for each offspring in Qt.

 $R_t = P_t \cup Q_t$  [Combine solutions parents and offspring's].    Remove from  $R_t$  all individuals that age greater than their life time.    The size will be  $R_t^*$ .    Perform nondominated sorting to  $R_t$  to obtain  $R_t^{**}$ .    Perform sorted crowded distance on  $R_t^*$  to obtain  $R_t^{***}$ .     $P_{t+1} = \Phi$      $m = 1$ 

Repeat

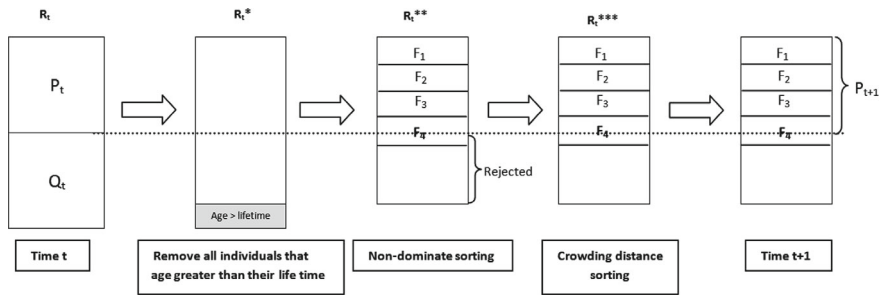
 $P_{t+1} = P_{t+1} \cup R_t^{**}$              $m = m + 1$         Until  $|P_{t+1}| + |R_t^{**}| < N^*$ 

t=t+1

}

**Fig. 1** NSGA-II with variable population size (NSGA-II VPS)—general structure

their lower complexity than medium and large ones. The performance of the NSGA-II VPS algorithm on small, medium, and large datasets is depicted in Figs. 3, 4, and 5, respectively. The graphs display the penalty cost on the y-axis and the number of generations on the x-axis. The original and proposed new soft constraints are denoted as F1 and F2, respectively. The performance of NSGA-II VPS is achieved by maintaining a balance between exploitation and exploration during the search process, which is controlled by the lifetime of individuals.



**Fig. 2** Pictorial illustration for NSGA-II VPS

**Table 5** Parameters settings

Parameter	Value
Starting population size	100
Minimum population size	25
Iteration	10,000
Crossover rate	0.75
Mutation rate	0.05
<i>MinLT</i>	1
<i>MaxLT</i>	10
Selection mechanism	RWS

**Table 6** Comparison between NSGA-II and NSGA-II VPS

Dataset	NSGA-II	NSGA-II VPS	% improvement
<i>s</i> 1	437	425	2.82
<i>s</i> 2	741	712	4.07
<i>s</i> 3	492	479	2.71
<i>s</i> 4	367	<b>355</b>	3.38
<i>s</i> 5	689	677	1.77
<i>m</i> 1	3359	3354	0.44
<i>m</i> 2	3398	3387	0.32
<i>m</i> 3	3173	3151	0.69
<i>m</i> 4	3413	3388	0.73
<i>m</i> 5	3841	3838	0.07
<i>l</i>	7182	7159	0.32

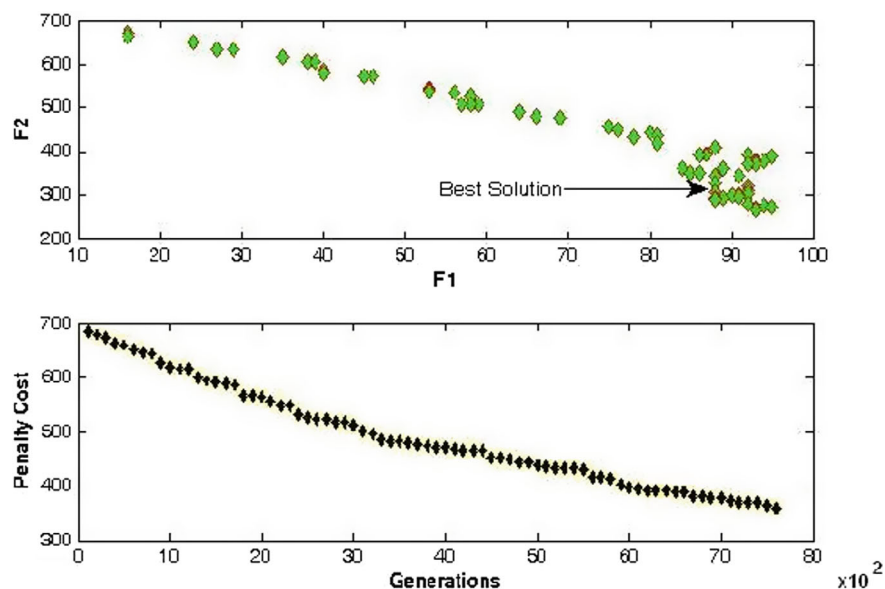


Fig. 3 NSGA-II VPS performance over for small 4 dataset

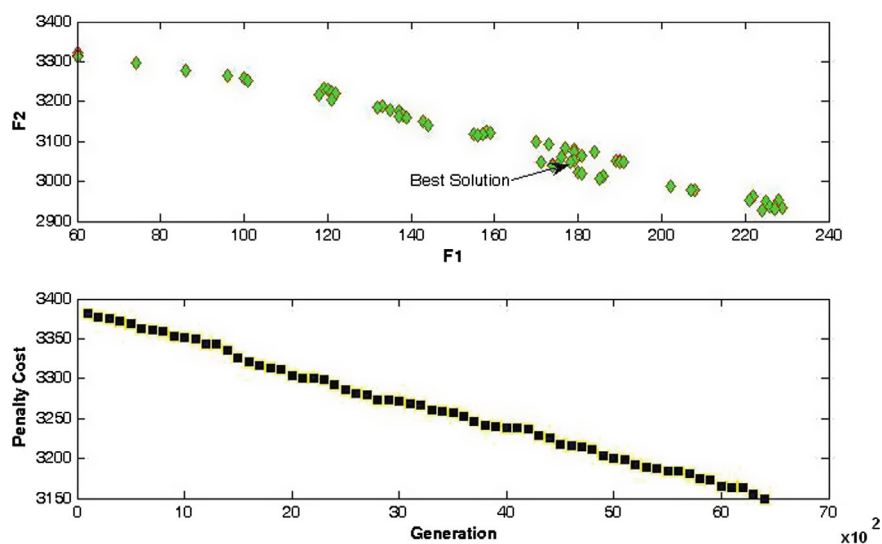


Fig. 4 Depicts the results of NSGA-II VPS performance for the medium 3 dataset

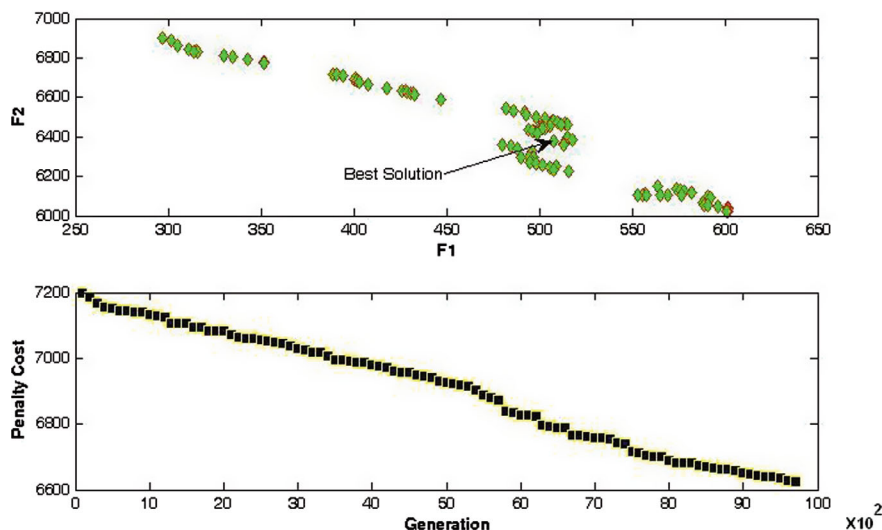


Fig. 5 Illustration of the performance of NSGA-II VPS on a large dataset

## 6 Conclusion and Future Work

This research presents a novel case for the post-enrolment course timetabling problem, which aims to reduce the number of available timeslots for all students. This objective raises the problem's difficulty and creates a conflict with the initial soft constraints. To resolve this issue, the study proposes modifying the original NSGA-II algorithm by using a variable population size (NSGA-II VPS) to strike a balance between exploitation and exploration during the search process. The results demonstrated that NSGA-II VPS provided superior results to NSGA-II for all datasets. This research focuses on controlling the population size, but further research will explore intelligent control of crossover/mutation rates using fuzzy-based lifetime to deal with the use of ill-structured experience, human intuition, and vague information when applying NSGA-II to any optimization problem.

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# The Impact of Human Resource Management Practices on the Performance of the Private Sector's Employees



Nour Abutayeh, Marwan Almakaneen, and Sayeeduzzafar Qazi

**Abstract** In order to evaluate the effect of human resource management practices on private sector employee performance, this study will explore the relationship between variables such as training, development, and motivation and their impact on performance levels. An analytical research approach is utilized to examine the impact of independent variables (i.e. training, development, and motivation) on the dependent variable of employee performance. To gather information, a random sample consisting of 81 private sector employees was selected as the study population. Using the Pearson correlation coefficient, the study confirms that employee performance level has a robust correlation with human resource management practices such as training, development, and motivation. This was determined through a questionnaire that included 19 statements measuring various aspects of the study, in addition to demographic data.

**Keywords** Management · Human resources · Training · Motivation · Organizational performance · Private sector

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## 1 Introduction

Investing in human resources is crucial for productivity and performance in organizations, despite the availability of material, financial, and technological resources. Therefore, organizations must establish a dedicated Human Resource Management (HRM) department. Such investment surpasses investment in other resources due to the indispensability of human resources [1]. HRM presently encounters significant challenges from rapid environmental changes, including globalization, reengineering, the internet, and mergers. HRM must continuously adapt its concepts and strategies to align with these evolving circumstances. HRM strategy is vital these days to treat human resources in an organization as intellectual capital [2]. HR activities include planning, development, motivation, and different practices. Though there is no standard HRM model, the achievement of an organization's objectives and success depends on the HRM functions. One thing that makes the organization unique is its tailored HR model, depending on its size, nature of business, and organizational structure [3]. Despite its significance, the private sector has failed to give due attention to the impact of HRM practices (training, development, and motivation) on employee performance. This study brings to light the discovery made by the researcher.

## 2 Study Background

Among the crucial functions of management in an organization, HRM stands out as a vital one, equal in importance to marketing, production, and finance. The role of human resources in achieving organizational efficiency has elevated the status of HRM, which now covers a broad range of activities [4]. Apart from the typical HR functions, HRM now includes significant responsibilities such as job analysis, HR planning, human resource recruitment, motivation, development, and training. Positive organizational performance hinges on the effective utilization of human resources [5]. That is why HRM places such importance on training and development, recognizing the significance of these integral aspects in unlocking employee potential. After all, employees are among the most valuable assets of any organization [6]. Given recent HRM behaviors and practices, employee skills and motivation are crucial for organizational success [7, 8], to successfully confront challenges, and employees have been equipped through a range of HR development activities. Various methods for training and development have been investigated to achieve this goal [9]. In order to improve employee performance, it's important to consider external motivators like supervision and work conditions [10]. Harvard Business Review classified motivational factors into two main categories—intrinsic and extrinsic. The former includes achievement, recognition, growth, responsibility, and advancement, while the latter includes factors like supervision, working conditions, payment, personal relationships, appreciation, and organizational policies. This study will

specifically focus on the incentives provided by the organization, including financial and non-financial rewards, recognition for outstanding employees, and exceptional performance. Other factors will not be explored in-depth.

## ***2.1 Research Questions***

The following question is sought to be answered by this study:

- **What is the impact of HRM practices on the level of employee performance in the private sector?**

By examining the following sub-questions, we can determine the extent of the connection between HRM practices and private sector employee performance:

1. The private sector's employee performance level is affected by how HRM training and development is carried out. So what exactly is the extent of this impact?
2. The private sector's employee performance is impacted by HRM motivation, but how exactly? What's the answer to this question?

## ***2.2 Research Problem***

In the realm of contemporary HRM, the role of HRM practices has been understudied. Often, these practices are regarded as secondary or unimportant, disregarding modern approaches to the field [11]. The significance of training, development, and motivation practices, and their impact on employee performance, are particularly overlooked [12]. Yet, these practices are crucial to determining an organization's success. Therefore, this study aims to address this lack of research and investigate the importance of these HRM practices.

## ***2.3 Significance of the Study***

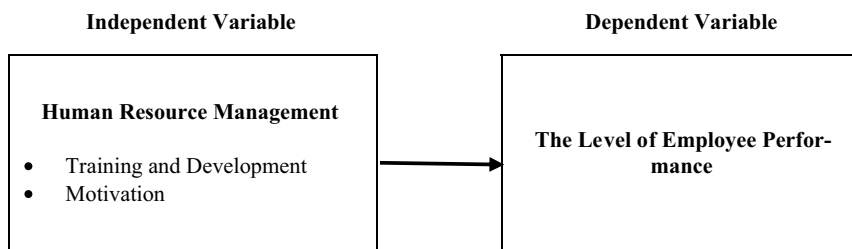
In several ways, this study holds great significance. To begin, Arab studies are lacking clear and objective coverage, which could greatly benefit researchers and organization employees alike by highlighting the management's role in their professional growth and motivation. Additionally, such coverage could contribute to essential administrative services geared towards enhancing their performance and productivity on the job. Furthermore, this study adds value to knowledge regarding human resources and their impact on employee productivity in both specific and general sectors of the private industry. Lastly, it emphasizes the need for implementing efficient HRM practices and how they aid in achieving organizational objectives, despite their high costs.

### 3 Study Hypotheses

Human resource management practices in the private sector are the subject of examination in this study, leading to the formulation of hypotheses centered around the problem, objectives, and research questions. Below are the formulated hypotheses to assess the extent of the application of these practices:

- Hypothesis 1  
Ho: In the private sector, the level of employee performance does not show statistical correlation with training and development in human resource management. The null hypothesis states this, while the alternative hypothesis suggests otherwise—that there is a link between the two.
- Hypothesis 2  
Ho: In the private sector, there is no notable correlation between human resource management training and development with employee performance. However, the alternate hypothesis suggests that such a connection does exist.

#### 3.1 Hypothesis Model



### 4 Study Methodology

The methodology of the study consists of the following.

#### 4.1 Data Sources and Collection Methods

The analytical approach is adopted in this study, relying on two methods:

- HRM functions and practices can be studied using secondary data sources such as academic books and journals. Previous studies on the subject can be reviewed to gain insights as well.

- Study-related inquiries were collected from primary sources via a specially-crafted questionnaire. The questionnaire encompassed questions that pertained to the variables and hypotheses explored in the study.

## ***4.2 Study Population***

The study population consists of all employees in the private sector, totaling 4500 employees.

## ***4.3 Study Sample***

A total of 121 questionnaires were randomly given out to employees in the study population, with 81 employees responding—a response rate of 67%, which is commendable.

## ***4.4 Study Instrument***

To gather data, a questionnaire was conducted by looking at old studies on the same subject.

## ***4.5 Statistical Analysis Method***

Included in the data analysis were various statistical methods, with the assistance of the SPSS (Statistical Package for the Social Sciences) software, for the processing of data collected from the study instrument:

1. Calculating percentages and frequencies, a descriptive analysis was conducted to shoe the unique traits found in the sample.
2. Arithmetic means and standard deviations were employed, as well as the Pearson correlation coefficient and t-tests for a single sample to respond to the study's research questions.

## **5 Results and Discussion**

The study included a random sample of employees in a private sector institution, with 70% of the respondents being male and 30% female.

**Table 1** Age groups: frequency and percentage

Age	Frequency	Cumulative percentage	Percentage
18–22	39	48.1	48.1
23–26	23	28.4	76.5
27–31	3	3.7	80.2
32–36	3	3.7	84.0
37–40	1	1.2	85.2
More than 41	12	14.8	100.0
Total	81	100.0	48.1

Table 1 displays the age groups of the participants. Interestingly, around 48% of respondents fell within the 18–22 age bracket, which is a remarkably high percentage. Upon further analysis, it was discovered that there were several factors contributing to this trend. One of the primary factors is the commendable efforts made by private sector institutions to hire recent high school graduates, as well as diploma and bachelor's degree holders. This is likely due to the lower wages expected by these groups and their willingness to work for any income level. To encourage the progress of institutional work, organizations often prioritize recruiting youthful individuals full of life and energy. Assistance is also provided to students in need of financial support to cover their academic expenses.

Human resource management practices such as training, development, and motivation were closely examined in relation to employee performance through a variety of variables. These variables included multiple measurable items that aimed to determine if a connection existed.

In Table 2, you'll find statistics on employee performance including means, ranges, max/min values, standard deviation, statistical significance, and t-tests. These factors are impacted heavily by certain practices, such as training. Training is critical in increasing productivity, skill, and experience while simultaneously reducing errors and costs. Through this increase in productivity, organizations can improve their competitive edge in the industry.

On a scale indicating Very Weak to Excellent, various aspects were measured and recorded. Table 2 shows that creative employees are greatly valued by the organization, with a score of (3.35), which aligns with the opinions of the respondents. On the contrary, the allocation of budget in supporting employees' creativity and innovation is the least favored item among the respondents, who gave it a response rate of (1.69). This score is considerably lower than the others.

We reject the null hypothesis  $H_0$  and accept the alternative hypothesis  $H_a$ , as indicated by Table 3 which demonstrates a positive correlation between employee performance and training and development within the organization. Most respondents in the survey had positive views, with a notable portion affirming that employee training and motivational programs can improve work performance. As a result, the workforce's success reflects well on the organization as a whole. While the answers showed a wide range of opinions, the prevailing sentiment was optimistic.



**Table 2** Variables: mean, range, maximum and minimum values, standard deviation, statistical significance, and t-test

	Dimension	Mean	Range	Max. value	Minimum value	Std. dev.	Sig. (2-tailed)	t-test
<i>Organizational performance</i>								
<i>How do you compare the performance of the institution over the past three years to that of other organizations engaged in the same type of work? In terms of</i>								
1.	Developing new products, services, or programs?	2.96	1–5	3.24	2.68	1.26	0.000	21.009
2.	The ability to attract key employees?	2.9		3.16	2.64	1.16	0.000	22.348
3.	The ability to retain key employees?	3.07		3.25	2.90	0.8	0.000	34.464
4.	Customer satisfaction?	3.28		3.48	3.09	0.86	0.000	33.995
5.	Relationships and communication between management and other employees?	3.11		3.29	2.94	0.97	0.000	35.418
6.	The quality of products, services, or programs?	3.43		3.64	3.23	0.92	0.000	33.534
7.	Relationships among employees in general?	3.27		3.50	3.04	1.03	0.000	28.395
<i>The effectiveness of the institution in terms of marketing and profitability</i>								
<i>Compared to other competing institutions, how do you assess the performance of the institution in the last 3 years? In terms of</i>								
8.	Marketing	2.79	1–5	3.05	2.58	1.06	0.000	23.855
9.	Sales growth	2.7		2.94	2.47	1.05	0.000	23.085
10.	Profit	2.88		3.11	2.64	1.05	0.000	24.577
<i>Training effectiveness</i>								
<i>Training effectiveness, regardless of on-the-job training, in the past two years, has the organization provided any employees with formal job training, either inside or outside the building?</i>								

(continued)

**Table 2** (continued)

	Dimension	Mean	Range	Max. value	Minimum value	Std. dev.	Sig. (2-tailed)	t-test
11.	There are ongoing formal job training programs	3.22	1–5	3.00	3.45	1.01	0.000	28.644
12.	The management of the institution periodically supports the development of employees' skills	3.26		3.05	3.47	0.94	0.000	31.016
13.	There is coordination between the institution and other organizations to create continuous training programs	33.26		3.04	3.47	0.94	0.000	30.184
14.	There is a percentage of employee performance evaluation based on their participation in training	3.12		2.875	3.372	1.12	0.000	25.048
Motivation								
15.	The institution encourages its employees with moral incentives	3.23	1–5	2.97	3.50	1.21	0.000	23.915
16.	The institution encourages its employees with financial incentives	2.95		2.68	3.23	1.24	0.000	21.347
17.	There is regular recognition for outstanding employees in the institution	3.05		2.79	3.31	1.17	0.000	23.426

(continued)

**Table 2** (continued)

	Dimension	Mean	Range	Max. value	Minimum value	Std. dev.	Sig. (2-tailed)	t-test
18.	The institution values creative employees	3.35		3.13	3.56	0.97	0.000	30.828
19.	The institution allocates a portion of its budget for creativity and innovation	1.69		1.51	1.88	0.83	0.000	18.311

## 6 Conclusion

In evaluating the significance of preparation and progress in enterprises and the labor pool overall, it is discernible that such efforts should be prioritized. Annual training programs benefiting job proficiency, assisting in charting career trajectories, reinforcing competencies and adeptness, boosting leadership aptitude, augmenting decision-making capacities, and reducing flaws garnered from knowledge and talent advancement ought to be standardized to all personnel being that they correspond to magnifying the establishment's productivity and competition in the industry. The bedrock of prosperity for any organization lies in its cognitive assets, embodied in its human components. These individuals are just as critical for growth as financial and technological resources. They are the pulse of an enterprise, with employees' performance dictating the efficacy of the organization and its profits. With rigorously trained employees, a company leaves behind costly errors and strides towards greater value.

Table 3 Pearson correlation test results for study variables

Variable's	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
Developing new products, services, or programs	1																		
The ability to attract key employees	– 0.028	1																	
The ability to retain key employees	0.064	0.421	1																
Customer satisfaction	– 0.070	0.385	0.435	1															
Relationships between management and other employees	0.042	0.377	0.558	0.463	1														
Product, service, or program quality	0.196	0.272	0.396	0.500	0.362	1													
Employee relationships in general	0.188	0.353	0.321	0.399	0.298	0.595	1												
Marketing	0.292	0.378	0.324	0.532	0.352	0.492	0.693	1											
Sales growth	0.141	0.250	0.233	0.229	0.310	0.172	0.303	0.364	1										

(continued)

Table 3 (continued)

Variable's	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
Profit		0.174	0.274	0.262	0.216	0.272	0.275	0.443	0.549	0.766	1								
Continuous formal job training programs		0.006	0.420	0.272	0.353	0.234	0.472	0.585	0.608	0.426	0.647	1							
Support from the organization's management for employee skill development		– 0.086	0.363	0.271	0.350	0.228	0.472	0.552	0.546	0.379	0.585	0.944	1						
Collaboration between the organization and other institutions for training programs		– 0.033	0.342	0.280	0.341	0.255	0.488	0.587	0.580	0.381	0.618	0.919	0.960	1					
Employee performance evaluations include a portion based on their participation in training		0.030	0.334	0.378	0.399	0.337	0.540	0.572	0.607	0.274	0.457	0.669	0.653	0.669	1				

(continued)

**Table 3** (continued)

Variable's	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
The organization motivates employees with non-monetary incentives		0.062	0.333	0.199	0.373	0.232	0.488	0.563	0.508	0.357	0.530	0.606	0.587	0.614	0.665	1			
The organization motivates employees with monetary incentives		0.086	0.401	0.229	0.487	0.400	0.586	0.699	0.617	0.341	0.472	0.664	0.617	0.641	0.694	0.759	1		
Regular recognition of outstanding employees		0.186	0.460	0.315	0.428	0.507	0.548	0.750	0.671	0.376	0.461	0.612	0.552	0.603	0.642	0.649	0.834	1	

(continued)

**Table 3** (continued)

Variable's	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
The organization places importance on creative employees	–	0.010	0.348	0.206	0.266	0.225	0.374	0.276	0.243	0.149	0.236	0.376	0.348	0.365	0.314	0.457	0.364	0.389	1
The organization allocates a portion of its budget for creativity and innovation	–	0.106	–	–	–	–	–	–	–	0.094	0.013	–	–	0.015	–	–	–	–	1
			0.122	0.059	0.016	0.061	0.183	0.250	0.165			0.096	0.104	0.070	0.150	0.075	0.177	0.052	

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# The Impact of After-Sale Services on Customers' Satisfaction: An Empirical Study on Customers of Electrical Appliances for Carrefour Retail in Amman City–Jordan



Mustafa S. Al-Shaikh, Mahmoud M. Saleh, Mahmoud Ali Salahat , and Sayeeduzzafar Qazi

**Abstract** Through aspects such as delivery, warranty, maintenance, exchange refund, installation, and operation, this study seeks to uncover the effects of after-sales services on customer satisfaction. To test the hypotheses and achieve our goal, a random sample was selected from Carrefour hypermarkets in Amman and given questionnaires. Of the original 430 customers surveyed, 22 forms were unable to be collected by the researcher. With a total number of (408) forms, (17) of them were deemed ineligible due to unanswered questions in the questionnaire. After scrutinizing (391) questionnaires with careful attention to details, the researcher opted to utilize the analytical descriptive method because it was found to be well-suited for the study's standard. Utilizing the SPSS program, proper statistical tools were applied in the analysis of the data. The study ultimately reveals a statistical variable regarding customer satisfaction with after-sale services. A remarkable (91%) of the total forms were analyzed, yielding conclusive results. The variable that has the greatest impact on customer satisfaction, accounting for 69%, is installation and operation. Warranty, on the other hand, only accounts for 62% and has less influence on customer satisfaction. To improve customer satisfaction, the study suggests focusing on after-sales services in Carrefour markets, with a particular emphasis on the warranty variable,

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as it is the weakest, compared to other variables. Improving this variable will have a significant impact on customer satisfaction and positively impact the repurchasing of electrical appliances from Carrefour.

**Keywords** After-sales services · Customer satisfaction · Jordan · Carrefour

## 1 Introduction

Providing after-sales services is a pivotal component of retail stores, particularly those that offer electrical items accompanied by warranties, delivery options, and product information. These tasks extend beyond the purchase point, emphasizing the importance of post-sales attention [1–7]. Building trust-based relationships with customers plays an essential role in ensuring their contentment. Customers who receive attentive care from after-sales service personnel are more inclined to return and maintain loyalty [8–10].

In today's competitive market, it is crucial that companies prioritize customer satisfaction as their utmost goal. Customers form the backbone of all marketing endeavors, making it pivotal for businesses to both retain existing customers and attract potential new ones [11]. Providing exceptional products and services that cater to customer satisfaction is of utmost importance for companies [12]. It is vital for organizations to offer excellent after-sales services, particularly for products reflecting a need for such services, to establish and maintain long-term customer relationships [1, 13, 14]. Given the strong correlation between after-sales services and customer satisfaction, this study aims to investigate the influence of after-sales services on customer satisfaction.

### 1.1 Problem Statement and Research Questions

Delving into the challenges Carrefour stores face with customer satisfaction, after-sales services play a significant role. Mistakes made with product returns or replacements have resulted in a loss of customers. Our research will particularly focus on electrical appliances found in Carrefour stores. We aim to understand the overall impact of after-sales services on customer satisfaction. Answering the following questions: What do the delivery, warranty, maintenance, replacement, return, installation, and operation services that Carrefour stores provide do for the satisfaction of their customers?

## ***1.2 Significance of the Study***

In the realm of service studies, this study carries a unique scientific value. Moreover, it offers crucial outcomes and suggestions that could aid Carrefour retail stores in serving their community by fostering customer retention and attraction. In the midst of a tech-driven world, with an array of electrical appliance industries and continuously changing customer expectations, catering to customers' satisfaction is of utmost importance. The practical value of this study is its support in helping Carrefour outlets to comprehend which factors lead to customer contentment, especially when it comes to post-sales service.

## ***1.3 Study Objectives***

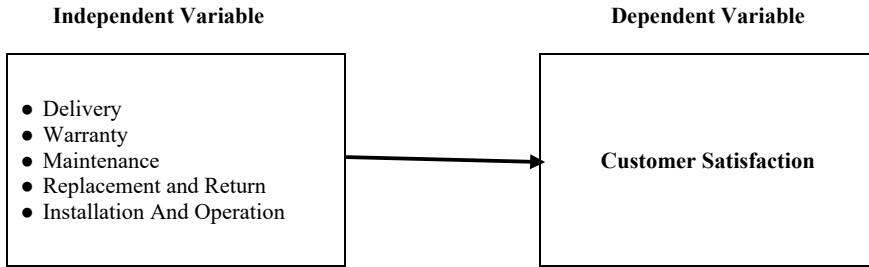
After-sales services within Carrefour stores and how they affect customer satisfaction are the focus of this study. Its goal is to introduce a theoretical and conceptual framework.

## ***1.4 Study Hypotheses***

- HO: Provided after-sales services, such as delivery, installation, warranty, replacement, maintenance, and operation services, from Carrefour stores are not statistically significant ( $\alpha \leq 0.05$ ) in impacting customer satisfaction. The following sub-hypotheses are derived from the main hypothesis:
- HO1: The null hypotheses for this study are as follows: delivery service does not have a statistically significant effect (with a significance level of  $\alpha \leq 0.05$ ) on customer satisfaction; neither does warranty service; nor does maintenance service; additionally, the study found no statistically significant effect ( $\alpha \leq 0.05$ ) of replacement and return service on customer satisfaction; finally, installation and operation service also showed no statistically significant effect ( $\alpha \leq 0.05$ ) on customer satisfaction.

## ***1.5 Study Model***

Based on the research problem and hypotheses, the researchers have developed a model, drawing on studies from [2–6] (Fig. 1).



**Fig. 1** Study model

## 1.6 Terminological and Procedural Definitions

- Maintenance, repair and replacement are vital products and services that consumers need, especially if their durable goods are damaged [7, 15]. After-sales services can be defined as a provision of services post sale of products, including installation, and other services directly related to durable goods.
- The timely satisfaction of customers is a business objective that entails fulfilling their needs and responding to inquiries in accordance with specified requirements and conditions [8]. All necessary measures must be taken to secure their requirements.
- The confirmation of the product or service quality or performance is depicted through a warranty written in black and white. It is considered a crucial part of the product's services portfolio, safeguarding the purchaser and imparting crucial product-related information [2].
- According to the sales contract, the seller is responsible for delivering the product or service from the point of sale to the buyer's destination, and this is known as transportation and delivery. Accuracy, care, and speed are important factors in this process [9, 16].
- Throughout the life of the product, maintenance is performed according to the contracted technical administrative tasks. Its purpose is to preserve, repair, and restore the product to a functional state that aligns with work instructions [11].
- Specific conditions may apply, but some companies do offer replacement or refund services if the customer finds technical faults or manufacturing defects with the product. Additionally, this option is available if the customer's expectations do not match the product's actual performance.
- At the desired location, installation and operation of hefty items generally include the presence of laborers or representatives from industrial corporations [12, 17].

## **2 Theoretical Framework**

### ***2.1 After-Sales Services***

The twenty-first century saw a veritable explosion of companies and heightened rivalry within the markets, forcing corporations to grapple with fresh obstacles in the realm of commerce and finance. Consequently, there was a substantial shift in the way companies and organizations operated, with services becoming a key factor, particularly after-sales services. By doing so, businesses were able to set themselves apart from their rivals in the same line of work, ultimately securing the goodwill and lasting patronage of customers, as well as boosting profitability of the organization. The completion of a sale does not signify the end of customer engagement. The customer expects continued communication in order to strengthen the purchasing relationship [18]. Companies now have the ability to manufacture comparable goods, resulting in a competition to secure customer loyalty by providing after-sales services that enhance the primary product, thanks to technological advances. Providing core product warranty, delivery, gift packaging, and postal and email services are just a few of the features offered to customers. Technical information and an open ear to complaints and suggestions are also available through their toll-free lines. Today, modern industries have found great success and profit through after-sales service [19, 20].

### ***2.2 Customer Satisfaction***

The success of companies rests on customer satisfaction, which showcases their capability to cater to customers while also making a profit. To keep customers engaged, companies bring in better services and products, raising customer expectations. Consumers aim to meet their needs while also ensuring that the company makes a profit when they select a product. However, if a customer becomes dissatisfied, it could result in losses for the company, emphasizing satisfaction's importance in determining profitability or losses [21, 22]. Enabling the company to maintain its market position is the reduction of customer loss to competitors which is achieved by positive word-of-mouth brought about by customer satisfaction with their service, leading to the attraction of new customers [23, 24]. Customer satisfaction is defined as a customer's response to the perceived differences between the previous expectations and the actual performance of goods and services after consumption [13, 25]. It also refers to a personal judgment that a product or service has given a pleasurable level of utility after consumption [26]. It measures how the firm's products and services meet its customers' expectations [27]. The growing interest in CS is derived from the traditional concept of cost benefit relationship [28]. Actually the cost of acquisition new customers is higher than the cost of retention currents [29].

### 3 Previous Studies

In various studies, after-sales services have been analyzed in relation to customer behavior and brand loyalty. The possibility of repeat purchases in the future was emphasized by some researchers [6, 30]. A survey conducted [31] regarding customer engagement with after-sales services found that maintenance was the primary reason stated, with 35.10% of respondents selecting it, while provision of spare parts held the least amount of importance. Similarly, a different study [32] discovered that satisfaction with after-sales services played a role in determining brand satisfaction, while maintenance and repair were linked to loyalty but not warranty. The repurchase behavior of Egyptian consumers has been shown to be significantly related to the after-sales services dimensions in Study [33]. Meanwhile, customer behavior has been positively impacted by recurring maintenance services, according to another Study [11]. A preference for products with warranty services was found in Study [2] as consumers consider them more reliable. Responding quickly to customer problems regarding maintenance was also shown to be important in a study [34]. To enhance and prolong customer relationships, after-sales services were emphasized in study [35] which can lead to expanding companies' market share [36]. The importance of after-sales services in enhancing product quality was emphasized in Study [7]. Meanwhile, Study [37] determined that after-sales service retention was imperative for customer satisfaction. Furthermore, Study [38] discovered that Tata Motors' customers were mainly concerned with pricing, followed by mileage and interior space. In addition, Study [39] concluded that customer care was the most concentrated aspect of after-sales services in Sweden's heavy machinery industry. Thus, organizations within this industry have immense potential for boosting their customer relations by improving their after-sales practices [40].

## 4 Methodology

### 4.1 Study Population

- The study's participants were limited to electrical appliance stores located exclusively in Carrefour outlets in the city of Amman. The selected stores numbered three and all offered various electrical appliances.
- Carrefour City Mall
- Carrefour Al-Madina
- Carrefour Al-Hurriya (Al-Muqabalayn).

With the goal of gauging how after-sales services affect customer satisfaction, the study focused solely on individuals who had acquired electrical appliances from three specific stores. To locate the relevant study participants, the research

team looked towards Carrefour's customer database, ultimately discovering roughly 62,000 shoppers in Jordan's Amman location [18].

## 4.2 Study Sample

Amongst the sample studied, there were 382 customers of Carrefour. To avoid any bias for one store over the others, as the target population was scattered unevenly across three locations, the researchers distributed surveys proportionally at each establishment, with the objective being to obtain an impartial representation of the study group. 430 questionnaires were distributed throughout the three stores.

## 5 Hypothesis Testing

- HO: Carrefour retail stores' after-sales services, such as delivery, installation, operation, warranty, replacement, and return, did not have a significant impact on customer satisfaction at a significance level of  $\alpha \leq 0.05$ , according to statistics..

To test the main hypothesis, the study employed multiple linear regression analysis, and Table 1 illustrates the results.

The main hypothesis was tested at a significance level ( $\alpha \leq 0.05$ ), and the results were as follows:

1. The dependent variable was shown to have a statistically significant effect when compared to the combined independent variables, as evidenced by the F-value (285.04), which far exceeded the critical F-value (2.58) obtained from the table.
2. The satisfaction of electrical appliance buyers at Carrefour retail stores was affected by after-sales services, including delivery, warranty, maintenance, replacement, installation, and operation. Statistical significance was confirmed

**Table 1** Results of multiple linear regression analysis to test the main hypothesis

Independent variable	R	R2	F	Freedom degree	Sig.	Dependent variable	B	Value T	Sig.
Customer satisfaction	0.887	0.787	285.04		0.00	<i>Delivery</i>	0.232	4.70	0.000
				5		<i>Warranty</i>	0.095	1.872	0.062
				385		<i>Maintenance</i>	0.211	3.798	0.000
				390		<i>Replacement and return</i>	0.150	3.317	0.001
						<i>Installation and operation</i>	0.324	6.767	0.000



by comparing the test's significance level with the study's adopted level. The table revealed that  $F$  had a significance level of (0.000), lower than the study's level of (0.05). Therefore, the null hypothesis was rejected, and the alternative hypothesis was accepted with a significance level of ( $\alpha \leq 0.05$ ).

3. The dependent variable (customer satisfaction) and the combined independent variables (warranty, operation, delivery, maintenance, installation, and replacement) displayed a statistically significant and strong positive relationship (0.887) based on the correlation coefficient ( $R$ ) value.
4. Statistically significant (0.05) were the delivery, maintenance, replacement, installation, and operation independent variables according to the results. However, the warranty variable only had a significance value of (0.062).

## 6 Discussion of the Results

- Carrefour's maintenance, installation, warranty, delivery, replacement, and operation services are essential to keep its customers satisfied with electrical appliances, based on the conclusive results. The determination coefficient demonstrated an explanatory power of roughly 79%, emphasizing the importance of these services ( $R^2 = 0.787$ ). Upgrades in these services are relevant to enhance customer satisfaction.
- Provided by Carrefour, the transportation and delivery service for electrical appliances has a significant impact on customer satisfaction. This revelation was uncovered in the study and boasts a power of explanation of 66%.
- With a power of explanation of around 62%, the study demonstrated how Carrefour's warranty service remarkably impacts customer satisfaction. An improvement and growth in warranty services can bring forth positive effects on customers' contentment.
- With an explanatory power of around 67%, Carrefour's upkeep of electrical appliances has been discovered to have a statistically significant contribution to customer satisfaction. Having capable technical workers prepared to diagnose issues accurately and maintain appliances is key.
- With an explanatory power of approximately 63%, the study uncovered that an impact on customer satisfaction is statistically significant when it comes to the replacement and return service for electrical appliances. Enhancements in this service can efficiently increase customer satisfaction.
- Enhancing the installation and operation service for electrical appliances has an explanatory power of around 69% in relation to customer satisfaction. This means that after customers purchase the appliances, providing excellent service in this area has a substantial impact. Increasing customer satisfaction can be achieved by improving this service. Lastly, it's important to note that the impact is statistically significant.

Among all the services offered by Carrefour to customers of electrical appliances, the ones related to installation and operation have received the highest average score

(3.53). Nonetheless, there is a need for improvements to meet the expectations of some customers. Despite appreciating the coverage of transportation and delivery expenses, customers are not always sure who will take responsibility for any damage that occurs. Furthermore, the warranty service provided does not meet expectations and Carrefour should concentrate on explaining the warranty terms and conditions in a clear manner to customers.

## 7 Recommendations

### Improvement of Maintenance Services

By setting up an all-encompassing system that keeps the department updated, maintenance services for electrical appliances can be established. The system itself should consist of up-to-date equipment for maintenance processes, clearly defined timeframes for maintenance operations, and mandatory documentation of all maintenance procedures and steps. It's also important to evaluate the current maintenance staff and find out where their training needs are and what their abilities are. Experienced technicians with expertise in electrical appliance maintenance should step in to support these staff members. In addition, customized training courses must be given to all after-sales service employees according to their respective specialties. According to the department of each employee, it is important to provide courses that are centered around an academic diagnosis pinpointing their individual weaknesses. Additionally, Carrefour's management ought to reevaluate warranty terms as well as improve current conditions. Emphasizing critical points, employees should also be prepared to give clear and thorough explanations regarding warranty terms.

## 8 Future Studies

Conducting further studies that center on additional factors, such as price, warranty duration, and location, which impact after-sales services and customer satisfaction could be recommended by researchers based on the discourse of the outcomes and suggestions provided in this research.

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# The Significance of the One-Person Company and Its Legal Nature



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**Abstract** With the arrival of advancements in social and economic areas, relationships among humans have undergone major alterations. Of particular importance are those connections that concern business and investment, as they form the bedrock of a nation's prosperity. The laws that regulate commerce and trade ensure compliance with the requirements of business ventures, be they procedural or operational. While passing the Companies Law and its subsequent amendments, the Jordanian legislator's main goal was to make things easier for traders and investors alike, while bolstering the business foundations and lending support to the entrepreneurial sector. Examining one-person companies, the study delves into their legal implications and potential discrepancies due to their unconventional legal nature. Through a combination of descriptive analysis and comparison, the legal frameworks of one-person companies across a range of jurisdictions, spanning both traditional and current practices, were examined with focus on their applicability to Jordan's legal system. Ultimately, the study advocates for the implementation of legal measures, enabling individuals to undertake ownership and control of their investments without dependence on others.

**Keywords** One-person company · Entrepreneurship · Jordanian legal system

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## **1 Introduction**

Through enacting the Companies Law and its modifications, Jordan's lawmakers sought to diminish hindrances impeding traders and investors, as part of their pursuit for financial reinvigoration and entrepreneurship. This legislation serves as a crucial element in supporting national growth by endorsing the entrepreneurial sector and reinforcing financial structures, following the examples of countries like Egypt, Jordan, and the United Arab Emirates. Therefore, solitary enterprises arise as a legal innovation that aids the overall economy.

### ***1.1 Research Problem and Questions***

Identifying the legal nature for one-person businesses, poses a significant challenge. Since their legal structure varies from established concepts, it is critical to ask key questions like:

- What is a one-person company?
- The recognition of one-person companies by the Jordanian legislature is grounded in what factors?
- What is the economic significance of one-person companies?
- What are the procedures for establishing a one-person company?
- What is the legal framework for a one-person company with limited liability?
- What is the legal framework for a one-person joint-stock company?
- What are the management methods and activities of one-person companies?

### ***1.2 Importance of the Study***

Within the Jordanian economic landscape, one-person companies provide investors and capital owners with invaluable opportunities. This study delves into their formation procedures and legal statuses in differing forms, such as limited liability and joint-stock companies. A crucial aspect of this research is recognizing the upstanding legal position one-person companies hold and co-creating a legal framework in Jordan that maximizes their rights. Furthermore, this investigation explores the substantial economic significance of one-person companies.

### ***1.3 Research Methodology***

One-person companies are studied by a group of researchers who take a descriptive and comparative analytical approach. This study examines the legal nature of such

companies in a range of legislations, covering both old and modern laws. Emphasis is placed on the importance of this study specifically for Jordan's legal system.

### ***1.4 Previous Studies***

1. Published by the Northern Borders University in the Kingdom of Saudi Arabia, Hani Mohammed Mouns Awad (2020) conducted a study on the legal system of the one-person company. This research delved into the novel legal status of these entities in the Saudi economic landscape, exploring the extent to which the Saudi legislator permitted such companies under the 2015 commercial companies' system. The paper examined the various forms available to single persons, whether natural or legal, including limited liability and joint-stock companies.
2. Within Al-Azhar University's Faculty of Law lies Yaser Hashem Abdullatif's 2019 Master's Thesis, "The Legal System of the One-person Company: A Comparative Analytical Study". The thesis' focus was to offer insight into the legal framework of the one-person company and the various legal hurdles it encounters in commercial legislation. What is of particular importance is how the study shines a light on this matter, given the dearth of specific regulations under the commercial companies' law and its relevance within Palestinian legislation. An emphasis was placed on addressing the current manifestation of companies in relation to commercial legislation.

## **2 The Concept of the One-Person Company and Its Significance**

Emerging in the second quarter of the 1900s, one-person commercial businesses have become a fairly recent and modern topic. The notion of holding individuals accountable within these companies did not surface until much later, with German law only implementing it in 1980 and French law following suit in 1985. These legal changes were accompanied by the views of a faction of legal scholars [1]. Jurisprudential attempts were made before the advent of one-person companies to establish individual responsibility through personal shares in corporations. These applications resulted in the recognition of the legality of one-person companies, which is a direct consequence of a sole partner's control over all shares [2].

In 1873, the concept of determining an investor's duty was brought to the forefront of English jurisprudence. This debate came about due to regulation of joint-stock companies by lawmakers in 1844, which raised doubts about merchant's obligations within such organizations. Although ample assurance was provided, attempting to define the responsibility of an individual outside of the joint-stock company proved unattainable.

Law No. 4 of 2018 paved way for a special kind of enterprise in Egypt. The legal provisions of public joint-stock companies, limited liability companies, and recommendation companies were amended in accordance to this law, which aimed to alleviate the economic struggles that plagued Egypt [3, 16]. The amendment recognized the importance of investment promotion, with a focus on supporting small investors as well as individual projects that operated informally. It sought to convert the informal economy into an official one, especially through the implementation of limited liability.

Early in 2015, the United Arab Emirates issued the Federal Companies Law No. 2 of 2015 [4]. This modern law allows both natural and legal persons to establish and own one-person companies under Article 2/71. However, the UAE's regulatory body emphasized that these companies would still be subject to all the legal stipulations outlined in the Federal Companies Law, ensuring that they conform to the concept of one-person companies. Developing comprehensive legal regulations to govern one-person companies is imperative to consider, given that the legal provisions in the Federal Companies Law for limited liability companies apply to those with multiple partners. It is important to note the unique nature of such companies. Additionally, the legal nature of one-person companies, as well as the characteristics defining them, are both crucial components of this research. The concept of the one-person company is thoroughly defined, showcasing its relevance to modern business practices. These two major requirements are tackled throughout the course of the content [5].

### **3 Definition of the One-Person Company and Its Characteristics**

Focusing on the merits of the one-person company, legal statutes have been created to facilitate economic activity for investors. Both scholarly opinions and legal regulations must define the core concept of these companies. Additionally, it is important to highlight their unique features in this jurisprudential effort [6].

The laws of Jordan regarding commercial companies do not have distinct clauses for one-person companies. Such enterprises are placed under identical regulations as those for comparable entities and administered by equivalent legal processes. As per Jordanian legislation, it is permissible to establish one-person companies in the context of state-owned companies, privately owned companies, and limited liability companies. According to the Articles 53 (1) of Companies Law No. 22 of 1997 and its succeeding revisions, these companies have been defined in congruence with the regulations overseeing limited liability companies. A limited liability company is formed by a group of at least two individuals, with distinct financial liability separated from that of each partner. The company's possessions and resources are used to cover and fulfill its debts and duties, while the partner's liability is restricted to their share of ownership. Additionally, Paragraph (2) of the article gives the registrar the authority to authorize the establishment of a single-member limited liability company or one



owned by a solo proprietor. It is evident that Jordanian and French lawmakers share similar beliefs, as French legislation describes a LLC as “a company formed by one or several individuals who will share losses in relation to their capital shares” in Article 2 of a 1985 law. The second paragraph of Article 2 declares that if the company is comprised of just one person, that individual is considered the sole partner and has access to all the privileges that the group of partners would have collectively [6].

The fundamental traits of a one-person company are emphasized in these definitions, noting its individuality, lack of multiple partners, and limited liability. Separately, an independent legal entity is defined by the researcher. The company is initiated by a single partner, who could be a legal or natural person. This individual begins the incorporation process, contributes a share of capital, and bears responsibility for the company’s obligations only to the extent of the contributed capital. Derived from the affiliated institution or intended purpose of its creation, a unique name is bestowed upon the company representing it as a one-person entity, dealing with third parties accordingly.

## **4 The Key Characteristics of the One-Person Company**

The inherent unicity of its founders manifests the most crucial features of a one-person company:

### **1. Limited Liability for Owners (Capital Contributor)**

Segregating a fraction of the financial responsibility of the founder and allotting it to a particular purpose is the foundation of the limited liability feature of the one-person company. This attribute is incredibly crucial since it shields the owner who contributes the capital from the hazards associated with the company’s actions beyond the assigned capital. As a result, the capital designated for the corporation acts as the sole safeguard for the creditors of the company, safeguarding other monetary properties from prospective claims. Paramount importance is attached to this characteristic [7].

### **2. Legal Personality of the One-Person Company**

The one-person company thrives on the legal personality elements stressed in its legal framework. This company is, essentially, distinguished as an autonomous legal entity with unique financial value that is isolated from its owner. Despite the number of partners involved, it functions as a separate legal body that pursues economic objectives. The company embodies an entity propelled by specific goals or a pool of funds reserved for a particular aim. By virtue of its distinctive legal personality, this arrangement benefits the company’s capacity to shoulder obligations independently. Preventing confusion between the owner’s personal funds and the venture, this characteristic stands firmly as the foundation of the one-man business, offering financial autonomy for the company and restricted legal liability for the partner. This single trait sets the enterprise apart from an individual project [8].

### 3. Financial Independence of the One-Person Company

In recognizing the legal personality of the founding partner, a one-person business assumes responsibility for its financial obligations and absolves the owner from liability regarding debts. Thus, the company is solely accountable for its debts and obligations [9].

### 4. Exemption of the Sole Partner from the Status of Merchant

Establishing a one-person company doesn't automatically make the sole partner a merchant. By separating the partner's identity from that of the company and providing limited liability, merchant status is not acquired. Consequently, this status can't be conferred as the partner isn't involved in commercial activities professionally [10].

### 5. No Requirement to Include the Sole Partner's Name

Indicating its status as a limited liability company isn't mandatory to show if the single person's name runs as the company's title. However, if a single person owns the company, they must include "One-person Company" and "Limited Liability Company" in the name, according to [11].

### 6. Capital of the One-Person Company

It is mandatory to meet the capital requirement for limited liability companies upon incorporation, despite the fact that one-person businesses usually need no minimum capital limit [11].

## 5 The Legal Nature of the One-Person Company

Its legal standing is somewhat of a hybrid as it embodies traits from both capital companies and personal companies. Consequently, the question poses itself: is it a capital company, a personal company, or a blend of both? Experts are divided in their opinions on the matter—some say it is a combination of both, while others believe it falls into one category or the other [12]:

### 1. One-Person Limited Liability Company as a Personal Company

The limited liability company for one person falls under the personal company category. Its definition highlights the presence of a sole person running it [10]. Nevertheless, there are dissents regarding its legal classification mostly due to the fact that its limited liability differs from the non-limited ones existing in individual pursuits. Hence, matching the legal standing of one-person companies and individual projects results in erroneous phrasing. The viewpoint presented fails to acknowledge that in a company with a lone proprietor, the owner may be either a legal or natural individual. However, in personal firms, laws prohibit legal entities from being partners due to partners having total liability and no way for creditors to enforce financial obligations against legal entities [12].

## 2. One-Person Limited Liability Company as a Capital Company

Limited liability companies cannot allow public subscription, which makes it impossible for them to be considered capital companies. Instead, these entities are viewed as companies with a single owner and their capital is divided into shares that are indivisible and equal. This structure allows for the owner's liability to be restricted to the company, rather than extending beyond it [13].

## 3. Mixed Nature of the One-Person Limited Liability Company

According to this stance, limited liability companies with only one owner have traits of both personal and financial corporations. The amount of money the partner has invested in the company determines their level of accountability. This aligns them more with capital businesses but, because they frequently only have one partner, they also bear similarities to personal companies. Nonetheless, this interpretation clashes with specific legal frameworks as personal and capital corporations are bound by distinct regulations [12].

The establishment and registration of a one-person company holds great significance when it comes to financial responsibility. In order for it to become a legal entity, it must acquire a legal personality by following specific laws and regulations. This process is similar to the laws in Jordan, Egypt, and the United Arab Emirates, outlined in Article 4 of the Jordanian Companies Law, which states that any company must be established and registered according to the laws of the land. Ultimately, this emphasizes the importance of adhering to legal protocols in creating a one-person company. Having successfully established and registered, every company in Jordan obtains the status of a legal entity with its base of operation in the Kingdom. The company's financial responsibility is separate from that of its partners, thanks to certain conditions that must be fulfilled. The acquisition of legal status ensures that the partner's liability is limited, and the one-person company operates with complete financial autonomy. It sets the company apart from individual projects and safeguards against confusion with the owner's personal finances [13].

Predating its adoption into legal frameworks, the notion of financial liability originates in Islamic jurisprudence (*fiqh*) and is defined by Islamic jurists as "a legal description imposed by Islamic law" that confers legal personality, subjecting individuals to obligations and liabilities. This term's scope is wider than just financial rights and obligations, as it also includes broader legal implications, according to scholars [14, 15].

## 6 Conclusion

Explored in this topic of research is the legal nature that pertains to the one-person company, along with its substantive significance. At the core of company law, we have scrutinized legal texts and compared them with a variety of legislations, delving

into both legal vigour and nuances of practical implementation. Consequently, our findings and recommendations have been derived, and are presented below:

## **6.1 Findings**

1. Investors need to be able to independently establish and manage their investments as the economy progresses. A rise in the popularity of small business ownership has contributed to this need, as individuals strive for the benefits of limited liability. By doing so, business owners can address creditors according to their capital investments rather than opening themselves up to liability in their personal lives.
2. Recognizing one-person companies, some Arab legislations like Jordan, Egypt, and the United Arab Emirates have started to diverge from the prevalent Arab legal systems that take up the contractual theory of companies grounded on multiple partners and the principle of unity of financial liability.
3. Within the realm of commercial entities, there exists a unique type known as a one-person company. In simple terms, this is a venture that is established and maintained by a singular individual, typically categorized as either a natural or legal person. Despite being solely owned, it enjoys legal recognition and its own financial obligations, separate from those of its proprietor. As an entity, the owner retains responsibility for the capital they choose to invest, but solely within the constraints of their initial investment.
4. With a mixed legal nature, the one-person company offers an amalgamation of characteristics from both capital and personal companies. Similar to capital companies, the sole partner bears responsibility for their capital contribution. At the same time, as a personal company's counterpart, it consists of just one partner—a single person.
5. When it comes to creating a company run by just one person, there are two distinct ways it can be established. The first is referred to as “direct establishment,” which involves the sole partner managing the business themselves. The second method is known as “indirect establishment,” and this occurs when a single partner holds all the shares and stocks. Overall, the one-person company setup is a truly distinctive way of doing business.

## **6.2 Recommendations**

1. Legal provisions pose a significant challenge to the uniqueness of one-person joint-stock companies and one-person limited liability companies. As suggested by a study, it would be ideal for company law to set aside a separate section to regulate these types of companies.

2. Fully complying with the provisions for one-person limited liability companies, the study advises that joint-stock companies in this form should ensure harmonization with various legislations. As the company's creditors rely solely on its capital, this alignment is crucial.
3. The prompt issuance of executive regulations concerning one-person companies is highly recommended for the company law to tackle the corresponding issues.[10]

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# Some Challenges of Transnational Marriage in Jordanian Nationality Law: A Comparative Analytical Study



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**Abstract** By exploring the implications of transnational marriages in Jordanian nationality legislation, this research delves into how it stacks up to other Arab nationality laws. A particular focus is on the consequences of a foreigner marrying a Jordanian and how it affects acquiring Jordanian nationality. The study ultimately determines that while foreign wives of Jordanian men may attain Jordanian nationality, the same does not hold true for foreign husbands of Jordanian women. In order to uphold gender equality in matters of nationality, the Jordanian Constitution from 1952 and its respective amendments deem it necessary to address violations such as the one currently at hand. Thus, the study identifies a need for an amendment of the Jordanian nationality law to ensure parity among genders.

**Keywords** Transnational marriage · Foreigner · Nationality law · Jordanian constitution

## 1 Introduction

The significance of marriage lies in its divine nature as an institution that sustains society [1]. It stands as a noble human bond between individuals of opposite gender, forming the bedrock upon which families establish their legitimacy and shape society [2, 3]. If both partners are Jordanian, the Jordanian Personal Status Law No. 15 of 2019 governs the union. However, if a Jordanian weds someone of a different nationality, various issues arise including whether one partner can gain the citizenship of the other.

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## ***1.1 Problem of the Study***

The deficiencies found in Article 8 of the Jordanian Nationality Law No. 6 of 1954 and its amendments are evident upon closer examination, and raise a variety of pressing concerns. One of the most significant is the fact that foreign wives of Jordanian men are afforded the privilege of acquiring Jordanian nationality after three years, if they are of Arab descent, or five years, if they are non-Arab. In contrast, foreign husbands of Jordanian women do not enjoy the same right, which amounts to an infringement of the principle of impartiality outlined in Article 6 of the Jordanian Constitution of 1952 and its subsequent revisions.

This issue gives rise to two questions:

- Is it required for the foreign woman married to a Jordanian to reside in the Hashemite Kingdom of Jordan to acquire Jordanian nationality?
- Is knowledge of the Arabic language a requirement for a non-Arabic-speaking foreign wife of a Jordanian to acquire Jordanian nationality?

## ***1.2 Study Methodology***

The Jordanian nationality legislation and counterpart nationality legislations were thoroughly examined by the researchers through both descriptive and analytical methodologies. In some instances, presenting a jurisprudential opinion was required, which necessitated the utilization of an analytical methodology. The researchers also employed a comparative methodology when studying the subject matter by comparing the Jordanian nationality legislation with other nationality laws.

## **2 The Impact of a Foreign Woman's Marriage to a Jordanian on Acquiring His Nationality**

Nationality Law No. 6 of 1954 in Jordan affirms that a Jordanian husband can permit his foreign wife to receive Jordanian citizenship after following some conditions. If a foreign woman is interested in acquiring Jordanian citizenship, she must declare her intentions in writing and be approved by the Minister of Interior. These conditions are stated in Article 8 (1) of the law:

- a. Three years have passed since her marriage if she is Arab.
- b. Five years have passed since her marriage if she is not Arab.

Respecting the independent will of foreign wives, the Jordanian legislator has opened the door for them to acquire Jordanian nationality. The state's interests are also taken into account. It is necessary for the state to grant nationality approval as

outlined in Article 8(1) of the Jordanian Nationality Law. For a foreign woman to obtain Jordanian nationality, certain conditions must be met:

## ***2.1 Condition One: Validity of the Marriage Contract of a Foreign Woman to a Jordanian***

The Nationality Law No. 6 of 1954 in Jordan, specifically Article (8), declares that if a foreign woman marries a Jordanian man, she is entitled to acquire Jordanian nationality. This implies that the woman might have wed the Jordanian while they were both in Jordan for various reasons, such as education or tourism. Alternatively, it is conceivable that the woman married the man overseas while he was working or studying in her home country. Applying only if one of the couple is Jordanian at the time of marriage is the jurisdiction of Jordanian law regarding the vital conditions for the marriage's legitimacy, excluding eligibility, as stated by Article (15) of Civil Law No. 43 of 1976: "... Jordanian law" takes precedence exclusively regarding one Jordanian spouse, unless eligibility to marry according to Jordanian law is not met. According to the Personal Status Law in effect, the required circumstances for a valid marriage, such as eligibility, the consent and mutual agreement of the parties involved, as well as no hindrances to the marriage, must be met.

The criteria for a foreign woman to marry a Jordanian are dependent on her country's law, not the law of Jordan. This is different from the criteria for naturalization, which must be met based on Jordanian criteria. To ensure the marriage between a foreign woman and a Jordanian is valid, they must meet the necessary conditions according to the Jordanian Personal Status Law. Even if the foreign wife's country recognizes the marriage as valid, if these conditions are not satisfied, it will not be considered valid in Jordan.

Regarding the formal conditions of marriage, if the nuptials occur outside of Jordan, there is no opposition to the foreign authorities granting matrimonial approval in their country, according to Article (13/2) of the Jordanian Civil Law [4]. The pair getting hitched must obtain a document of their wedlock from these authorities. If the language spoken in the foreign country differs from Arabic, an official translated document must be presented by the couple [5]. If the religious form is recognized by the law of a foreign country, the couple can make their marriage contract at the Jordanian consulate in that country. Consular marriage is conducted to allow Jordanian Muslim citizens who reside overseas to follow the form mandated by Jordanian law [6].



## ***2.2 Condition Two: Passage of Time Since Marriage***

If a woman is Arab, she needs to wait three years to gain Jordanian nationality through her husband. However, if she is not Arab, the waiting period is extended to five years. Jordanian law requires this time to ensure that marriages are not just a way to get around legal requirements. The duration of marriage for Arab and foreign women married to a Jordanian has been speculated upon by different jurisprudential viewpoints. One perspective suggests that the difference in length is due to the fact that an Arab woman marrying a Jordanian shares similar customs, traditions, language and ways of life that can be quickly adapted to, making it easy for her to integrate into Jordanian society. On the other hand, a foreign woman hails from a completely different social and religious environment, requiring her a longer period to assimilate successfully into Jordanian society and test her capacity to sustain married life with her Jordanian spouse.

In the text, it is mentioned that the Jordanian legislator does not mandate the foreign spouse to live in Jordan [7]. They can tie the knot anywhere else and even exceed the three or five-year wait while abroad. Once the wait is over, the wife can accompany her husband back to Jordan and apply instantly for Jordanian citizenship without having to complete a prior residency clause in Jordan. By doing this, she circumvents the legislator's intended probation and authentication phase designed before granting anyone Jordanian citizenship. As suggested by some, the intention of the residency requirement may solely lie in validating the steadfastness and consistency of the matrimonial bond. However, it is probable that the aim of this requirement is also to substantiate the assimilation of the non-native spouse into the community of the country, similar to the process of becoming a citizen. It is difficult to imagine a scenario where a foreign wife wedded to a Jordanian would not be embraced in the Jordanian society [8].

We can cite the Iraqi Nationality Law No. 26 of 2006 in Article (11/b) as an instance of residency requirements for foreign wives of nationals. To accomplish the aim of overseeing wives during their marital period, it is imperative that the Jordanian Nationality Law delineate a foreign wife's residency demand in Jordan.

## ***2.3 Condition Three: Declaration of the Wife's Desire to Obtain Jordanian Nationality to the Minister of Interior***

In order for a foreign wife to acquire Jordanian nationality, she must express her desire and provide necessary documents, as required by the Jordanian legislator. However, if she fails to submit all necessary documents, her application will be rejected. There is some confusion regarding the eligibility criteria for the wife, as the Nationality Law does not specify age requirements for acquiring her Jordanian

husband's nationality. Specifically, the question is whether or not the wife must be legally mature at the time of making her declaration.

To acquire nationality through marriage, it is only required that the wife is eligible to enter into a marriage contract, regardless of reaching financial maturity as defined by civil law. This means that as long as the wife is of legal age as defined by the personal status law of the country she is requesting to acquire her husband's nationality from, it is sufficient. This is because acquiring nationality through marriage is not considered naturalization and, as such, is exempt from naturalization requirements, including age of maturity. This understanding is widely accepted in the field of jurisprudence [9].

When it comes to jurisprudence, there's an alternative point of view. The idea being proposed is that the foreign wife of a Jordanian who wants to obtain Jordanian nationality should meet the requirements, which means being a legal adult of 18 years based on the solar calendar [10]. Since applying for citizenship is voluntary, it needs complete eligibility. Someone who isn't an adult, has a mental disorder, or isn't of sound mind can't apply, and if they do it shouldn't be considered because they can't express intent [11].

The Jordanian Personal Status Law No. 25 of 2019 and the Jordanian Civil Law No. 43 of 1976 both specify eighteen years as the age of maturity and marriage. However, eligibility to enter into a marriage contract is the crucial requirement, rather than reaching the legal age of maturity as Article (8/1) of the Jordanian Nationality Law does not explicitly necessitate the wife to meet this condition.

## ***2.4 Condition Four: Approval of the Minister of Interior for Granting Jordanian Nationality***

Due to public interest, the Minister can reject the application if they suspect that the submitted documents are forged or inadequate. If the acquisition of Jordanian nationality by the foreign wife endangers public security and contradicts public order, the Minister has the right to refuse the application.

Unlike the nationality laws of Egypt and Yemen, Jordan's legislator does not make it clear whether the Minister of Interior needs to give justification for refusing an application. This enables the Minister to act as a safety measure in cases where foreign wives apply for Jordanian nationality without proper grounds. If a foreign wife's request is refused, the Minister must outline the reasoning behind their decision.

The law is unclear about whether a challenge can be mounted against the decision of the Minister of Interior in the Administrative Court if the reason for turning down the request is invalid or not relevant to the public interest [12]. According to a legal expert [12], we advocate the idea that the Minister's decision can be appealed since foreign women who marry Jordanians have a right, outlined in the text, to pursue Jordanian nationality. Granted by law, foreign women have the right to appeal to the Administrative Court if the Minister's decision on their immigration is deemed

unjustifiable. The Minister cannot interfere with this right, unless it is related to public interest or a deficiency in the required conditions. If the Minister abuses this authority, the decision can be annulled by the Administrative Court.

An interesting observation is that the Minister of Interior can grant non-Arab foreign wives entry into Jordanian nationality without requiring knowledge of the Arabic language. This raises the issue of how such a woman ought to request such entry [13]. It is notable that Arabic countries' nationality laws do not feature this requirement despite its significance. One must then consider how these foreign women can integrate into Jordanian society.

Throughout foreign nationality laws, we recognize a pattern of demanding a language proficiency test to be passed by women, involving both spoken and written communication. An illustration of this would be found in the Czech Nationality Law No. 186 of 2013, as outlined in Article (19/z): "...proof of passing the Czech language test [14]..." This same prerequisite can also be found in Article (7/1/h) of the Slovak Nationality Law No. 40 of 1993, with its most recent modification being in No. 177 of 2018 [15].

To guarantee integration into the national community, several countries enforce strict policies that mandate comprehension of the local language and political system before granting citizenship. For foreign wives of non-Arab descent, acquiring their husband's nationality in Jordan takes on added significance with the requirement of fluency in written and spoken Arabic as an integration measure.

### **3 Impact of the Marriage of a Foreigner to a Jordanian Woman on Her Acquisition of Nationality**

According to the Jordanian Nationality Law, Article (8/2) specifies that a woman from Jordan who marries a non-Jordanian and assumes her husband's nationality will still maintain her Jordanian nationality, unless she chooses to relinquish it as noted in the provisions of the law. Additionally, in the event that the marriage comes to an end, the woman has the privilege of restoring her Jordanian nationality through a simple request process [10]. Supreme Court Decision Number 153/1988 states that "a plaintiff who did not provide any official evidence to the Passport Department to prove that she is married to a Jordanian, and mere claiming that she is married to a Jordanian is not sufficient to approve her request." [16, 17].

By virtue of the law, a Jordanian woman who weds a foreigner does not forfeit her Jordanian nationality. She maintains it until she takes a decision to relinquish it and claim her spouse's foreign nationality [18]. Notably lacking in the text is any provision for a foreign husband of a Jordanian woman to acquire her citizenship, even if he resides in Jordan. This is in stark contrast to the circumstances of a foreign wife of a Jordanian man, as outlined in Article (8/1) of the Nationality Law. Such disparity runs afoul of Jordan's commitment to equality, both as enshrined in their Constitution's Article 6 and the international human rights agreements they've agreed

to. Granting equal nationality rights to both genders is paramount across all domains, including intermarriage [19, 20].

The Czech Nationality Law No. 186 of 2013 and its amendments recognize the right for foreign husbands to obtain their wife's nationality on an equal footing. One of the provisions under Article (15/1/h) emphasizes that the applicant for naturalization is not constrained by the prerequisites in Article (14/1) for receiving Czech nationality if he holds permanent residency in the Czech Republic. However, the exemption only applies if his companion is a Czech citizen and shares the same domicile [14]. Syrian Nationality Law, Article 9, states that a foreign woman married to a person who possesses nationality can acquire it only under the conditions and provisions stated in paragraph 1 of Article 8. The subparagraph (c) of Article 8/1 states that she should be legally resident in the country during the period mentioned in paragraph (b), which is the continuation of the marriage for two years from the date of application [21].

The Algerian Nationality Law is unique among Arab nationality laws because it allows husbands to acquire their wives' nationality. Article 9 is specific about the requirements, stating that Algerian nationality can be attained through marriage to an Algerian man or woman by decree, but only if the conditions are met. To be eligible, the marriage must have been legal and established for at least three years when naturalization is applied for, and the applicant must have been residing regularly in the country for at least one year. Additionally, good conduct and adequate financial resources are also required.

Viewed through Algerian jurisprudence, the procedure is said to align with the nation's ever-evolving society and its progress in granting individuals the accommodations needed for their personal growth. The system addresses hindrances that may be obstructing effective participation in society, ultimately realizing a humane and unbiased society. Priority is given in particular to addressing the discrimination against women in their rights and responsibilities, all in accordance with modern nationality frameworks [22].

## 4 Conclusion

### 4.1 Results

1. The control over a foreign wife of a Jordanian spouse was not made conditional upon her residence in Jordan by the Jordanian legislator, according to Article (8/1) of the Jordanian Nationality Law.
2. For a foreigner married to a Jordanian to obtain Jordanian nationality, the Jordanian legislator did not insist on fluency in Arabic as a prerequisite.
3. Acquisition of Jordanian nationality was granted to foreign women who are married to Jordanians by the Jordanian legislator, however, foreign men married to Jordanian women were not given this right. This creates an inequality between the genders when it comes to matters of nationality.

## 4.2 Recommendations

1. Foreign wives of Jordanian men should reside habitually within the Hashemite Kingdom of Jordan to be eligible for citizenship as per the proposed amendment to Article (8/1) by the Jordanian legislature.
2. If non-Arabic foreign wives of Jordanians desire to obtain Jordanian nationality, we suggest that proficiency in the Arabic language be included as a requirement in Article (8/1) by the Jordanian legislator.
3. The inclusion of a provision in Article (8/1) by the Jordanian lawmakers is suggested to allow foreign men who are wedded to Jordanian women to obtain the nationality of Jordan after a span of three years in the case of Arab nationals and five years for non-Arab nationals.

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17. The last sentence of Article 7 states that "...the Minister of Interior may, by causing a decision before the expiration of the two-year period, deprive the wife of acquiring Egyptian nationality." This corresponds to Article 11/J of the Yemeni Nationality Law, which states that "the Minister must not object, by causing a decision, during the four-year period, to her acquisition of nationality."
18. Supreme Court Decision Number 251/1993, which states that "the provisions of Article 8 of the Nationality Law, under which the plaintiff's marriage was concluded, provide that Jordanian women, when married to non-Jordanians, have the right to retain their Jordanian nationality and not lose it upon marriage. It is a legal act that must be issued by the will of its owner or a real abandonment, and without that, the person does not lose their Jordanian nationality, and it is not considered waived. If the plaintiff does not obtain her husband's nationality, she remains in possession of her Jordanian nationality and has the right to obtain a Jordanian passport if there are no reasons that would lead to the loss of her Jordanian nationality. Therefore, the decision to deny the plaintiff an Jordanian passport is inconsistent with the provisions of the law." (Referenced on the website Qarark: [www.qarark.com](http://www.qarark.com))
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# The Impact of Using Artificial Intelligence on Preparing General Budget and Government Decisions Making in Jordan



Riham Alkabbj , Ala Zohdi Alrazim , and Ruaa Binsaddig

**Abstract** The purpose of the study is to ascertain how artificial intelligence may affect Jordan's general budget preparation and policy-making processes. The study took a descriptive-analytical strategy, using survey research and questionnaire distribution to collect data and analyze it. The study's hypotheses were analyzed and put to the test using the proper statistical techniques. The development of the general budget and making political decisions in Jordan were the dependent variables, and artificial intelligence was one of the study's independent factors. Municipalities, departments, and government ministries in Jordan made up the study population, and those responsible for creating estimated budgets for those municipalities, departments, and government organizations made up the study sample. The study produced a number of findings that point to a beneficial effect of employing artificial intelligence applications on the effectiveness of creating the general budget and making decisions for the government in Jordan. The study advised the use of artificial intelligence apps because they help governments create budgets by helping them make more educated, data-driven decisions. The study also recommended that certain budget preparation duties, like data collecting, analysis, and report generation, should be automated using artificial intelligence approaches. This can speed up the budget planning process, lower the chance of mistakes, and guarantee consistency. The report also suggested that governments carefully weigh the advantages and potential drawbacks of utilizing AI in decision-making.

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**Keywords** Jordan • Preparing general budget • Artificial intelligence • Government decisions

## 1 Introduction

Government decision-making is a difficult task that includes consulting a large number of documents, data, laws, and references, which takes a lot of time [1–6]. Recently, there has been a growing trend to explore the possibility of incorporating artificial intelligence in various government sectors due to its numerous benefits [7–11]. Several studies have focused on employing artificial intelligence applications in areas such as healthcare, education, security, transportation, and communication. At the same time, governments face pressures to meet the needs of citizens, provide services more efficiently and effectively, improve policy-making processes, and make the public policy cycle faster, more efficient, accurate, transparent, and responsive to the needs and preferences of citizens while ensuring the security and confidentiality of government information and data [12–16].

This study examines the possibility of using artificial intelligence in the process of preparing the general state budget, enabling budget planners to address some of the challenges and limitations imposed by traditional budgeting approaches, such as biases and self-interest in decision-making, lack of transparency, and inefficient resource allocation.

Furthermore, government decision-making affects all citizens of Jordan without exception. Can artificial intelligence (AI) and artificial intelligence systems be used in data analysis to contribute to the formation of insights that aid in policy decision-making and resource allocation [21]? The use of artificial intelligence can process massive amounts of data, identify patterns and trends, and generate predictions and recommendations, which are expected to assist governments in making more informed and data-driven decisions.

### 1.1 Study Problem and Questions

The problem of the study revolves around evaluating the impact of using artificial intelligence techniques in the distribution of public expenditure to increase the gross domestic product (GDP), reduce inflation, and make government decisions in Jordan. What is the impact of using artificial intelligence applications in preparing estimated budgets and making government decisions? This leads to the following sub-questions:

**Question 1:** What is the impact of using artificial intelligence applications in preparing the estimated budgets of the state in Jordan?



**Question 2:** What is the impact of using artificial intelligence applications in government decisions making in Jordan.

## 2 Literature Review

The use of artificial intelligence in developing projected budgets for the state has been the subject of numerous research [17–20]. Some of these studies used the decision support system (DSS) for budgeting that makes use of artificial intelligence tools like fuzzy logic and artificial neural networks [17, 21–23]. The decision support system's objectives were to improve budget estimation accuracy and assist in resource allocation.

AI in public sector budgeting [24–27]. AI can promote budget transparency and accountability, automate budget preparation processes, and improve budget forecasts [26, 28–31].

The impact of AI on public finances was examined by using the technology to boost revenue collection, draw attention to issues with government expenditure, and speed up budgeting processes [29, 32–36]. AI and machine learning were examined in public financial management, recommended using artificial intelligence to better forecasting, risk management, and fraud detection [37–42].

The advantages and disadvantages of incorporating artificial intelligence in public financial management and the need for caution and restraint to avert unexpected results [14, 43–47]. It was asserted that artificial intelligence may improve financial reporting and planning [48–53].

The potential value of using artificial intelligence to produce state-estimated budgets that are more accurate, efficient, and transparent [54–57]. Weighing the possible risks and constraints of artificial intelligence properly is essential to preserve effective governance and responsibility [58–63].

## 3 Methodology

The descriptive-analytical approach was used.

### 3.1 Data Collection Sources

The data were gathered from secondary sources, which included printed and digital books, scholarly journals, theses, and dissertations, both published and unpublished. These sources were written in other languages or in Arabic. Data from the community were gathered through a survey, and the results of distributed questionnaires used to

**Table 1** Sample distribution

Study population	Number of distributed questionnaires	Number of retrieved questionnaires	Response rate	Number of questionnaires valid for analysis	Validity rate
Municipalities, departments, and government ministries in Jordan	150	112	74%	110	98%

analyze the data. The study’s hypotheses were analyzed and put to the test using the proper statistical techniques.

**3.2 Study Population and Sample**

The study population consists of municipalities, government departments, and ministries in Jordan. People that provide budget estimates for Jordanian municipalities, ministries, and government agencies make up the study sample.

A total of 150 questionnaires were distributed, and 112 questionnaires were retrieved, resulting in a retrieval rate of 74%. Out of these, 110 questionnaires were subjected to analysis, which is an acceptable rate for the purposes of scientific research. The researcher was able to generalize the findings based on the sample (Table 1).

**3.3 Study Hypotheses**

**Main Hypothesis:** There is no effect of using artificial intelligence on increasing the efficiency of preparing government budget estimates and making government decisions in Jordan.

- Subsidiary Hypotheses:
- Sub-Hypothesis 1:** There is no effect of using artificial intelligence applications on the efficiency of preparing government budget estimates in Jordan.
  - Sub-Hypothesis 2:** There is an effect of using artificial intelligence applications on making government decisions in Jordan.

**Table 2** Illustrates the five-point Likert scale used in the questionnaire

Strongly agree	Agree	Neutral	Disagree	Strongly disagree
5	4	3	2	1

**3.4 Study Tool**

Study utilized a questionnaire as its research tool, which was developed based on the study hypotheses and variables. A 5-point Likert scale was used in the questionnaire. The questionnaire consisted of two sections:

The first section focused on the impact of using artificial intelligence applications and techniques in preparing the general state budget (Items 1–8).

The second section focused on the impact of using artificial intelligence applications and techniques in making government decisions. It comprised of 8 items, measured from Items 9–16.

**3.5 Measurement Scale**

To facilitate the statistical analysis of the data, a response range was determined, and a Five-Point Likert Scale was used as Table 2.

**3.6 Study Tool Reliability Test**

The internal consistency reliability coefficient, Cronbach’s alpha, was calculated and the results were as Table 3.

We notice that the values of the internal consistency coefficient, Cronbach’s alpha, for the items of the study tool ranged between 0.7985. Thus, all values are greater than 0.75%, indicating consistency among the items of the study tool [3, 25, 33]. This demonstrates the reliability of the study tool and its suitability for statistical analysis (2017, Sekarna).

**Table 3** Cronbach’s alpha

Dimension	Alpha value
The impact of using artificial intelligence applications and technologies in preparing the general state budget	0.818
The impact of using artificial intelligence applications and technologies in governmental decision-making	0.779
All items	0.7985

### 3.7 Hypotheses Testing

**Main Hypothesis:** There is no effect of using artificial intelligence on enhancing the efficiency of preparing the state's budget estimates and government decision-making in Jordan.

**Sub-Hypothesis 1:** There is no effect of using artificial intelligence applications on the efficiency of preparing the general budgets of the state in Jordan.

**Sub-Hypothesis 2:** There is an effect of using artificial intelligence applications on government decision-making in Jordan.

The impact is significant at a significance level of ( $0.05 > \alpha$ ). Referring to the results in Table 4, the correlation coefficient value is (0.778), indicating a positive relationship between the use of artificial intelligence applications and the efficiency of budget preparation. The coefficient of determination value ( $R^2 = 0.595$ ) indicates that after using artificial intelligence applications, approximately 59.5% of the variance in the efficiency of budget preparation is explained, while holding other factors constant.

Furthermore, the F-value is (69.31) at a confidence level of ( $0.000 = \text{Sig}$ ), confirming the significance of the regression at a significance level of ( $0.05 > \alpha$ ). The coefficient value ( $B = 0.88$ ) and the T-value (7.709) at a significance level ( $\text{Sig} = 0.000$ ) also indicate the significance of the coefficient at a significance level of ( $0.005 < \alpha$ ).

Based on the above, we reject the null hypothesis of the first sub-hypothesis and accept the alternative sub-hypothesis, which states:

There is a statistically significant effect of using artificial intelligence applications on the efficiency of budget preparation in Jordan.

Regarding the second sub-hypothesis, the results of simple linear regression analysis were as follows:

There is no statistically significant effect of using artificial intelligence applications on the efficiency of government decision-making in Jordan.

Based on the results provided in Table 5, with a significance level of 0.05 ( $\alpha > 0.05$ ), we can conclude the following:

The correlation coefficient ( $R$ ) is 0.686, indicating a positive relationship between the use of artificial intelligence applications and the efficiency of government decision-making in Jordan. The coefficient of determination ( $R^2$ ) is 0.337, meaning that after considering the use of artificial intelligence applications, it explains 37.7% of the variation in government decision-making efficiency while holding other factors constant.

The F value is 41.689 at a significance level of 0.000 ( $\text{Sig}$ ), confirming the significance of the regression at a level of  $\alpha < 0.05$ .

From the coefficients table, the B value is 0.670, and the corresponding t value is 6.657 with a significance level of 0.000 ( $\text{Sig}$ ). This confirms the significance of the coefficient at a level of  $\alpha < 0.005$ .

**Table 4** Presents the results of the test on the effect of using artificial intelligence applications in the preparation of the general budget of the state

Dependent variable	Correlation coefficient (R)	Coefficient of determination ( $R^2$ )	Adjusted R square	F-value	Sig. * F	Significance level	Standard error (B)	T-value	Sig. * t	Significance level
Budget preparation	0.778	0.595	0.551	69.31	0.000	Artificial intelligence	0.88	0.102	7.709	000

**Table 5** Test results (the impact of using artificial intelligence applications in government decision-making in Jordan)

Dependent variable	Correlation coefficient (R)	Coefficient of determination (R <sup>2</sup> )	Adjusted R square	F value	Sig. * F value	Significance level	B value	Standard error (B)	Sig. * t value	Significance level
Decision-making	0.686	0.337	0.446	41.689	0.000	Artificial intelligence	0.67	0.111	6.657	0.000

Based on the above, we reject the null hypothesis and accept the alternative hypothesis, which states that there is a statistically significant effect of using artificial intelligence applications on the efficiency of government decision-making in Jordan.

## 4 Results

These are the conclusions we can draw from the results of the hypothesis tests:

The use of artificial intelligence applications has a favorable impact on the effectiveness of Jordan's general state budget preparation.

The use of artificial intelligence applications has a favorable impact on Jordan's government decision-making's effectiveness.

Artificial intelligence (AI) systems are used to analyze data and produce insights that guide policy choices and resource allocation in the process of government decision-making based on AI. Governments can make better educated and data-driven choices by using AI to process massive volumes of data, spot patterns and trends, and generate predictions and recommendations.

The use of artificial intelligence in government decision-making is not without its difficulties and restrictions. Concerns concerning the precision and dependability of AI systems, the possibility of bias in the data and algorithms utilized, and ethical and privacy issues are a few of these. Additionally, there is a chance that the application of AI will result in less need for human supervision and responsibility during decision-making processes.

There are both possible advantages and risks associated with using artificial intelligence in government decision-making, which is a complicated and fast developing topic.

The application of artificial intelligence (AI) in state budget preparation has a number of potential advantages. Huge data sets can be analyzed by AI, which can spot patterns and trends that human analysts might miss, resulting in more precise predictions and projections.

Using artificial intelligence to create the state budget is not without its difficulties and restrictions. These include doubts over the precision and dependability of AI systems, the possibility of bias in the data and algorithms utilized, and the requirement for qualified humans to create and maintain AI systems.

## 5 Recommendations

1. The study suggests that sufficient guarantees be present to address any moral or legal issues with regard to privacy.
2. The report advises employing artificial intelligence technologies because they enable governments to create budgets that are more data-driven and informed.

3. The study advises against utilizing artificial intelligence because it can be used to automate some budget preparation operations, such as data gathering, analysis, and report generation. This can speed up the budgeting process and lower the chance of mistakes and inconsistencies.
4. The report urges governments to carefully weigh the advantages and disadvantages of employing artificial intelligence when making decisions.

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# Legal Protection for Worker's Wages in Jordanian Legislation



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**Abstract** Workers and their families rely on wages as their primary source of income, making it imperative for national legislation to regulate all wage-related aspects. The legal framework must cover the mechanism of wage collection, entitlement, and determining the amount. To delve into this topic, the study's researcher examined the Jordanian labor law, civil law, and corresponding laws of other countries. Legal protection for wages, and the nature of wages themselves, were the focus at the start of this study. Delving into all relevant legal texts and applying activated legal provisions in practice, challenges related to wages were explored. The adequacy of these laws in protecting wages and labor rights against employers was assessed, highlighting potential shortcomings.

**Keywords** Legal protection · Workers' wages · Jordanian legislation

## 1 Introduction

Providing stability in work is a crucial factor in labor systems that prioritize the human element. Worker's wages are an essential aspect of any employment agreement as it is the employer's main duty to compensate for the worker's time. A significant pillar in the labor system is the emphasis on maintaining stable wages and workforce retention. It is important to understand that a worker's wages are more than just remuneration for their skillset; it is the lifeline on which they rely [36]. For a laborer to survive, one thing is certain: they need payment. Earning wages means that the worker's mental and physical labor can be exchanged for things they desire. This

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results in contentment, which has a ripple effect on how one behaves and performs. These actions include staying on the job, being dependable, showing up to work, and eventually maintaining political and economic stability in the area [1, 20].

### ***1.1 Problem Statement***

Noticing conflicts between legal protection for employees' wages and employers' interests during her time as a trainee lawyer, the researcher embarked on a study. Labor exploitation by employers for uninterrupted productivity disregards the workers' well-being. The study's central question is: "Are Jordanian wage-related laws adequate?" This inquiry branches out to several sub-questions, the synopsis being:

1. Is it imperative for the Jordanian lawmaker to modify wage regulations due to the ongoing shifts in social and economic situations?
2. Are proceedings within the court system applicable when it comes to labor disagreements centered on payments?
3. In specific circumstances, is the employer able to apply disciplinary sanctions to the worker?
4. Does the law prioritize dealing with labor issues?

### ***1.2 Study Objectives***

Jordanian legislation is being studied to assess the adequacy of legal wage regulations. The following sub-goals can be summed up:

1. Define the legal concept of wages and investigate their nature, including the various forms of wages and their conditions for entitlement.
2. Clarify the appendices related to wages for a comprehensive understanding.
3. Highlight the privileges afforded to labor-related cases and the various legal and judicial protections for wages in existence.

### ***1.3 Study Significance***

The legislation's legal regulations governing Jordanian wages are being investigated in this study from a theoretical standpoint. Employment contracts' ultimate components are wages, and comprehending the benefits received by those in labor allegations is important. Additionally, this investigation aids in increasing knowledge of legalities among both employees and employers. Analyzing the aptitude of the legal regulations concerning wages in Jordanian legislation offers researchers in the legal domain a fresh perspective.

## ***1.4 Research Methodology***

A comparative analysis will be included in this study, which utilizes both analytical and descriptive methodologies. Initially, a descriptive approach is utilized to outline the features of legal texts and the legal system to which they belong. Furthermore, using an analytical approach, legal texts are examined to identify their strengths and weaknesses. Finally, by comparing Jordanian legal texts to other comparative legal texts, a comparative analysis is conducted.

## **2 The Nature of Wages**

Within the realm of labor laws, employers are tasked with fulfilling a fundamental duty—paying the salaries of their staff. This obligation stems from a tumultuous history where the concept of wages has evolved from a controlling mechanism that prioritized power dynamics over empathy and justice. The roots of this approach can be traced back to the feudal era when employees were treated like subservient slave, only earning enough to satiate their basic needs for sustenance and clothing.

### ***2.1 The Concept of Wages***

Article 2 of the Jordanian Labor Law No. 8 of 1996, along with its subsequent updates, offers a comprehensive explanation of the term “wages.” According to this legislation, wages include all earned compensation, whether tangible or intangible, that a laborer is entitled to collect, in addition to other allowances as specified in the law, their employment agreement, internal regulations, or established norms, excluding overtime payout.

### ***2.2 Characteristics of Wages***

The right of workers to receive fair compensation for their work is no longer restricted as it was in ancient times (the system of servitude) or in the Middle Ages (the feudal system). Workers have become free individuals with the right to choose their employment, either under the supervision of an employer or as independent contractors. This shift has removed legal constraints on worker freedom, a fundamental condition for the emergence of wage systems. However, the existence of a class of people willing to work for wages, in exchange for their labor, is necessary to satisfy their own needs and those of their families. Therefore, wages are a vital source of livelihood for workers, contributing to their physical and psychological well-being.

### **3 Legal and Judicial Protection of Wages**

For safeguarding the rights and interests of both employers and employees, it is crucial to have legal and judicial protection for workers' wages, which involves addressing different situations in accordance with the law. To regulate the contractual relationship between workers and employers, legislative intervention is necessary, as it ensures protection for both parties and creates awareness among them.

#### ***3.1 The General Framework for Legal Protection of Wages***

Encompassing the three pillars of constitutional, legal, and international measures, the safeguarding of wages is an overarching concept. In 1952, the Jordanian Constitution was established and later revised in 2011, with the objective of preserving human rights and liberties. One such constitutional provision, Article 23(2), outlines the unequivocal right of all citizens to employment, which shall be facilitated through governmental economic initiatives. Additionally, this article bestows upon labor a protective shield, necessitating fair and proportionate salary arrangements to match the individual's workload.

#### ***3.2 Legal Intervention in Regulating Contractual Relationships***

For the sake of highlighting the significance of the work agreement that establishes salary terms and labor rules, a set of regulations has been established to cover every essential detail relevant to forming an employment contract and overseeing the work relationship. Such guidelines enable a just balance, safeguard laborers' rights, and provide acceptable work conditions without any form of degradation or mistreatment from employers. Breaking these guidelines is not permissible, regardless of the worker's overt or implicit consent, creating a strong legal protection system for the rights of laborers. General principles of civil law step in when specific legislation does not cover everything or in instances where the legislator does not speak on certain matters. This ensures that employers do not regulate the employment relationship without taking into consideration the rights and interests of the other party [1].

Part of the Egyptian Civil Code, Article 683 lays out the specifics of various additional wage elements, such as the percentage received by store workers based on the pricing of items sold, and allowances based on the cost of living. The code also deems any bonus payment provided to employees for their excellent work or as reimbursement for elevated familial obligations as a part of the overall salary.

Moreover, Article 684 discusses the acknowledgement of presents as a component of wages when such a tradition is acknowledged.

### ***3.3 Protecting Wages Against Employers***

Workers rely on their wages for survival and providing for their loved ones, not just as leverage against employers. The compensation they receive is a reflection of their hard work and dedication each day. Timely payment of their full wages is crucial without any hindrances. Protecting them against deductions has been a priority of lawmakers who have implemented measures to safeguard their rights to fair pay.

#### **Protection Against Deductions and Withholdings**

Prohibiting deductions and withholdings is the primary stance. Still, there are specific instances outlined in Jordanian Labor Law, specifically Article 46 (1), where employers are legally authorized to deduct from employee wages. This includes scenarios where Article 46/1 of the Jordanian Labor Law is in effect, which mandates that wages must be paid within seven days of entitlement and only allows for deductions allowed by law [3]. It is the responsibility of Jordanian employers to pay employees' wages within seven days of the date of entitlement, as stipulated by Jordanian law. Only deductions authorized by law are permitted from the wages, with the default position being that none are allowed. Article 46 (1) of the labor law permits employers to deduct only in specific situations specified by law. Specifically, Article 46/1 states that "wages shall be paid within a period not exceeding seven days from the date of entitlement, and no deductions shall be made from them except in cases permitted by law." The legislation does not specify the when or where of wage payment.

Regarding deductions for disciplinary penalties, Employers can impose disciplinary penalties on employees who break internal company regulations or employment contracts, such as fines. When it comes to deducting such sanctions from wages, Article 48 of the Jordanian Labor Law lays down the conditions under which it is allowed [20].

## **4 Protection of Wages in Business Closure and Multiple Employers**

### ***4.1 Protection of Wages in Case of Multiple Employers***

In Jordan, the Labor Law's 16th Article makes it clear that an employment contract remains valid, regardless of the reason for any change of employer. This includes the sale of a project, its transfer through inheritance, merger of the establishment, or any



other reason. The original and new employers are jointly responsible for complying with the obligations arising from the contract for a period of six months, starting from the date of the change, as per the performance due before the alteration. Once the six months' trial period has ended, the new employer alone bears the responsibility. This principle has been reinforced by the Court of Cassation, emphasizing the joint responsibility of both employers towards the worker for a period of six months upon any change of employer, as stated in Article 16 of the Labor Law. The Court of Cassation's decision number 1641/2015, issued on the 11th of November in 2015, supports this notion.

#### ***4.2 The Worker's Right to Withhold the Employer's Property***

It is okay to withhold items relevant to their work if employers do not pay wages, as the recently repealed or new Jordanian Labor Law does not mention this. Quoting to general principles of civil law, Articles 387 and 391 of the Jordanian Civil Law allow workers to keep such items. The worker has the primacy over other creditors in getting their salary back from the profits of these items if they are auctioned openly, or they can carry on withholding them until their wages are cleared. In the case of perishable goods, the worker can request the court's approval to sell the held items using the procedures for mortgaged property and the right to withhold transfers to the profits from the sale (as indicated in Article 390 of the Jordanian Civil Law). Nonetheless, for non-perishable items, this rule applies without exception.

### **5 Wage Protection in Confrontation with Employer Creditors and Third Parties**

In order to safeguard employee pay, the concept of debt privilege plays a significant role. It is crucial to note that wages may be either the accountability of the employer or a means to resolve money owed by the employee to their debtors. The legislative body has therefore established a set of legal regulations and guidelines to ensure that debts are paid without jeopardizing the worker's financial security and that of their dependents. Firstly, let us explore protecting wages against employers who are creditors, followed by safeguarding wages against worker creditors.

## ***5.1 Judicial Protection of Wages***

The judiciary's role in protecting workers' wages through legislative requirements faces some restrictions, as explored in this section. It also details how judicial discretion is applied in cases where legal provisions are ambiguous. The effectiveness of this protection is evaluated and divided into various subtopics.

### **Facilitating Legal Procedures in Labor Disputes**

#### **Facilitating Legal Procedures in Labor Lawsuits Before Conciliation Courts**

Jurisdiction for individual labor disputes, regardless of their origin from a contract or labor law, has been specifically assigned to conciliation courts via Article 137 of the Jordanian Labor Law. However, this does not apply to wage-related disputes in areas where wage authorities have been established under the same law. Instead, Article 137/1 and 54/1/1 specify that wage authorities are granted jurisdiction to handle disputes related to wages during the employment contract term.

In determining the applicability of Article 54/1 of the Labor Law, it has been established that labor rights connected to notification allowances, arbitrary dismissal allowances, group workday allowances, and wage allowances or salaries are exempt from its provisions due to their complex nature. Nevertheless, the article only applies to claims relating to wages, which encompass issues such as wage deficiencies, unlawful deductions, delayed payment, and overtime pay. Additionally, it is imperative that the worker is either currently employed or that their employment termination hasn't surpassed six months. The jurisdiction to urgently resolve claims related to wages lies solely with the wage authority. The conciliation court is also capable of handling such claims and has a deadline of three months to resolve them, as stated in Article 137 of the Labor Law. This was established in the Jordanian Court of Cassation (Rights) Decision No. 2555/1999.

#### **Facilitating Legal Procedures in Labor Lawsuits Before Specialized Judicial Authorities**

The Jordanian Labor Law states in Article 54 that wage disputes fall under the jurisdiction of wage authorities. Responsible for enforcing judgments and hearing appeals against their rulings, these specialized wage authorities offer a multitude of benefits for employees as established by the Jordanian legislator [23].

## ***5.2 Exemptions for Labor Cases from Court Fees***

In its quest to support workers as the disadvantaged entity in employer-employee connections, Jordan's labor law undertakes a fundamental goal. It becomes incumbent to streamline the legal proceedings for employees, who cannot bear the extra costs. As explained in the Jordanian Labor Law, Article 137/1 decrees, "Litigations

brought up before the reconciliation court are not subject to any charges” (Jordanian Labor Law, Article 137).

Regarding the exemption of labor cases from judicial fees, it is worth mentioning the following points: In Jordan, legal proceedings under labor law are free for both workers and employers. Ideally, the Jordanian legislator should have followed the Egyptian legislator’s decision to only exempt workers from fees [17]. This would have been a more considerate move, as workers often lack the necessary financial resources to pay for fees in all lawsuits and are encompassed by the free legal proceedings.

## 6 Expedited Proceedings in Labor Cases

1. As per Article 137/A of the Labor Law, filings for individual labor disputes with conciliation courts and highest courts are now subject to expedited proceedings. According to a recent decision, conciliation courts now possess jurisdiction over all claims stemming from individual labor disputes, excluding claims linked to wages in regions where wage authorities have already been established. These claims, however, are under a deadline of three months from the date the court receives them, as dictated by Article 137 of the Labor Law. The Jordanian Court of Cassation (Rights) issued this decision in document No. 4009/2014, on March 22, 2015.
2. Labor courts and wage authorities can handle labor cases in a hurried manner. Proceedings, in such cases, are expedited for swifter resolution.

## 7 Conclusion

Various facets of Jordanian labor law and civil law were examined by the researcher in this study pertaining to the equivalence of wages with Egyptian laws. The study starts with an explanation of salaries and wages, elaborating on the legalities surrounding it. This was achieved through the presentation of legal texts on the matter and discussing how wages are safeguarded by law.

### 7.1 Results

- In Jordanian law, wages are not defined specifically, but rather encompass everything the worker deserves for their work, be it monetary or in the form of goods. The law allows for flexibility in how employers and employees come to an agreement on wages and does not mandate a set payment method.
- Labor cases are deemed as non-urgent since they do not possess the traits and criteria of urgent cases, stated in the time frame of three months as outlined in

Article 137/A. Nonetheless, despite being branded non-urgent, labor cases are still considered of great importance.

- Individual labor disputes are under the jurisdiction of specialized judicial authorities according to the legislator, with the exception of claims related to rights that do not exceed seven thousand dinars. This general rule is outlined in Article 3/1 of the Conciliation Courts Law, designating conciliation courts as the appropriate authority for such disputes.

## 7.2 Recommendations

- The introduction of legal provisions by the legislator could make a difference. Employers could be required to display informative posters and leaflets in the workplace. These materials would emphasize the essential legal points concerning labor rights. The display of these resources would be beneficial for all workers, making it much simpler for them to comprehend their rights.
- Companies, factories, and workplaces ought to receive visits from Ministry of Labor legal experts to promote legal awareness. Such experts should be dispatched to institutions as well.
- Abusing their powers ought to be deterred by the enactment of fines and penalties by the Jordanian legislator for employers.
- In the Jordanian Labor Law, Article 2 has been amended to give a new definition of what wages are. According to this change, wages encompass all the benefits a worker should receive in specified cash, at least the minimum wage, and all other legally mandated or established compensations. The only exception is wages earned from overtime work.

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# The Adoption of RegTech in Enhancing Tax Compliance: Evidence from Telecommunication Companies in Jordan



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**Abstract** RegTech presents a modern approach to overseeing and ensuring compliance within the high-tech sector. Nonetheless, applying technological solutions to reduce the costs associated with supervising tax-related activities can sometimes clash with regulatory authorities' interventions. Hence, the research sought to delve into the influence of RegTech on tax compliance. This study focused on the workforce

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within Jordan's telecommunications firms and employed a cross-sectional design to gather data from 408 employees. The analysis leaned on structural equation modeling to validate the research hypotheses. The study culminated in the discovery that RegTech dimensions, especially smart contracts, exerted a noteworthy and affirmative impact on tax compliance. As a result, the research furnishes a series of recommendations and suggestions for various stakeholders involved in this domain.

**Keywords** RegTech · Tax compliance · Telecommunication companies · Jordan

## 1 Introduction

Navigating the complex and ever-changing landscape of tax regulations is a daunting task for businesses and individuals. Ensuring accurate tax compliance is not only a legal obligation but a crucial aspect of sound financial management [1–6]. Nevertheless, achieving compliance can be a challenging and resource-intensive process, characterized by intricate tax laws, vast amounts of data, and numerous forms and requirements [7–13]. As noted by [14], the consequences of non-compliance can span from financial penalties to harm to one's reputation, underscoring the importance of businesses seeking efficient, precise, and cost-effective methods to fulfill their tax responsibilities.

The convergence of technology and regulation has given rise to a transformative force in the world of finance and compliance. RegTech, or Regulatory Technology, represents a burgeoning field where technology solutions are harnessed to facilitate, streamline, and enhance regulatory compliance processes across various industries, including finance, banking, and telecommunications [15–20]. As confirmed by [21], this intersection of finance and technology has the potential to reshape how organizations meet their compliance obligations, particularly in the realm of tax compliance.

Jordan's competitive and technologically dynamic telecommunications sector grapples with the intricacies of evolving tax regulations. Ensuring tax compliance proves labor-intensive and challenging, given the shifting regulatory landscape. Compliance errors may lead to financial penalties and reputational harm. Thus, efficiency and precision in tax compliance are paramount. Moreover, rapid technological advancements add complexities to tax assessments and product classifications, while changing regulations demand quick adaptation. This research investigates if RegTech

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adoption can transform tax compliance in Jordan's telecommunications companies. It assesses the current compliance landscape, identifies weaknesses, pinpoints RegTech application areas, and evaluates the potential for enhanced efficiency, cost reduction, and improved accuracy. Ultimately, this study aims to determine if RegTech can enable Jordanian telecom firms to navigate regulatory changes and achieve more effective tax compliance.

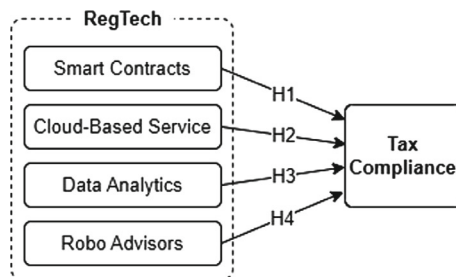
## 2 Background and Research Hypotheses

Regulatory Technology (RegTech) is a relatively new field, and various authors and experts have provided definitions and descriptions of it over time. World Economic Forum identified RegTech as a sub-set of FinTech that focuses on technologies that may facilitate the delivery of regulatory requirements more efficiently and effectively than existing capabilities [3, 22–26]. Regulatory Technology is a technology solution developed to help organizations comply with regulations efficiently and inexpensively [21, 27–29]. These definitions highlight the core concept of RegTech as the application of technology to enhance regulatory compliance and reporting processes. Moreover, they stressed closely related to FinTech but focused specifically on regulatory and compliance aspects within the financial industry and beyond.

Tax compliance refers to fulfilling one's tax obligations, which encompass activities such as income reporting, tax calculation, payment, and adherence to relevant tax laws and regulations [14, 30–33]. While definitions may slightly vary among experts and organizations, the fundamental concept remains unchanged. Abdu and Adem [34] underscore that tax compliance involves abiding by the tax laws and regulations of a particular jurisdiction, which includes submitting required tax returns and making the correct tax payments [34]. It encompasses, as pointed out by Nguyen [35], the voluntary actions and behaviors of individuals and businesses aimed at ensuring they meet their tax responsibilities, which may encompass activities such as filing tax returns and remitting taxes to the tax authorities in accordance with the law [35]. Tax compliance holds significant importance for governments as it enables them to finance public services and maintain economic stability. Additionally, it is a legal obligation for individuals and businesses operating within a specific tax jurisdiction.

RegTech has a significant impact on tax compliance. It automates regulatory compliance activities, such as interpretation and reporting, using technologies like big data analytics, artificial intelligence, and machine learning [36–44]. Teichmann et al. [26] reported that RegTech solutions offer compelling compliance tools for companies, but they also pose significant risks [26]. RegTech solutions can automate regulatory compliance, leading to cost savings, resource optimization, and increased agility for bank regulators [45–48]. Indeed, RegTech's impact on tax compliance can be seen in its ability to streamline the regulatory requirements compliance process and assist financial institutions in swiftly adjusting to new regulations. By automating compliance activities, RegTech can help improve tax compliance efficiency and accuracy.

**Fig. 1** Research conceptual framework



### 3 Conceptual Framework

This research is dedicated to exploring the role of RegTech in enhancing tax compliance within the telecommunication companies in Jordan. Figure 1 provides a visual representation of the proposed conceptual framework for this research, illustrating how RegTech dimensions impact tax compliance.

In order to scrutinize the relationships between the four dimensions of RegTech and tax compliance, the research endeavors to assess the following hypotheses:

**H1:** There is a statistically significant influence of smart contracts in enhancing tax compliance.

**H2:** There is a statistically significant influence of cloud-based services in enhancing tax compliance.

**H3:** There is a statistically significant influence of data analytics in enhancing tax compliance.

**H4:** There is a statistically significant influence of robo advisors in enhancing tax compliance.

## 4 Research Methodology

### 4.1 Research Design

This research adopted a cross-sectional design to investigate the impact of RegTech on the tax compliance of telecommunication companies in Jordan. The cross-sectional design emphasizes the concurrent collection of research data from sample members during a specific timeframe [49–53]. In this research, data collection through surveys took place from July 30 to September 27, 2023. The research approach employed was primarily quantitative and involved utilising a questionnaire developed based on an extensive review of the existing literature. In the data analysis phase, the study applied structural equation modeling (SEM) using the software tool AMOS to scrutinize the collected data.

## **4.2 Data Collection**

Data pertaining to the impact of RegTech on tax compliance was gathered from a diverse population of employees working for telecommunication companies in Jordan. Due to the geographical and temporal restrictions and the large size of the study population composed of 4394 employees in 2021, the comprehensive survey approach was not efficient. Hence, the sampling method was deemed necessary. Convenience sampling was chosen as the most appropriate method, particularly when the researcher cannot accurately identify the target population [54–57]. A sample size of 385 respondents was determined based on the guidelines of [58]. Consequently, an electronic version of the survey was developed, and its link was sent through WhatsApp and e-mail to 600 employees to ensure adequate sampling. In total, 483 responses were received, with 75 responses deemed disproportionate for statistical analysis. After the exclusion of these responses, the final sample for this research comprised 408 respondents, representing a response rate of 68% of what was sent.

## **4.3 Research Instrument**

The primary instrument employed in this research investigation was a self-administered questionnaire. This questionnaire encompassed several sections, including a cover letter outlining the research's objectives, emphasizing the voluntary nature of participation, and underscoring the commitment to ethical research considerations. Additionally, a segment of the questionnaire was dedicated to the collection of categorical demographic information from the respondents, while two other sections were designated for gathering data related to the primary research variables. To gauge respondents' perspectives on the research variables, a five-point Likert scale was utilized. This scale ranged from a minimum rating of 1, indicating "strongly disagree," to a maximum rating of 5, signifying "strongly agree."

In this research, RegTech served as the independent variable, encompassing a set of items derived from [59]. Meanwhile, RegTech was conceptualized as a second-order construct, further branching into four distinct first-order constructs. These constructs, each exploring various facets of RegTech, included smart contracts with four items, which are self-executing contracts with the terms of the agreement directly written into code; cloud-based services with five items, which refer to the utilization of cloud computing infrastructure and technology to deliver solutions and services that assist organizations with the optimal utilization of resources; data analytics with four items, which focuses on the process of collecting, processing and analyzing data to gain insights and make informed decisions; and robo advisors with five items, which refer to automated, algorithm-based platforms or systems that provide advisory services to employees. On the other hand, the dependent variable in this research was tax compliance, with the items for measurement obtained from [60]. Tax compliance was treated as a first-order construct with five items, the extent of adhering to the

laws, rules, and regulations established by a government's tax authority, which are designed to ensure that individuals, businesses, and organizations fulfil their tax obligations.

## 5 Research Findings

### 5.1 Measurement Model

To assess the relationships between the constructs and their observed items, confirmatory factor analysis (CFA) was employed in this research. The estimation process encompassed an overall goodness-of-fit assessment, as well as individual evaluations of the validity and reliability of the research instrument. As advocated by [10, 61–63], CFA is a valuable technique for grouping observed variables into their respective structures, thereby enhancing the model's capacity for generalization. The outcomes of the assessments of item and construct validity and reliability related to the influence of RegTech constructs on tax compliance are presented in Table 1.

The loadings of the items, as revealed in the results presented in Table 1, fell within the range of 0.634–0.824. These values indicated that all items were deemed acceptable and were retained within the model, as they exceeded the commonly recognized threshold of 0.50 [23, 64–67]. Convergent validity was evaluated using the average variance extracted (AVE), and the results demonstrated that the AVE values ranged from 0.531 to 0.610. These results comfortably surpassed the minimum threshold of 0.50 [68–70], confirming the convergent validity of the research instrument. To ascertain discriminant validity, the method of comparisons, as advocated by [71], was applied. The results of these comparisons showed that the values of AVE outperformed the maximum shared variance (MSV) values, and the square root of AVE was

**Table 1** Summary of measurement model evaluation

Variables	Items	Loadings range	AVE	MSV	$\sqrt{\text{AVE}}$	CR	VIF
Smart contracts	[SC1–SC4]	[0.755–0.802]	0.610	0.513	0.781	0.862	1.882
Cloud-based services	[CBS1–CBS5]	[0.634–0.788]	0.531	0.492	0.729	0.849	2.394
Data analytics	[DA1–DA4]	[0.720–0.799]	0.569	0.521	0.754	0.841	2.615
Robo advisors	[RA1–RA5]	[0.703–0.814]	0.556	0.502	0.746	0.862	2.118
Tax compliance	[TC1–TC5]	[0.714–0.824]	0.575	0.510	0.758	0.871	–

greater than 0.70 and exceeded the correlation values between the remaining variables in the model. Hence, it can be deduced that the measurement model exhibited discriminant validity.

In terms of reliability, composite reliability (CR) was evaluated using McDonald's Omega coefficients [46, 71–75]. The results demonstrated that the CR values ranged between 0.841 and 0.871, surpassing the minimum threshold of 0.70 [15, 76–79]. This indicates that the model, which assesses the influence of viral marketing on consumer purchase intention, achieved satisfactory levels of validity and reliability. Moreover, with regard to the independent variables, specifically the dimensions of viral marketing, it was determined that they were not afflicted by multicollinearity. The variance inflation factor (VIF) values were found to be below the generally accepted upper limit of 5 [7, 8, 10, 61].

## 5.2 Structural Model

The research hypotheses were examined using AMOS software. This software facilitates the assessment of the connection between independent variables and the dependent variable through the structural equation modeling (SEM) approach. In line with this methodology, the adequacy of fit between the test model and the theoretical model is assessed through goodness-of-fit indicators. Additionally, both standardized and non-standardized impact coefficients are derived to gauge the relationships [22, 62, 79–84]. Figure 2 illustrates the structural model designed for the evaluation of the influence of RegTech constructs on tax compliance, emphasizing the values of goodness-of-fit indicators.

As illustrated in Fig. 2, the model's goodness of fit was evaluated using various indices. The minimum discrepancy per degree of freedom (CMIN/df) was found to be 1.938, which falls below the accepted threshold of 3 [41, 42, 63, 72, 76, 85]. The incremental fit indices, specifically the Comparative Fit Index (CFI) and the Tucker-Lewis Index (TLI), displayed values of 0.971 and 0.966, respectively. These values exceed the recommended threshold of 0.90 [83], indicating a good fit for the model. The root mean square error of approximation (RMSEA) yielded a value of 0.031, which is less than the threshold of 0.08 [37], further confirming the model's suitability. Table 2 provides the results of hypothesis testing, shedding light on the significance of the relationships between the independent variables and the dependent variable.

The findings in Table 2 revealed that RegTech dimensions had a notable and statistically significant impact on tax compliance. The coefficient of determination ( $R^2$ ) reached a value of 0.691, suggesting that approximately 69% of the variance in tax compliance can be attributed to variations in the dimensions of RegTech. Furthermore, the results indicated variations in the impact of different dimensions of RegTech on tax compliance. Specifically, smart contracts ( $\beta = 0.510$ ,  $t = 9.08$ ,  $p$

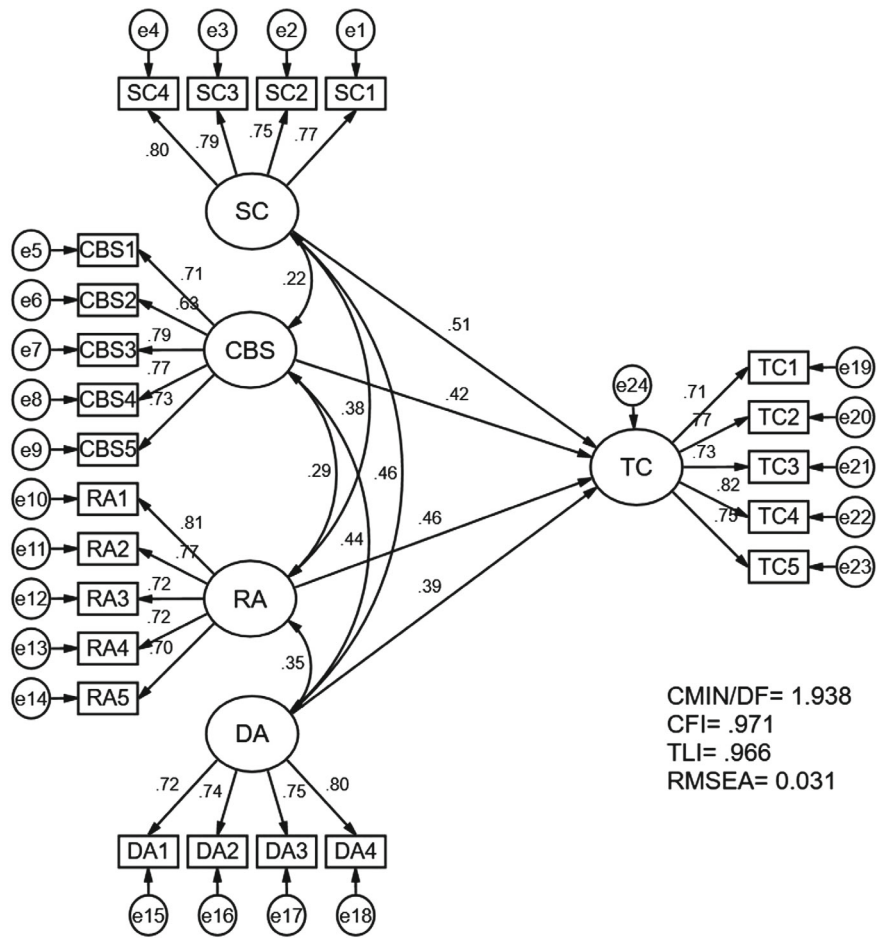


Fig. 2 SEM for the impact of RegTechconstructs on tax compliance

Table 2 Path analysis coefficients for hypothesis testing

Paths	B	S.E.	Beta	T	P	R <sup>2</sup>
Smart contracts → tax compliance	0.527	0.058	0.510	9.08	0.000	0.691
Cloud-based services → tax compliance	0.433	0.056	0.419	7.73	0.004	
Data analytics → tax compliance	0.401	0.065	0.388	6.17	0.03	
Robo advisors → tax compliance	0.493	0.055	0.465	8.96	0.000	

$< 0.001$ ) emerged as the most influential dimension, followed by robo advisors ( $\beta = 0.465$ ,  $t = 8.96$ ,  $p < 0.001$ ) in the second position, then cloud-based services ( $\beta = 0.419$ ,  $t = 7.73$ ,  $p < 0.01$ ) in the third place, and data analytics ( $\beta = 0.388$ ,  $t = 6.17$ ,  $p < 0.05$ ) occupied the last position in terms of impact.

## 6 Conclusion

The research findings unequivocally support the notion that RegTech exerts a substantial and positive influence on tax compliance, fundamentally reshaping how organizations fulfil their tax responsibilities. Perhaps the most notable advantage is the remarkable enhancement of efficiency and accuracy. RegTech solutions adeptly automate and streamline the labor-intensive tasks integral to tax compliance. This entails simplifying data collection, reporting, and calculations, thereby diminishing the dependence on manual labour—a sentiment in line with [45].

The outcome is not only a reduction in time expenditure but also a significant mitigation of the potential for human error. This, in turn, translates into more precise tax returns and a reduced likelihood of costly compliance errors. Furthermore, RegTech introduces an element of agility to tax compliance by autonomously incorporating updates to tax laws and regulations, aligning with [40]. This intrinsic feature ensures that organizations remain in compliance with the latest stipulations without necessitating manual adjustments. It is a dual-pronged benefit—saving time and minimizing the risk of non-compliance stemming from regulatory alterations that organizations might inadvertently overlook.

In conclusion, RegTech possesses the transformative potential to render tax compliance more efficient, cost-effective, and remarkably resilient to errors. Its merits reverberate across both organizations and tax authorities, culminating in tax compliance becoming a streamlined, precise, and transparent process.

## 7 Recommendations

The research findings offer several significant recommendations. Firstly, it is prudent to undertake an extensive analysis of global adoption trends regarding RegTech solutions in the telecommunications sector, transcending the boundaries of Jordan. This analysis should delve into the factors influencing adoption rates and identify the most efficacious RegTech tools. Secondly, the solicitation of feedback and insights from active users of RegTech solutions within the telecommunications sector assumes paramount importance. This feedback will be instrumental in comprehending the practical advantages, challenges, and invaluable suggestions for optimizing the utilization of these technologies. Moreover, there is a compelling need for a comprehensive evaluation of data security and privacy considerations, especially within the

domain of RegTech, which becomes especially critical in sectors handling sensitive customer data. Lastly, a meticulous cost–benefit analysis should be carried out to gauge the financial implications of RegTech adoption for tax compliance in the telecommunications industry, encompassing both the initial implementation costs and the long-term savings.

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# The Effect of Liquidity and Solvency Ratios on the Profitability of Commercial Banks Listed on the Amman Stock Exchange



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and Mohammad Jehad Mustfa Frehat

**Abstract** It was the objective of this study to determine how liquidity and financial solvency affect commercial banks (CB) listed on the Amman Stock Exchange (ASE), by employing a descriptive analytical methodology, using a panel data method (Panel Data) and a multiple linear regression model (MULTI COLLINEARITY). There are two independent variables in the study: liquidity and solvency, and a dependent variable, profitability. A total of thirteen (CB) listed on the (ASE) are represented in the study population. In order to accomplish the study's objective, the annual data on the variables affecting bank (PR) were analyzed for the period of (2016–2020), and the existence of a positive (SE) of indebtedness on (PR) variables: (ROA, ROE, REP). According to the study, Jordanian commercial banks (JCB) can achieve (PR) while maintaining a sufficient amount of liquidity by managing liquidity well. According to the study, commercial banks should also be able to direct their investments, exploit surplus funds, and employ them so that they can achieve returns while retaining funds to meet their obligations, and achieve a balance between sources of funds and uses of funds so that short-term investments become short-term financing sources.

**Keywords** Liquidity · Solvency · Profitability · Jordanian commercial banks

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## 1 Introduction

Banks expanded their business and increased their activities and transactions. From being merely a place to collect and borrow money, banks have evolved into financial institutions that provide financial and banking services to society. In addition to its role in economic development in developing countries, the company strives to increase shareholders' funds by achieving the highest possible profits, especially in a challenging work environment with high risks and intense competition characterized by modern developments [1, 2]. It is imperative that these banks manage their transactions and activities in accordance with strategies and policies that enable them to reconcile liquidity and profitability, as they strive to maximize returns [3, 4].

Using liquidity and indebtedness ratios is one of the most important financial tools for evaluating the performance of banks. The numbers in the financial values do not clearly reflect the reality of the financial position, therefore, numbers and ratios of liquidity and indebtedness are required to reveal the relationship and the correlation and effects of the financial items in the financial statements [5, 6].

Profitability (PR) is an important indicator of a bank's success, so banks strive to achieve high levels of profitability. For this reason, banks face many factors that affect their (PR) in order to achieve their goals [7, 8], since this leads to increased confidence among shareholders and reassurance among parties dealing with the bank [9, 10]. A bank's assets, indebtedness, liquidity, controls, and instructions are all internal factors, whether they are external factors such as political, economic, and social factors. This is why banks aim to increase their capacity and tighten control over the factors that affect profitability [11], or at least direct them to serve profitability.

As a result, the purpose of this research was to determine the impact of liquidity ratios (LIR) and solvency ratios (SOR), as indicated by the ratio of (LIR) and indebtedness, on the (PR) of (JCB) listed on the (ASE). To get an understanding of the most critical financial ratios under consideration that determine bank profitability between 2016 and 2020.

The researcher hopes to answer the following questions in this paper:

Is there a link between the (LIR) and (SOR) and their variables [(LIR), debt-to-equity ratio (D-ER)] on the (PR) represented by (return on assets (ROA), return on equity (ROE), and return on earnings per share (EPS) in (CB) listed on the (ASE)?

This question is further broken down into the following sub-questions:

1. Is there a relationship between the (LIR) and (SOR) variables on the (ROA) in (CB) mentioned on the (ASE)?
2. Is there a relationship between (LIR) and (SOR) on the (EPS) in (CB) mentioned on the (ASE) and its variables: [(LIR), (D-ER)]?

## 2 Literature Review

Numerous studies have explored the relationship between (LIR), (SOR), and bank (PR). The findings of these studies vary based on the methodologies, time periods, and regions analyzed. As the study by [12, 13] conducted a study entitled the impact of (LIR) and (SOR), and bank (PR) in Malaysia and Bangladesh.

In the study, both (LIR) and (SOR), had positive effects on (PR), with (SOR) having the most positive impact. In addition, Bhattacharya and De [14] found both (LIR) and (SOR) contributed to (PR) in their study.

In [15] Al-Tamimi and Al-Mazrooei conducted a study on banks in the United Arab Emirates that confirmed this. According to the study, (LIR) and (SOR), contributed to the bank's (PR). Karim et al. [16] found that (LIR) negatively impacts bank (PR) in Pakistan, contrary to the study.

## 3 Methodology

The descriptive analytical approach was followed in the theoretical aspect, with the aim of testing hypotheses and presenting the results of the resulting study and its recommendations, in addition to the economic measurement method, in order to determine if liquidity ratios and financial solvency influence the profitability of Amman Stock Exchange listed commercial banks.

### 3.1 Sources of Information

In order to accomplish the study's objectives, secondary and primary sources were used. According to the study, the following sources were used:

#### Primary sources

The researcher uses relevant Arabic and foreign books, references, articles, research, and previous studies as a backdrop for the current study, including related websites, both theoretically and practically.

#### Secondary sources

All data related to the measurement of the variables of this study are secondary sources, namely: the annual financial reports of the (CB) listed on the (ASE) during the period (2016–2020).



### 3.2 *Study's Population and Sample*

All 13 Jordanian (CB) listed on the (ASE) until the end of 2020 are included in the study population. Information on the study variables was gathered from the annual reports of the surveyed banks and information released on the (ASE) for the time period (2016–2020).

### 3.3 *Hypotheses of the Study*

The following hypotheses were developed in response to the study problem and associated questions.

The first major hypothesis is as follows:

$H_{01}$ : No relationship exists between the (LIR) on (PR) and its variables [(ROA), (EPS)] in the (CB) mentioned on the (ASE).

The following sub-hypotheses are generated from the first main hypothesis:

$H_{01-1}$ : The (LIR) and (ROA) in the (CB) mentioned on (ASE) have no relationship.

$H_{01-2}$ : The (LIR) and (RES) in the (CB) mentioned on (ASE) have no relationship.

$H_{02}$ : There is no relationship between the (SOR) and its variables (D-ER) and (PR), which are represented by [(ROA), (EPS)] in the (CB) stated on the (ASE).

$H_{02}$ : There is no relationship between the (SOR) and its variables (D-ER) and (PR) represented by [(ROA), (EPS)] on the (ASE).

The following sub-hypotheses are developed from the second main hypothesis:

$H_{02-1}$ : The (D-ER) and (ROA) in the (CB) mentioned on (ASE) have no relationship.

$H_{02-2}$ : The (D-ER) and (EPS) in the (CB) mentioned on (ASE) have no relationship.

### 3.4 *Study Model*

This study will depend on multiple regression models using Panel Data, and therefore the study models can be formulated according to the following:

First: the model of the impact of financial indicators on the rate of return on assets (ROA).

$$ROA = \alpha + \alpha_1 D-ER + \alpha_2 LIit + \epsilon_{it}$$

Third: The model of the impact of financial indicators on the rate of return on earnings per share (EPS)

$$EPS = e + e1D-ER + e2LIit + eit$$

LI: bank liquidity.

D-ER: debit-equity ratio.

ROA: returns on assets.

ROE: return on equity.

EPS: return on earnings per share.

$\alpha$ ,  $\beta$ ,  $\Theta$ : regression coefficients for the independent variables.

E is the error coefficient.

### Testing the main hypotheses of the study

To fulfillment the aim of the study, which is to know the impact of (LI, SO ratio) on the (PR) of (CB) listed on the (ASE), and to test the hypotheses of the study, a dynamic least squares regression model was used.

In order to test the main hypothesis of the first study, and the sub-hypotheses derived from it, a simple regression analysis was relied upon based on data on liquidity ratios, solvency ratios measured by indebtedness ratios, and their impact on profitability indicators for commercial banks listed on the ASE between 2016 and 2020. The probability value (Prob.T) was relied upon to accept or reject the hypothesis, and accordingly the decision rule stated that the probability value must be (Prob.T) is < 5% to reject the null hypothesis, and otherwise the null hypothesis was accepted, and the type of effect was determined based on the value of [Standardized Coefficient ( $\beta$ )].

Testing  $H_{01}$ , which states:

$H_{01}$ : There is no relationship between the (LIR) on (PR) with its variables [(ROA), (EPS)], in the (CB) listed on the (ASE).

Testing the  $H_{01-1}$  which states:

$H_{01-1}$ : There is no relationship between the (LIR) and the (ROA) in the (CB) listed on (ASE).

The results of Table 1 suggest that (LI) adversely affects (ROA). When (LI) increases by one unit in dinars, the (ROA) decreases by (1.420%), and thus turnover of total assets is achieved since keeping money means increasing assets that generate returns and thus achieving (PR). For (CB) listed on the ASE, 4% of changes in the dependent variable (ROA).

**Table 1** Results of testing the  $H_{01-1}$

Variable liquidity	Coefficient	Prob	t-statistic	Std. error
ROA	− 0.142080	0.019689	− 7.216067	0.0000
R-squared	0.540814	Adjusted R-squared	0.409618	Observations 65

Accordingly,  $H_{01-1}$  that the (LIR) has no statistically significant effect on (ROA) in the (CB) listed on (ASE) is rejected. Moreover, the alternative hypothesis demonstrates that there is a statistically significant relationship between (LIR) and (ROA) in the (CB) listed on (ASE).

### Testing the $H_{01-2}$ which states

$H_{01-2}$ : There is no relationship between the (LIR) and the (EPS) in the (CB) listed on (ASE).

According to Table 2, (LI) negatively affects the (EPS)). If (LI) increases by one unit in dinars, the (EPS) decreases by ( $-0.008$ ), since the lack of profits means the bank cannot grow and invest in new projects, which results in a decrease in the share price in the market, statistically significant at a statistically significant percentage of less than 5%. In this model, the independent variables explain (56%) of the change in the dependent variable (EPS) for (CB) listed on (ASE) through the coefficient of determination.

Thus, the  $H_{01-2}$ , and the alternative hypothesis is accepted that there is a negative relationship at the significance level ( $0.05 \geq \alpha$ ) of (LIR) on the (EPS) in the (CB) listed on the (ASE).

### Testing the $H_{02}$ , which states

$H_{02}$ : There is no statistically significant effect, at the level of significance ( $0.05 \geq \alpha$ ), for the ratio of indebtedness to profitability represented by (return on assets, return on equity, return on earnings per share), in the commercial banks listed on the Amman Stock Exchange.

### Testing the first sub-hypothesis which states

$H_{02-1}$ : There is no relationship between the (D-ER) with its variables (ROA), in the (CB) listed on the (ASE).

Table 3 shows, the indebtedness (ROA) have a positive relationship. When the indebtedness increases by one unit in dinars, the (ROA) will increase by (0.1144%), with (sig 0.0132). Thus, the null sub-hypothesis that there is no statistically significant effect at the significance level ( $0.05 \geq \alpha$ ) is rejected.

The alternative hypothesis is accepted that there is an effect of the (D-ER) with its variables ((ROA), in the (CB) listed on the (ASE).

As indicated by the value of the coefficient of determination ( $R^2$ ), the independent variables in this model explain (54%) of the change in the dependent variable (ROA) listed on the (ASE).

**Table 2** Results of testing  $H_{01-2}$

Variable liquidity	Coefficient	Std. error	t-statistic	Prob
EPS	$-0.008536$	0.002948	$-2.894986$	0.0056
R-squared	0.560343	Adjusted R-squared	0.434727	Observations 65

**Table 3** Results of testing  $H_{02-1}$ 

Variable	DEBT	Coefficient	Std. error	t-statistic	Prob
ROA		1.440537	0.559929	2.572715	0.0132
R-squared		0.540814	Adjusted R-squared	0.559929	Observations 65

**Table 4** Results of testing  $H_{02-3}$ 

Variable	DEBT	Coefficient	Std. error	t-statistic	Prob
EPS		0.193769	0.084841	2.283907	0.0267
R-squared		0.560343	Adjusted R-squared	0.434727	Observations 65

### Testing the second sub-hypothesis which states

$H_{02-3}$ : There is no an effect for (D-ER) on the (EPS) in the (CB) listed on the (ASE).

As it is clear from the results of Table 4, there is a positive effect of indebtedness on the (EPS). As the value of the ( $R^2$ ) indicates that the independent variables in this model explain (56%) of the change in the dependent variable (EPS) listed on the ASE.

Thus, the third null sub-hypothesis is rejected, and accepted the alternative Hypothesis which states that there is an effect, (D-ER) on the (EPS) in the (CB) listed on the (ASE).

## 4 Results

The following results were obtained in agreement with the study's primary assumptions and sub-hypotheses:

1. Liquidity has a beneficial effect on the rate of (ROA) in (CB) listed on the Amman Stock Exchange. The variables in the study had a negative association, which means that a lower return on assets ratio was related with a larger liquidity ratio.
2. Liquidity has a statistically significant effect on the rate of return on earnings per share in commercial banks listed on the Amman Stock Exchange. As a result, the study's link between variables was portrayed as negative, implying that the higher the liquidity ratio, the lower the return on earnings per share, which is consistent with previous research [1, 2, 6, 7, 9], and differs from those of [3, 12].
3. At the significance level (0.05), liquidity has a statistically significant effect on the rate of return on assets in commercial banks listed on the Amman Stock Exchange. Where the study's variables had a positive effect on one another, the greater the indebtedness ratio, the better the return on assets ratio.

4. There is a statistically significant influence of liquidity on the rate of return on earnings per share in commercial banks listed on the Amman Stock Exchange at the significance level (0.05). Where the study's factors had a positive influence, it means that the greater the indebtedness ratio, the higher the return on earnings per share.

## 5 Recommendations

According to the researcher's findings, the following recommendations should be made:

1. A commercial bank should be able to direct its investments and exploit surplus funds in order to achieve returns while still maintaining the ability to meet its obligations.
2. By converting short-term investments into short-term financing sources, a balance is achieved between funds sources and uses.
3. Jordanian commercial banks should maintain sufficient liquidity while aligning profitability and liquidity management objectives.
4. Commercial banks should consider the recommendations of scientific research and its outputs in the field of financial and administrative sciences. Banks can be hindered and prevented from achieving their goals and achieving their strategic plans by ignoring such recommendations.

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# The Impact of Human Resource Management Practices on Achieving Institutional Excellence: A Case Study in the Ministry of Education/Jordan



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**Abstract** The aim of this study is to determine the impact of human resources management practices on the achievement of institutional excellence. Each of the human resources management practices are measured against five dimensions: (recruitment and appointment, training, performance evaluation, compensation, public health and safety) and institutional excellence. (250) employees of the Jordanian Ministry of Education took part in the study. Due to its suitability for the type of study, the descriptive-analytical approach is chosen in the study and through the (SPSS) program the corresponding statistical methods are used. (250) Questionnaires are distributed to all staff at the headquarters of the Ministry, but the number of respondents reached only (191) staff with a response rate of (76%), and the distribution mechanism was based on the comprehensive survey method using the (Google Form) program. The main finding of the study is that the dimensions of human resources management practices has a positive and significant impact on the achievement of institutional excellence in the Jordanian Ministry of Education as they help to improve the reality of institutional excellence in the case these measures are applied. The practices of human resources management in the ministry has a medium level of institutional excellence. The study concludes with a number of recommendations, the most important of which are: increase of attention of the Ministry of Education in the dimensions of human resources management practices for their influence in achieving institutional excellence at the level of the ministry, and allowing the Ministry of Education to attract and appoint staff with high credentials.

**Keywords** Human resources management practices · Achieving institutional excellence · Ministry of Education in Jordan

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## 1 Introduction

Institutional excellence, including quality and perfection, is one of the goals that organizations aspire to in order to ensure their survival and growth in the face of tremendous developments and changes, technological advances and increased competitiveness. It is considered one of the most important tools used by organizations to achieve the desired administrative and organizational changes, to effectively influence internal processes and to make the most of all the institutional and human energies that the organization possesses [1, 2]. Organizations of different types are interested in human resource management and building successful organizations took up a large part of their interest, especially given the increasing importance of human resources in these organizations, regardless of their level of development, and the role they play in various future development programs [3].

Today, business organizations are facing major challenges that affect their internal and external working environment, so companies cannot work without knowing the strengths and weaknesses of their internal environment, as well as the opportunities and threats to their external environment and human resources management is involved with One of the most interactive departments in its internal and external environment, since the human element is the basis for building and developing organizations and their success or failure depends on it [4, 5]. Human resources are the most important elements of work and production, as they carry out the process of creativity and innovation, design the product, supervise its manufacture, control its quality and market it and invest the capital, and without effective human resources, no organization can achieve its goals [6]. Therefore, organizations use multiple methods to achieve excellence and the most important of them is to work on the development of their human resources through different methods to induce learning, generate knowledge, install it and use it to achieve excellence and ensure the achievement of the organization's goals [7]. Accordingly, the study seeks to determine the impact of human resource management practices on achieving institutional excellence: a case study at the Ministry of Education in Jordan.

## 2 Study Problem

The most important and influential role that human resources management practices play is to bring about positive change and address many challenges that organizations face, be it in the internal environment or in the external environment in the field of work and in the main activity of the institution, especially the challenges related to its Competitiveness, excellence and superiority over competitors. It also shows the extent to which the Ministry of Education needs to provide human resources with a high level of competence and sufficient competence to carry out its work efficiently and effectively. Therefore, the presence of a positive and attractive work environment is positively reflected in the performance of human resources to carry



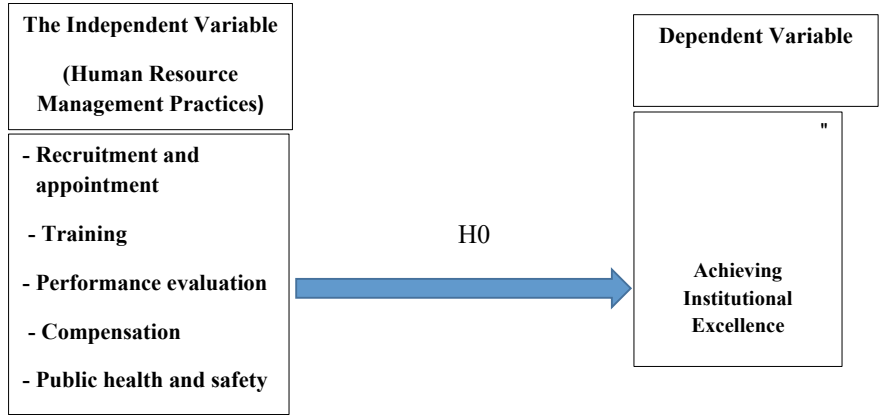


Fig. 1 Study model

out their activities effectively, since they can attract the best skills and satisfy their desires and needs, which helps improve their performance, and thus improve the overall performance of the organization. From this point of view, the study benefits the decision-makers and those responsible for human resource management in the studied Ministry of Education, and the study examines the following hypothesis:  $H_0$ : There is no statistically significant effect at the Significant (0.05) level for human resource management practices in its dimensions (Recruitment and Appointment, Training, Performance Assessment, Compensation, and Public Health and Safety) in achieving institutional excellence in the Ministry of Education in Jordan.

### 3 Study Model

See Fig. 1.

### 4 The Theoretical Aspect

#### 4.1 The Concept of Human Resources Management Practices

Abu Zaid [8] defines it as: (the administration that, through its activities and events represented in planning, recruitment, appointment, training and compensation, guarantees access to the best human resources in a way that meets the needs of the organization of qualified employees covers human resources, present and future, and their wise use and preservation). Dahie and Mohamed [9] defined it as: (a set of

organizational activities aimed at managing a group of human capital and ensuring that this capital is used to achieve organizational goals), and Abu Assaf and Al-Marei [10] defined it as (the work related to managing the workforce of organizations or human resources and deals with recruiting employees, selecting, training, evaluating and rewarding employees, as well as monitoring the leadership and organizational culture of the organization and ensuring the Compliance with Labor Laws.

Al-Qarala [11] defines it as: [a coherent and integrated set of practices (recruitment, appointment, performance appraisal, training and development, incentives, rewards and empowerment) through which human resources are optimally utilized and purposefully developed to achieve the organizational, individual and societal goals]. In the foregoing, the researchers define under it a set of policies that affect the behavior and performance of employees, develop their skills and improve cooperation between them to find ways of developing the Ministry of Education.

## ***4.2 Dimensions of Human Resource Management Practices***

### **4.2.1 Recruitment and Appointment**

This task is one of the most important tasks that needs to be done accurately and efficiently with the organization's human resource requirements. Selecting a person who has the necessary competencies and skills and appointing them to the right place is the basis for the success of the organization and increasing its business and competition with other organizations [12]. The recruitment process also negatively impacts the organization when inappropriate personnel are hired, no matter what the stage of employment, always being primarily about recruitment processes for selecting and appointing people [13, 14]. This process takes place in finding the human resource that is available in the job market and selecting the appropriate category based on job applications, selection, face-to-face interviews and other appropriate recruitment methods to put the right person in the right position. This process is among the essential procedures performed by the human resources department of a public organization, along with recruitment, selection and appointment [15]. The researchers believe that since the human factor is the most important element of production, the importance of recruitment and appointment activity is based on the fact that it provides good workers with good skills that can be used to achieve the goals of the institution. Ideal organizations, good working methods and excellent equipment cannot achieve the goals without a good and efficient worker able to perform and give.

### **4.2.2 Training**

Training is defined as: a process of positive change that addresses the behavior of individuals from a professional perspective, to acquire the knowledge and experience

that a person needs and to provide them with the information they lack and the appropriate direction to work and management [16, 17]. Training is one of the activities that enhance workers' current and future skills and abilities. Apprenticeship differs from education in that apprenticeship focuses on enhancing skills and abilities associated with a particular occupation, while education expresses an increase in knowledge and perceptions not necessarily associated with a particular occupation [6].

#### **4.2.3 Performance Evaluation**

It is a goal-oriented activity that aims to continuously improve the performance of individuals and contribute to the achievement of organizational goals by observing, measuring, and recognizing the behaviors, skills, and trends that individuals exhibit while working and using comparing them to what is expected and helping to continuously develop them [18]. He also defined it as: constant and continuous observation of individuals and gathering of information on how they perform the work entrusted to them to determine how their technical ability, mental and physical abilities, and behavioral characteristics correspond to the type of work they are doing, using objective indicators and criteria for standard performance, to determine the strengths and weaknesses of their performance, to determine the quality of training programs and the nature of possible incentives and rewards adopted to develop performance efficiency at the level of individuals and the organization alike [19].

#### **4.2.4 Compensation**

Compensation is a set of tools that the organization makes available to workers to encourage better performance. Compensation aims to satisfy workers in one way or another so that they can put in a lot of effort [20] and Al-Serafi [21] defines it as: everything that the organization needs Offers workers to challenge them to work by providing them with material and moral incentives that encourage them to present work in an elaborate way, as defined by Al-Faris [22] as: the method by which the organization urges the individual to perform a specific behavior, stop it or change its course, as it is an internal feeling in the individual that creates the desire to engage in a specific activity or behavior, to achieve the goals of a society. Al-Sawy and Al-Dabbagh [23] and Sanad and Al-Sartawi [24] defines it as: the means by which the organization can meet the needs and desires of workers and move their motives, which affects their job performance.

#### **4.2.5 Public Health and Safety**

The concept of health and safety at work changed human resource management and added a new role to it, ensuring the protection of workers from unsafe working conditions, especially in working conditions that require physical exertion. These standards

have become part of the rights of working individuals and there are organizations that are specifically concerned with this issue [25, 26]. Safety requirements range from providing safe working conditions that protect workers from occupational risks to those that promote the provision of an attractive work environment, such as a workplace, job stability, as a form of safety and security. The importance of this policy is increasing, especially in organizations where many of their jobs involve high levels of risk, which may be psychological or physical [6]. The researchers believe that the importance of occupational health and safety management is reflected in the benefits that the company receives when applying its standards and requirements, since it provides a healthy and healthy environment for working individuals and increases the efficiency of the production process, prevents compensation from being paid to individuals in accidents, increases the organization's ability to achieve its goals and interests, creates in the employee a state of trust and belonging to the organization because of their care for them and their health issues, and occupational health and safety draws the organization among their competitors and achieve best international practices for them [27].

### ***4.3 The Concept of Institutional Excellence***

Khaled [1] defines organizational excellence as: Organizations that invest in critical opportunities, preceded by effective strategic planning and a commitment to the realization of a shared vision, defined by clarity of purpose, adequacy of resources and willingness to perform is dominated by Mansi [13] as: the ability of an organization to outperform competing organizations by adhering to a strategic plan and delivering unique performances to achieve the best results, based on the core principles: results orientation, attention to people, leadership, unity of purpose, operational leadership, workplace development and engagement, and building strategic partnerships in a way that differentiates them from competing organizations. Al-Amiri and Hussein [28] and Karolak et al. [29] defined institutional excellence as: the extent to which the organization is able to meet the needs of stakeholders, which are all entities, individuals and groups directly and indirectly involved associated with the organization. In other words, it means the extent to which the objectives of programs and activities in the services provided by the organization are achieved in a manner that achieves the satisfaction of society as the main beneficiary of its existence. Institutional excellence refers to the ability to harmonize and coordinate the elements of the organization and operate them in an integrated and interdependent manner in order to achieve the highest rate of effectiveness and thus achieve the level of performance that meets the organization's desires, benefits and expectations Satisfies stakeholders associated with the organization [30], and institutional excellence is defined as: a state of administrative creativity and organizational excellence that demonstrates a level of unusually high performance and execution of manufacturing, marketing, financial and other Operations achieved in the organization leads to results and achievements superior to those of competitors and customers are satisfied [13]. Institutional

excellence is a process by which organizations attempt to utilize the opportunities available to them, which is preceded by planning and performance orientation, since institutional excellence leads to high quality in products and services, higher rates of productivity, and a reduction in the cost of performance and a reduction in costs for avoiding errors, defects, waste and rework [31, 32].

The study by Al-Ajeeb et al. [33] concluded that strategic thinking in its dimensions (future thinking, systemic perspective, formulation of hypotheses, intelligent use of opportunities, strategic intention and dynamic thinking) has an influence over organizational excellence in its dimensions together (distinguishing the possibilities and distinguishing the results). Al-Zubaidi and Al-Samarrai pointed out in their study that governance is important in its dimensions (the economic dimension, the ethical dimension and the environment), has an impact on the excellence of Iraqi private universities.

## **5 Method and Procedures**

### **5.1 Study Population**

The size of the study population was (250) male and female employees working in the Ministry of Education—the headquarters.

### **5.2 Consistency (*Internal Consistency*)**

#### **5.2.1 Internal Consistency**

It is clear from Table 1 that the values of the Cronbach alpha coefficients ranged from (0.729 to 0.922) and all exceeded the minimum value of (0.7) allowed for the assumption of the stability condition. Therefore, it can be said that the paragraphs of the questionnaire enjoy internal consistency.

**Table 1** Results of the internal consistency analysis of the Questionnaire

No.	Dimensions	The number of paragraphs	Cronbach alpha coefficient
1.	Recruitment and appointment	6	0.800
2.	Training	5	0.807
3.	Performance evaluation	5	0.805
4.	Compensation	5	0.841
5.	Public health and safety	5	0.729
6.	HRM practices (independent variable)	26	0.917
7.	Institutional Excellence (dependent variable)	24	0.922
	Aggregate scale	50	0.968

## 6 Hypothesis Testing

### 6.1 *Testing the Suitability of the Study Model for the Used Statistical Methods*

#### 6.1.1 Test the Normal Distribution of the Data

It is clear from Table 2 that the skewness values range between  $(-1, +1)$ , indicating that the normality condition of the data is satisfied, and that the significance level values for the dimensions of the study are in (Smirnov–Kolmogorov SampleTest One test) are all greater than (0.05), confirming that the dimensions of the study follow a normal distribution.

**Table 2** The test for the normal distribution of the study data

No.	Dimensions	Torsion modulus	K–S	Sig
1.	Recruitment and appointment	0.217	1.029	0.1070
2.	Training	– 0.897	1.130	0.236
3.	Performance evaluation	0.229	0.933	0.2560
4.	Compensation	0.130	0.800	0.1180
5.	Public health and safety	– 0.128	0.987	0.2330
6.	Excellence in providing service	– 0.260	1.294	0.2950
7.	Technological excellence	0.408	2.123	0.2780
8.	Excellence in quality management	– 0.736	0.819	0.1920

### 6.1.2 Multicollinearity Test

From Table 3 we find that there is a discrepancy in the values of the correlation coefficients between the dimensions of the independent variables and that the values range between (0.483 and 0.663) and are all less than the value of (0.8). Variance Inflation Factor (VIF) and Tolerance Coefficient to ensure dimensions are free from this phenomenon, so (VIF) values should be less than (10) and tolerance values should be greater than (0.1). Table 4 shows the results.

The results shown in Table 4 make it clear that all the variance inflation coefficients for the dimensions of the independent variables are less than (10) and the tolerance coefficient is greater than (0.1), which is an indication that the data are free from the phenomenon of multiple linear correlation.

**Table 3** Correlation coefficients for the dimensions of the independent variable (correlation matrix)

Dimensions	Recruitment and recruitment	Training and development	Performance appraisal	Compensation	Public health and safety
Recruitment and appointment	1	0.663**	0.543**	0.504**	0.594**
Training and development		1	0.483**	0.616**	0.654**
Performance evaluation			1	0.502**	0.609**
Compensation				1	0.648**
Public health and safety					1

\*\*Function at the level of significance (0.01)

**Table 4** Variance inflation factor (VIF and tolerance)

Variable	Inflation factor (VIF)	Tolerance
Recruitment and appointment	5.293	0.1890
Training	6.845	0.1460
Performance evaluation	5.867	0.1700
Compensation	3.638	0.2750
Public health and safety	2.109	0.4740

## 6.2 Testing the Study Hypothesis

The hypothesis is tested by multiple linear regression analysis at the ( $\alpha \leq 0.05$ ) level of significance. The following Table 5 shows the results.

The tabular value of F is (2.26) at degrees of freedom (5/184), and when a comparison is made with the analysis of variance value for the calculated F-test, which amounted to (51.828), we find the calculated value higher than the table value and thus we prove the significance of the regression model and the significance level of the test is (0.000) which is less than the value of the study approved significance level, therefore we reject the main hypothesis and accept the alternative stating: At a significant level ( $\alpha \leq 0.05$ ), there is a statistically significant effect of the impact of human resource management practices in its dimensions (recruitment and appointment, training, performance evaluation, compensation, and public health and safety) on achieving institutional excellence in the Ministry of Education in Jordan from the value of R the value of the correlation between the dimensions of the independent and dependent variables; Table 5 notes that there is a strong positive correlation between the dimensions of the independent variable (recruitment and appointment, training, performance appraisal, compensation, and public health and safety) and the dependent variable, with a value of  $r = 0.764$ .

The value of the coefficient of determination is ( $R^2 = 0.583$ ), which indicates the explanatory power of the combined dimensions of the independent variables: (recruitment, appointment, training, performance evaluation, remuneration, and public health and safety) of the dependent variable. and points out that the dimensions of the independent variables can explain that their percentage (58.3%) depends on the achievement of institutional excellence, while the adjusted coefficient of determination ( $R^2$  adjusted) was (0.572) and the difference between it and the coefficient The determination is (0.011), which is a very low value indicating that the ability of the independent variable dimensions to predict the dependent variable is acceptable.

It is also clear from the table that the value of the significance level for the dimensions of the independent variables (training, performance assessment, and public health and safety) is statistically significant at the significance level (0.05). They are (0.000), (0.009), and (0.032), respectively, and we conclude that they have a statistically significant impact on achieving institutional excellence.

The results from Table 5 show that the dimensions of recruitment, appointment and compensation do not have a statistically significant impact on the achievement of institutional excellence, as the significance level of the variables is greater than (0.05).

The value of the constant B is (1.007), which is required to create the regression equation for the dimensions. After reviewing the above results, it is clear that the regression equation for the hypothesis is:

$$\text{Achieving Institutional Excellence} = 1.007 + 0.103 \text{ training} \\ + 0.337 \text{ evaluation of the performance}$$



**Table 5** Results of hypothesis testing

Dependent variable	Model summary			Variance analysis ANOVA			The independent variable dimensions of human resource management practices	Regression coefficients						
	R correlation coefficient	The coefficient of determination R <sup>2</sup>	Adjusted R <sup>2</sup>	F calculated	Degrees of freedom	Significance level sig		B value	T value	Significance level sig				
Institutional excellence	0.764	0.583	0.572	51.828	5	0.000	Recruitment and appointment	0.059	0.677	0.499				
					184						Training	0.103	2.109	0.009
											Performance evaluation	0.337	3.859	0.000
											Compensation	0.085	1.193	0.234
				190		Public health and safety	0.120	0.743	0.032					

**Table 6** The results of the gradual linear regression analysis of the hypothesis

Form	Human resource management practices	R	R <sup>2</sup>	F calculated	Significance level sig
1	• Performance evaluation	0.833	0.694	428.010	0.000
2	• Performance evaluation • Training	0.844	0.712	231.998	0.000
3	• Performance evaluation • Training • Public health and safety	0.849	0.720	160.482	0.000

+ 0.120 Public health and safety

Stepwise regression analysis is used to find out which of the dimensions of the independent variable better explains the dependent variable. Table 3 shows the results of the linear stepwise regression test.

The results in Table 6 show that there are three groups of dimensions of the independent variable that have an impact on the dependent variable, and that each group differs from the other in explanatory power. (69.4%), which is the highest score among the dimensions of people management practices when interpreting excellence in service delivery. The value of explanatory power increases in the second group after the training variable is added to the first group, and thus the explanatory power of the second group increases to (71.2%). It is concluded that education possesses the second explanatory ability to distinguish service delivery, while the last group is formed by the addition of the variable ‘public health and safety’, increasing the group’s explanatory ability to (72%) and hence the public Health and safety is the weakest explanatory variable of the dimensions of human resources management practices.

## 7 Findings and Recommendations

### 7.1 Results

The dimensions of human resources management practices affect the achievement of institutional excellence in the Jordanian Ministry of Education, as applying these dimensions helps improve the reality of institutional excellence. The results indicate that the relationship between the dimensions of human resources management practices plays an important role in achieving excellence, as the relationship between the two variables is positive. Additionally, the dimensions of human resource management practices are responsible for achieving (58.3%) organizational performance excellence. The results show that training, performance evaluation, and public health and safety as one of the dimensions of human resources management practices have

a statistically significant impact on organizational excellence, while compensation, hiring, and appointment have no impact on achieving institutional excellence.

## **7.2 Recommendations**

### **7.2.1 Recommendations Related to Human Resource Management Practices**

- Increase the interest of the Ministry of Education in the dimensions of human resources management practices due to their impact on achieving institutional excellence at the ministry level, through the creation of committees specialized in human resource development, in addition to establishing the necessary plans to improve practices to follow up and overcome the Difficulties faced by the activities identified by the Committee.
- Allow the Department of Education to acquire and appoint competencies through the purchase of contracts. This system is not subject to the terms of the Bureau of Civil Service and allows the Ministry of Education to attract skills and people with expertise in human resource development to work to improve them.
- Increase in appropriations for training activities to enable the Ministry to engage as many Ministry staff as possible in technology-related training courses to improve their performance and technological skills, and to use those skills to improve performance.
- Update the criteria for evaluating employee performance to include creativity and innovation and the extent of their contribution to the development of work, and seeking material and moral incentives that help encourage employees to come up with amazing ideas.
- Regularly and continuously reviewing public health and safety standards and working to evaluate their performance and availability, and increasing commitment to delivering these standards to ensure the safety of employees and to provide a work environment that maintains a high level of public safety enjoy.

### **7.2.2 Recommendations Related to Achieving Institutional Excellence**

- Conducting surveys aimed at employees to find out their satisfaction with the quality of the services provided. In addition, the needs of the employees are determined and work is carried out on their further development.
- Developing tools to monitor performance by empowering the internal control department and using technology in the monitoring process In addition to establishing measurable indicators for monitoring.

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# Water Environmental Crimes and Their Countermeasures in Comparative Law



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and Ahmad Abdulkadir Ibrahim

**Abstract** The focus of this analysis is centered on the subject of environmental offenses and preventative measures in both domestic criminal and administrative regulations, including the capacity for administrative supervision, as well as international laws. The research problem lies in the difficulty of identifying the appropriate legal documentation stipulated for dealing with water environmental crimes due to their intricate and overlapping nature. The primary objective of this research is to establish a legal framework for safeguarding the environment by specifying and recognizing the requisite legal documentation needed to ensure adequate protection. This examination concludes with a set of recommendations and conclusions; the most noteworthy is the differentiation between international and criminal liability, as each criminal system possesses its own sentencing procedure depending on the criminal offence and the perpetrator involved in environmental damage.

**Keywords** Water environment · Legal protection · Environmental crime · Environmental damage · Environmental security

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## **1 Introduction**

Environmental crimes and the countermeasures they entail are the central focus of this investigation. An exploration into both domestic criminal and administrative laws, alongside the powers of administrative control, will shed light on the international laws involved. The complexity and overlap of water environmental crimes pose a challenge to the establishment of applicable legal texts to address them, which this study aims to overcome by developing a legal framework for environmental protection. Upon conclusion, the study presents recommendations, notably the differentiation between criminal and international accountability. Furthermore, each criminal system prescribes its own penalties law, varying depending on the offender and the criminal act committed against the environment.

### ***1.1 Problem Statement***

The water environment's criminal protection has become a much greater challenge due to its increasing pollution and complexity. It is essential to conduct research and studies to pinpoint the causes and resolutions, emphasizing the vital alignment between legal protection and water environmental conservation.

### ***1.2 Significance of the Study***

Water environment holds immense significance and the consequences of its degradation are severe. In an effort to understand this, the study has been split into two parts. The initial one deals with the legal aspects of water environmental crimes, followed by the second one which concentrates on criminal responsibility concerning environmental crimes.

## **2 The Legal Nature of Water Environmental Crimes**

In the world of law, an increasingly crucial topic is the safeguard of water environments from pollution. This is no coincidence, as the aquatic environment is inherently valuable. Protection is a must, as water environments harbor valuable resources such as minerals and fish, and can be a source of freshwater if desalinated. Additionally, their usefulness in transportation and transportation makes them one of the most efficient means available.

## **2.1 Definition of the Water Environment**

The world is under threat from the widespread pollution of its water environment, with coastal countries such as Algeria being among the worst affected due to their varied aquatic ecosystems. In an attempt to combat these severe crimes, legal mechanisms have been established to address this form of pollution specifically. This study illuminates the differences between pollution-related crimes and more traditional crimes, emphasizing the need for targeted legal measures [1].

### **Definition of the Water Environment**

The space we live in can be broadly understood in a few ways. One definition focuses on the physical aspects, encompassing features like geography, weather, and the composition of the area. This definition also includes the life forms that inhabit the area. Ultimately, it shapes how people behave, what they do, and how they live. Another way to look at it is by thinking about the relationships and connections between living things and their environment. Everything from social systems to individual relationships can be impacted by this dynamic, driving movement and progress.

### **Sources of Water Pollution**

Such fluids as sewage, trash and laundry piling up in water are a type of human waste known to pollute natural water sources—an example of how humans can negatively impact our environment. Another instance comes from animals that live in water, adding to the contamination caused by human activity. Sources of pollutions could include:

- Sea-Dumping Hazards: Deliberate discarding of maritime or aircraft waste or materials into the ocean, coupled with the intentional jettisoning of maritime or aircraft items at sea.
- Nuclear weapons and bombs experimentation by military forces or industrial and research nuclear reactors are to found to be responsible for the spread of radioactive materials leading to radioactive pollution [2].

Due to various reasons as specified in Article 3 [3], water pollution with oil can arise from waste disposal, damaged oil pipelines, oil spills near water bodies, accidents during oil extraction, or accidents involving oil tankers.

Water quality control laws vary depending on the water resources being considered. It is not uncommon for laws governing surface water, groundwater, and drinking water to have differences. When it comes to drinking water systems, the focus of the law is typically on maintaining human health standards. However, other laws that govern water resources take a more holistic approach by attempting to limit changes to the chemical, physical, radioactive, and biological properties of water. The ultimate goal of these laws is to preserve the larger aquatic ecosystem. Water pollutants must be classified and identified while implementing limitations on their



discharge from liquid waste sources and acceptable concentrations in water reservoirs. To regulate industrial and agricultural wastewater, the management of sewage disposal and flow control of surface water from urban regions and construction sites are important compliance areas. These regulatory efforts are crucial [4].

## ***2.2 Legal Basis for Environmental Crime and Its Impact***

Regulating the ownership and use of water resources such as groundwater and surface water falls under the scope of water resource laws. Resource conservation is a common regulatory focus, as well as implementing limitations on water usage and property systems.

## ***2.3 Criminal Basis for Water Environmental Crime***

International efforts have been made to regulate water pollution, caused by the historical dumping of domestic and industrial waste into seas and rivers due to economic activities. Transboundary effects have resulted from pollution from a variety of activities. These efforts ensure that international watercourses are used in a clean and safe manner. The consumption of contaminated seafood can result in various diseases and environmental crimes related to water pollution can cause significant harm, including serious health issues [5, 6]. It is tough to determine who is to blame for harm resulting from transboundary pollution, which can make criminal protection for water environments less effective. The environmental impact of this type of pollution always immediate, either. Identifying the culprit can be a real challenge, especially when the pollution comes from various sources, further undermining efforts to hold someone accountable. In fact, it is a fundamental principle of criminal responsibility that someone be identified as responsible for harm, but in the case of transboundary pollution, this is easier said than done.

## ***2.4 Impact of Water Environmental Crime***

The transboundary aspect is a prominent feature of environmental infringements and should not be disregarded. The far-reaching implications of these crimes create numerous hazards and affect countless people. The environmental repercussions are frequently difficult to gauge due to their widespread reach across borders and regions. In light of the staggering damages caused by such offenses, the affected country cannot develop remedies alone. It is essential to seek worldwide cooperation in limiting the spreading and effects of these crimes to prevent significant setbacks [7–9].

To maintain environmental equilibrium and safeguard their domestic matters, states are granted exclusive rights to tap into their natural resources and possessions without spontaneous intervention as per the principle of state sovereignty. Nonetheless, if such endeavors inflict misery on others, it is a different story [14]. Pollution, for instance, is not restricted to a country's limits but rather spills over into regions that lack affiliation with any nation-state [10]. One country can cause pollution that affects other countries, which is called transboundary pollution. In 1973, Principle 17 of the Stockholm Declaration emphasized that states have a responsibility to prevent environmental harm to areas that are beyond their national jurisdiction. This principle specifically addresses the issue of pollution that originates from one country and affects others.

Various dimensions of global development suffer from severe repercussions caused by harmful environmental actions, hindering the progress and advancement of different countries and leading to stagnation in various sectors. The law of international development, as defined by international law, is a set of legal principles and rules that react to the solidarity, sovereignty, peace, and development needs of developing nations, and it has become part of customary international law.

The detrimental repercussions of such actions inflict long-term harm upon damaged countries, upending native ecosystems across multiple domains, including human well-being, edibles, societal structures, and financial markets. The nation of Sudan within the African continent is currently grappling with these outcomes, brought about by the shift in global climate [15]. The parched lands, as an illustration, have culminated in the demise of numerous cattle and the annihilation of vast swathes of once-productive farmland, triggering the decay of agrarian communities, predictable disparities, and a zealous encroachment into shriveling foliage to survive. The aftermath has led to the proliferation of desert areas, an occurrence that impels the populace to embark on a mass trek. The harm caused by environmental damages can occur in various ways, not just in one form. It can accumulate slowly over several incidents or happen at once, leaving its effects to spread far and wide. As stated in [11], it is essential to note the unrestricted and far-reaching consequences of such occurrences.

Among the international community, national security and global environmental stability are important considerations and are addressed by various United Nations resolutions and international agreements. This highlights the significance of protecting the global environment, which affects sustainable development. However, the inadequacy of effective punitive measures, which are mainly limited to compensation, diminishes the efficacy of these agreements. The lack of cohesive force in these agreements can be attributed to the disparities between the states classified as weak or powerful, poor or rich, and developing or manufacturing. There are also ongoing debates about environmental pollution and who should be held accountable. Furthermore, the notion of self-interest has undergone a transformation.

### 3 Criminal Responsibility for Environmental Crimes

Water environmental crimes cannot be treated differently than other crimes as they require legal, material, and moral components. The punishment for environmental water pollution crimes involves penalizing the culprit. But, there are non-criminal methods to protect water resources that need to be addressed.

#### 3.1 *Legislative Confrontation of Crime*

Establishing necessary protections for the environment has become a top priority globally. Countries and organizations alike have recognized the importance of addressing environmental issues, managing risks, and maintaining balance [12]. This section will showcase the various steps taken both externally and internally to assure the safeguarding of the environment. Nations and regions have come together to establish methods of combating environmental crime and disaster. The creation and enforcement of international environmental law, sprouted from instances of environmental wrongdoing, further highlights the dedication towards preserving our planet. Several international agreements have been concluded to decrease environmental pollution phenomena. This underscores the importance of regulations governing the international community to safeguard the environment.

The global community has expressed interest in the maritime disaster, given the impactful environmental harm to British and French territories. The governments of both nations paid a high price for cleanup efforts, with additional funds dispensed as compensation for affected citizens. Notably, we want to recognize Saudi Arabia's proactive steps towards preserving the environment. Being among the forerunners in the area of safeguarding the environment, the Kingdom is known for its constant endeavors to develop multiple measures and frameworks that guarantee a hazard-free and unpolluted ecosystem.

Occupying a place of great importance to the Kingdom, environmental protection receives a great deal of attention and care due to its strategic position both geographically and politically. With the second-largest oil reserves globally, ensuring the protection of the environment and resources is paramount to the Kingdom. Pollution and its effects are being fought by all available means.

#### 3.2 *Criminal Protection of Water Environment*

Criminal acts against the environment are no different from regular offenses at their core. To hold someone accountable for their crimes, there must be tangible evidence of their wrongdoing—mere thoughts or intentions are not enough to warrant punishment. This evidence can only come from three factors: the actual criminal behavior,

the resulting harm caused by the behavior, and the link between the two. In other words, a crime can only be charged when someone intentionally causes harm through their actions and when there is a clear connection between the act and the harm caused. By holding the responsible individual accountable for their actions, the crime is effectively carried out. The act of committing environmental crimes pertains to releasing substances or energy into the environment, inducing detrimental effects that not only jeopardize human wellness but also impair ecological substances, environmental frameworks, and object the valid purposes of the environment. On a broad spectrum, pollution in any of its forms constitutes environmental degradation, be it air pollution, water pollution, soil pollution, contamination through solid waste, or related sources [13].

Environmental crimes do not place as much emphasis on morals like regular crimes do. The focal point of morality is the criminal intent, which can be seen through the offender's intention and will to commit a criminal act. "The intention of the offender to commit an environmental pollution crime with knowledge of its elements, as required by the law" is what matters in the case of environmental crimes. Environmental pollution is a crime that can be committed either intentionally or unintentionally. For someone to commit this crime, they must have a clear understanding of its elements and direct their intent towards it. Intentional pollution can be seen in instances like forest fires, whereas accidents or negligence can result in pollution accidentally.

Based on the above, it is evident from Article 8 of the Maritime Environmental Law that:

1. In the maritime setting, it is mandatory for all forms of maritime transportation to maintain a pollution log. This log should include all pollution-related activities and accidents, such as the transport or release of pollutants, including:
  - To guarantee the well-being of maritime transportation, the protection of cargo and the rescue of people onboard; proper procedures must be followed for the disposal of oil solutions and other pollutants.
  - To record any cases of oil or mixture spillage or other contaminants with specifications of the volume and density of the oil or pollutants released and the extent of the release
  - Cleaning of tank and discharge procedures for ballast water on maritime transportation vessels.
2. In the maritime sector, the provider of maritime transport must offer up their pollution records to ministry officials who are authorized to oversee the process.

Environmental crimes require the presence of a material act to hold the perpetrators accountable, making the material element the heart of such offenses. To grasp the material aspect of crimes that breach the marine environment, we need to explore the various types and forms of environmental crimes, which we'll delve into in the next section.

### ***3.3 Non-criminal Protection of the Water Environment***

Compliance is ensured through various legal measures, mostly in the form of mandatory restrictions and obligations that are not to be defied. These measures include orders, bans, and prohibitions that are put in place for the protection of the environment.

- The legal measure of prohibition, which forbids the discharge of pollutants into water, is already in place. Oman's Environmental Protection Law of 2001 specifies that the disposal of hazardous materials, waste, and other environmental pollutants is illegal in certain areas, namely valleys, watercourses, groundwater recharge areas, rainwater and floodwater drainage networks, and springs. Additionally, ships are prohibited from discharging oil, oil mixtures, or any form of environmental pollutants into internal waters or regional waters.
- To ensure environmental protection, individuals may be obligated by law to perform certain actions and prohibited from violating these obligations. These actions include:
  1. To dispose of untreated sewage, one must obtain a permit under the law. This law prohibits the discharge of untreated sewage water into various areas, such as groundwater recharge areas, floods, or springs. Treated sewage water also requires permission from the ministry, with conditions set by the minister, to be discharged.
  2. Dumping waste into the marine environment is strictly prohibited without obtaining permission from the ministry, regardless of the materials' type, condition, or form. This law imposes an obligation on individuals to uphold this regulation.
  3. The Ministry must be notified immediately by the owner of any maritime facility, responsible captain, or those transporting oil, gas, or environmental pollutants within regional waters. Entities authorized for petroleum exploration, extraction, or use of hazardous substances in water are also bound by the same responsibility. The report must detail the incident's circumstances, the leaked substances' type and quantity, and the measures to halt or alleviate the spill.
  4. Maritime facilities, entities involved in natural resource exploration, and aircraft are only allowed to dispose of waste in specific areas that have been designated by the Ministry. This is due to the obligation imposed by the law to prohibit waste disposal in any other areas.
- The process for obtaining a permit is outlined in the Marine Environment Regulations, as the legislator required it to be a key part of creating a thorough environmental system. This emphasis on environmental awareness aims to encourage citizens to recognize the value of the environment, take steps towards preserving it, and safeguarding it.

One of the following actions can be taken by the Minister, as suggested by the acting minister:

- Conduct experiments and studies in regional waters and acquire samples of marine organisms available in them by allowing a designated entity to conduct marine environmental research.
- Establish marine research stations and scientific research vessels by issuing licenses.
- If it is discovered that any of the guidelines and protocols for marine life preservation are being violated, then it is permissible to withdraw or modify all licenses or permissions provided in accordance with subsections (A) and (B) of this clause.

## 4 Conclusion

The disruption of nature and environmental crime are major global concerns that cause great pain and damage. All nations, groups, and people have a duty to safeguard the natural order from destructive actions that jeopardize its vital role in sustaining life. Thus, it is crucial to create more effective safeguards and regulations to secure environmental preservation, which is fundamental to the ongoing development and success of societies.

### 4.1 Results

1. Environmental crime, considered among the most perilous of crimes globally due to its physicality, poses a significant threat to the longevity and welfare of individuals and communities. The primary hindrance standing in the way of preservation efforts is the lack of awareness of its repercussions. A host of facets like health, education, and the economy are negatively impacted by environmental pollution, signifying the impact on human interests as the environment is the bedrock of human subsistence and growth.
2. Penal laws for environmental crimes may vary across legal systems, highlighting the divergence between international and criminal accountability. The goal remains constant - to safeguard the environment. Nonetheless, international responsibility for such offenses suffers from a deficit of stringent and effective punitive measures aside from offering damages or compensations to governments that violate environmental standards or abuse their privileges to the detriment of their peers.

## 4.2 Recommendations

1. Protecting the environment is an undisputed objective of legal systems that differ in their penal codes against ecological transgressions. Our analysis reveals the limited scope of international accountability for environmental crimes. The lack of forceful deterrence measures beyond restitution or indemnisation to nations that abuse environmental principles or exploit their privileges for harmful purposes is an evident shortcoming.
2. Establishing a lucid and comprehensive law that outlines the consequences of unlawful actions affecting the environment should be a top priority for the International Criminal Court, as it possesses the authority to handle such cases. As a further measure, it is suggested that lawmakers introduce punitive measures in addition to financial reparation, including cessations of operations at the facility or cessation of work for a certain time. When pollution is caused by an individual's conduct, punishment may entail confinement and work suspension, or enforcing the restoration of the prior state at their own expense.
3. Imposing technical environmental standards globally, even in areas without governance, is crucial in the pursuit of environmental safety. A specialized group that regulates environmental practices should be created to monitor global environmental offenses and report them to the judiciary.

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# The Legitimacy of Combining Compensation and Blood Restitution in Jordanian Legislation: A Comparative Study



Mohammed Muslim Alzawahreh, Ali Salman Basbous, and Sohail Alahmad

**Abstract** The legal specifications regarding compensation and blood restitution in Jordanian law need clarification, as certain ambiguities persist. Shedding light on the legal basis, scope and nature of said terms is the primary objective of this message. Another goal is to expound upon the regulation of combining compensation and blood restitution, and the permissible limits of its application concerning material and moral damages. The focal point of the research was determining the position of Jordanian policymakers regarding the feasibility of providing dual compensation to the victim, involving civil compensation and blood restitution. This led to several legal verdicts by the Sharia and regular courts being vastly different, creating an inconsistency in judgments. Some courts supported the merging of the two compensations, while others opposed it. By utilizing both descriptive and analytical tactics, a study was conducted to examine the rules governing compensation for damages in Jordanian civil law, including those for blood restitution. This analysis took into account various other legislative documents in Jordan as well as relevant judicial verdicts. The inclusion of provisions for compensation in civil law was a noteworthy outcome of the study, indicating that the Jordanian legislator recognizes both contractual and tortious liability as a form of civil liability. However, the study also highlighted the need for clearer legal language pertaining to blood restitution, particularly in relation to the combined use of blood restitution and compensation.

**Keywords** Legitimacy · Compensation · Blood restitution · Jordanian legislation

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## 1 Introduction

Compensation for harm suffered by the injured party is a must under Article 256 of the civil law in Jordan. This legal stipulation stands regardless of the offender being identified. The intention of compensation is to alleviate the loss or harm endured. Article 273 of Jordan's civil law includes the imposition of "diyah" for deliberate criminal acts against individuals or property, according to the Ottoman Penal Code serving as the origin for Jordanian civil law. These updated measures with respect to tort liability regulations have been included by the Jordanian legislature.

The legal nature of blood restitution has been disputed in Islamic jurisprudence, with some viewing it as a form of compensation, punishment for causing harm, or a blend of both. This disagreement creates the problem of whether the injured or their heirs can receive both blood restitution and compensation. The Jordanian Court of Cassation has recently forbidden combining blood restitution and compensation, sparking conflict with religious courts that distinguish between the two. A solution is needed to address jurisdictional clashes between secular and religious courts.

Beneath this disagreement lies a core conflict rooted in the opposing approaches of Islamic Sharia and secular laws towards punishment and compensation. Over time, Islamic Sharia evolved from strict *hudud* and discretionary *ta'zir* penalties to an all-encompassing system wherein compensation is guaranteed for all harm inflicted by others. On the other hand, secular laws make a clear distinction between criminal law penalties and civil law compensation for damages. The differences between these two legal systems are what sparked this conflict.

### 1.1 Significance of the Study

Defining the concepts of blood restitution and compensation and exploring the possibility of them being combined is the primary focus of this study. Uncovering the relationship between the two and referring to jurisprudential theories gives this work significance. Noteworthy as well, it dives into the Jordanian judicial interpretations on the matter. The aim is to bring about consistent judicial decisions across the board to ensure transactional stability while resolving any disputes of legitimacy in merging compensation and blood restitution between secular and religious courts.

### 1.2 Research Problem

Jordan's judicial system has encountered discrepancies in rulings due to the inadequacy of Article 273 in civil law, which fails to address the combination of blood restitution and compensation. This issue necessitates research to explore its resolution.

### ***1.3 Research Questions***

Including several questions, this study addresses:

- Blood restitution and compensation, what do they mean?
- Regarding the combination of compensation and blood restitution, why do Jordanian courts disagree on whether it is allowable or not?
- Jordanian legislation sets rules for compensation and blood restitution, but what grounds do they have?

### ***1.4 Study Objectives and Justifications***

Aiming to contribute its findings to the relevant body of knowledge, this study seeks to:

- Jordanian legislation would like to have the concepts of compensation and blood restitution defined in a clearer manner. It is also important to establish their scope within the laws.
- Blood restitution and compensation have legal grounds. What are these grounds?
- Theorize about the intermixing of blood restitution and compensation or its outright dismissal in the realm of jurisprudence.
- In this matter, we must provide the interpretations offered by Jordanian courts—both the judicial Court of Cassation and the religious courts.

### ***1.5 Research Methodology***

In order to properly explore the topic at hand, both descriptive and analytical methodologies will be employed throughout this study. Specifically, the texts regulating compensation for damages under Jordanian civil law and the related provisions of blood restitution will be analyzed in great detail. Beyond this, other relevant legislation within Jordan will also be considered, as well as judicial rulings pertaining to this issue. To further enhance the overall investigation, a comparison between the legal systems of compensation and blood restitution outlined in Jordanian legislation will be conducted and contrasted with the position taken by Islamic jurisprudence.

## **2 The Concept of Compensation and Blood Restitution**

Defining the concepts of blood restitution and compensation, as well as outlining the legal foundation for these in Jordanian legislation, is the aim of this study. The researcher will pursue this goal throughout their research.

## ***2.1 The Concept of Compensation and Its Types***

In this section, we will delve into identifying and categorizing compensation according to Islamic law and legal standards.

### **Definition of Compensation**

According to Mohammed ibn Makram Al-Afriqi's Ibn Manzur, the Arabic term "Al-Iwad" indicates substituting, and it is believed that someone has recompensed another person when they provide something in exchange for what was taken from them [1]. From an Islamic viewpoint, Islamic scholars have delineated various meanings of reparation, such as Mahmoud Shaltout's interpretation of it as "the money imposed on someone who has caused harm to another's person, property, or honor" or Al-Zahili's explanation as "compensating for the harm caused by transgression or error," with civil liability following the doctrine of non-equivalence of destruction with its equivalent [2]. "Compensation" is a term described by Dr. Abdul Majid Al-Hakim as payment equal to the loss and missed profits caused by damage. This encompasses any monetary or equivalent compensation [3]. Nonetheless, compensation can be presented as non-cash in-kind, or transactional compensation either in cash or exchange as mentioned by [4].

### **Types of Compensation in Jordanian Civil Law**

Aiming to remedy or mitigate harm, compensation is a consequence of civil liability that isn't intent on punishing the individual responsible or enriching one's self at their expense. There are various forms of compensation, such as:

- **First: In-kind Compensation**

Returning the injured party to their pre-accident or injury state is the goal of this form of compensation which strives for complete damage restoration [5]. In accordance with the Jordanian Civil Law's Article 269, it is written that "compensation can be doled out monetarily. However, if it is deemed necessary by the court based on the circumstances and at the request of the harmed party, the reinstatement of their previous situation will be ordered." This law, specifically No. 43 of 1976, is in place throughout Jordan.

- **Second: Compensation in Exchange**

Compensation comes in two forms: non-cash and cash compensation.

#### **1. Cash Compensation**

Whether it is harm of a material or moral nature, cash compensation is the most preferable mode of remediation. It is the suitable method for compensating all sorts of harm. Only when the victim prefers it will non-cash or in-kind compensation be used. Cash compensation reimburses all kinds of harm, be it either material or moral.

#### **2. Non-cash Compensation**

Typically, non-cash compensation applies to the blow to one's reputation and honor that moral damages inflict. Such injuries consist of insult, false accusations, slander, and defamation. It is worth noting that the judge cannot order non-cash compensation until the harmed party explicitly requests that they receive a sum of money as compensation for the suffering [6]. Compensation that is not monetary is usually given to remedy harm done to a person's reputation and dignity, such as insulting remarks, false allegations, defamation and slander. It's significant to understand that the injured party must ask for non-monetary compensation, as the judge cannot enforce it without a request.

## ***2.2 The Concept of Blood Restitution***

### **Blood Restitution in Language**

"I paid the Diya of the deceased," is a common statement that indicates fulfilment of owed due. The word "Diya" is actually derived from "wada," which means "to pay off". This compensation is the right of the victim and is referred to as "Diya" [1].

### **Blood Restitution in Islamic Jurisprudence Terminology**

The concept of blood restitution has been defined in various ways, and this study will examine its definition in Islamic jurisprudence. According to the Hanbali school, blood restitution refers to compensation paid to the victim or their guardian following a crime. Alternatively, Al-Shirbini, a Shafi'i scholar, characterized it as money owed for wrongdoing committed against a free person, whether during their lifetime or after [7]. "Money due for the killing or wounding of a free human being", according to the Maliki school, is not determined through personal interpretation but through Sharia law. This "money" is specifically for compensation related to bloodshed. "Arsh" is a term used in the Hanafi school to describe the monetary compensation for a crime that results in something less than loss of human life. Essentially, it is money that acts as a substitute for a life [8]. As a replacement for a life, Sharia-mandated funds were defined by Al-Zuhaili among recent legal scholars [14, 16].

It is apparent from what has been stated that Hanafi legal scholars drew a clear line between two types of mandatory funds. The first is referred to as blood restitution (Diya) and relates to compensation for the loss of a life. The second, known as 'Arsh, pertains to expenses arising from non-lethal transgressions. According to Hanafi doctrine, 'Arsh denotes the specific amount designated by the lawmaker for lesser crimes. This sets them apart from the remaining Sunni schools; who use Diya for any crime against a being less than or equivalent to a human's value.

## The Legal Basis for Compensation and Blood Restitution in Jordanian Legislation

Jordan recognizes Sharia courts as having authority over cases concerning blood restitution, as granted by Article 105 of the Jordanian Constitution [18]. The Constitution states that only Sharia courts hold the power to arbitrate issues within their distinct legal sphere, including those relating to blood restitution [20]:

- Muslims place great importance on their personal status [21].
- In cases of blood restitution, Sharia courts may be used for dispute resolution when the involved parties are Muslims or when only one party is not Muslim, provided that both parties mutually consent to this approach.
- Endowments that pertain to the Islamic faith.

“Sharia courts shall hear and decide on the following matters,” according to Article 2/11 of the Law of Sharia Proceedings.

Muslims and non-Muslims can agree to seek a resolution through Sharia courts regarding “Arsh requests” and blood restitution, according to Article 2/11 of the Sharia Proceedings Law of 1959.

In the opinion of the researcher, the Hanafi definition for blood restitution (Diya) has been taken up by the Jordanian legislator. This definition separates the money that is mandatory for a life—blood restitution (Diya)—from the money that arises out of circumstances not involving harming an individual—‘Arsh. Article 325 of the Jordanian Personal Status Law, which affirms that the prevailing viewpoint of the Hanafi school of thought applies to matters not mentioned in the law, also backs up this claim. If the court can’t find a specific detail in this law, it will make a decision based on the Islamic legal provisions that conform the most with the wording of the law.

Jordanian Civil Law’s Article 273 mandates that if a person has undergone a crime against their person, regardless of the culprit, the amount of required funds must be imposed on the responsible person, legal heirs, or victim’s guardian based on the law [19]. Article 274 of this law, on the other hand, goes on to specify that those who perform acts that cause personal harm, such as injuring, killing, or harming someone, are responsible for compensating those affected, including legal heirs and those who were dependent, even if they were deprived of it.

It is clear that the lawmaker distinguishes between two types of financial obligations: blood restitution (Diya) and compensation for harm caused by intentional acts. Blood restitution is compulsory payment for causing harm to a person through intentional acts like murder or injury. Responsibility for paying compensation falls on the perpetrator, their legal heirs, and those they provided for [15]. Therefore, the researcher believes that Article 273 of the Jordanian Civil Law needs to be repealed for the subsequent reasons:

- In Article 256 of the Jordanian Civil Law, the Jordanian legislator has established a broad principle for negligence cases. This principle mandates that anyone who inflicts harm on another must compensate them. Even if the perpetrator is

unknown, they will still be held accountable for damages incurred under the aforementioned rule, per Article 256.

- Claiming compensation for harm in Jordan only requires the perpetrator to have caused the damage and does not differentiate between intentional or unintentional actions. The perpetrator can be unidentified or insane and devoid of knowledge about the consequences of their actions as well.
- The inclusion of a provision for blood restitution in Jordanian Civil Law is unnecessary, as the Jordanian Constitution has already granted jurisdiction over this matter to Sharia courts.
- General civil liability can be addressed via compensation, both in cases of contractual and tortious liability. It's utilized to legally mitigate or make amends for the negative effects of harm [14, 15].

### **3 The Relationship Between Blood Restitution and Compensation in Terms of Combining Them**

Possible combination of blood restitution and civil compensation will be delved into in the theoretical section. Jurisprudential theories surrounding this topic will be examined, alongside Jordanian judicial interpretations, which will be presented below.

#### **The Permissibility of Combining Blood Restitution and Leaving Compensation**

Valuations for compensation in personal crimes are determined using Sharia logic, relying on the fundamental unit of blood restitution for one's life. To ensure fairness, judges cannot use their own discretion when making these calculations. This system also applies to other types of crimes. There are two ways to determine compensation: 'Arsh, which is a renewable percentage of the blood restitution for life, or a justice system established by the government that adheres to Sharia-determined amounts for both blood restitution and 'Arsh [9].

#### **The Approach of Choosing Between Blood Restitution and Compensation**

According to legal experts, in terms of civil liability, the rule is that one cannot claim numerous compensations for one harm. Hence, if there happen to be multiple parties involved in an injury, the afflicted party can legally demand compensation from each individual separately, as the culprits are collectively held accountable under the law [5]. As a result, it is not permissible for an individual to demand further compensation from others once they have received compensation, as this would be considered double compensation and an unfair enrichment at the expense of the responsible parties. Moreover, if the injured party has already received compensation, they cannot hold the same person responsible for the injuries, even if that person is connected to the responsible party [5].

## **Pursuing Compensation and Leaving Blood Restitution**

In limiting a victim's dissatisfaction, this approach believes that a judgment for full compensation, which consists of both moral and material damages, excludes claiming blood restitution. It also argues that compensation covers the type of moral damage that affects a person and includes payment for harm, regardless of whether it's moral or material. By doing so, it seeks to decrease the pain and anger felt by the victim and their family [10].

### ***3.1 Jordanian Judicial Interpretations Regarding the Combination of Blood Restitution and Compensation***

This section will delve into the Jordanian Sharia courts' perspective on fusing Diya and compensation. The stance of the esteemed Jordanian Court of Cassation on this topic will also be examined.

#### **Judicial Interpretations by Jordanian Sharia Courts Regarding the Permissibility of Combining Blood Restitution and Compensation\*\***

According to Sharia Court of Appeal's ruling No. 293/2004, the appellants were not compensated by the opposing party, which was an error on the court's part. Blood Restitution, which is distinct from compensation and falls under the jurisdiction of Sharia courts, was not taken into consideration. Non-blood restitution guarantees are not included in blood restitution. The Sharia court has authority over blood restitution in accordance with Article 105 of the Constitution.

In Amman's Sharia Appeal Court decision No. 2200/2004, the focus was on differentiating between civil damages and Sharia blood restitution or 'Arsh. The Civil Law's Article 273 highlights this distinction, with Article 274 elaborating on the interpretation. The former relates to blood restitution for heirs, while the latter deals with compensation for both heirs and any other involved parties. Such is the outlook embraced by this specific court.

#### **The Judicial Interpretation by the Jordanian Court of Cassation Regarding the Permissibility of Combining Blood Restitution and Compensation**

In analyzing the Jordanian Court of Cassation's interpretation of the law, it becomes clear that the Court's judgment aligns with the view that blood restitution and compensation cannot coalesce. This position draws from the Court's subsequent verdict, No. 5050/2018, centering on the question of conjoining blood restitution and compensation. The Court elucidated, "It is forbidden to amalgamate blood restitution and compensation. Negating decades of precedent set by the Civil Law of 1976, a momentous verdict has important ramifications for Jordanian jurisprudence. This ruling mandates that compensation for harmed parties must originate from one legal source and prohibits the previous procedure of combining blood restitution and damage restitution. The principles of justice necessitate that victims receive proper



recompense, commensurate with the damages inflicted. In scenarios where the total compensation surpasses the established blood restitution amount, that excess will be deducted from the blood restitution sum.”

The Court made another ruling that stated, “It is not allowed to amalgamate two compensations for one damaging incident, as the Court of Cassation previously held in General Assembly decision number 5054/2018 that Sharia blood restitution serves as a type of financial compensation for the victim’s suffering. The court must subtract the blood restitution from the appraised compensation value established by professionals whenever both compensations are present.”

In conclusion, the researcher makes the following observations:

- The Islamic jurist’s opinions should be followed when determining the amounts for blood restitution in Sharia courts, according to the researcher. The researcher advocates for Sharia courts to maintain blood restitution rulings consistent with Islamic Sharia. The perpetrator should not be granted leniency and instead, appellate judgments should be adjusted. The worth of humanity is paramount, and compassion for the guilty party warrants consideration only if the determined blood compensation derives from the gender of the person providing it. It is imperative that the proper Sharia judgment be upheld in determining blood compensation, separate from any civil compensation. Blending the two is strictly forbidden.
- Adherence to Sharia’s limits is vital since blood restitution and civil compensation have separate functions despite their shared roots. Sharia mandates blood restitution, making it distinctive from civil compensation, which acts as a legal stand-in. Thus, collecting both is prohibited and must be avoided [17].
- Based on Sharia principles, the researcher stresses that it is forbidden to exceed the amount of blood restitution or to blend civil compensation with it. Even when civil compensation rulings are issued, Sharia courts should stick to the use of blood restitution for judgments.

## 4 Conclusion

Entrenched within the study is the concept of compensation and blood restitution in Jordanian law. It delves into the diverse interpretations and practices that surround these legal principles, eventually reaching a conclusion. Having conducted the research, the investigator presents multiple recommendations and observations based on the outcomes.

### 4.1 Result

- 1 Jordan’s Sharia courts still follow the Islamic Sharia guidelines with regards to blood restitution rulings, adjusting their verdicts as required while staying true to

the views of the Islamic jurists. The value attributed to blood restitution for human life fluctuates and granting the offender any leeway in terms of the sum due for blood restitution does not comply with Sharia. Instead, the court is expected to abide by the judgments of the Islamic jurists and evaluate the blood restitution value based on the sex of the injured party.

- 2 Serving different purposes, blood restitution and civil compensation originate from the same source. However, while blood restitution is a specific legal obligation according to Sharia, civil compensation is an alternate legal payment. Combining the two is not allowed.
- 3 Sharia principles dictate that in cases involving blood restitution, the court must make decisions solely based on the amount of blood restitution, disregarding any excess or overlap with civil compensation. It is prohibited to combine civil compensation and blood restitution.

## 4.2 Recommendations

- 1 Legal proceedings in Jordan could be simplified by introducing legislation that bans the acceptance of compensation claims or blood restitution if a case pertaining to the same matter is still pending in court
- 2 A suggestion for Jordanian lawmakers would be to enact a clause that prevents duplicate compensation claims or blood restitution requests when a related court case is still in progress.
- 3 To expedite legal proceedings and prevent repetitive judgments, it may be beneficial for the Jordanian legislature to consider prohibiting the submission of blood restitution or compensation claims for a case if a similar one is still awaiting resolution by the court.
- 4 A potential solution to bolster legal efficiency in Jordan is to introduce a provision that disallows the acceptance of blood restitution or compensation claims if another case regarding the same issue is still pending before the court.

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# The Impact of Applying Sustainability Accounting on the Market Value of Insurance Companies Listed on the Amman Stock Exchange



Husni K. Al-Shattarat  and Nof Bani Khalid

**Abstract** The purpose of this study is to identify the impact of sustainability accounting (SA) with its three dimensions (social, economic, and environmental) on the market value (MV) of insurance companies listed on the Amman Stock Exchange (ICLASE). Accordingly, the researcher used the analytical descriptive approach to collect data on the study variables by analysing the annual financial reports of (21) insurance companies during the fiscal period (2017–2022). This study included only eight insurance companies that use sustainability accounting. Based on the different statistical methods used, the results showed that statistical significance of both social sustainability and economic sustainability had a positive effect on the (MV) of (ICLASE). Due to the lack of interest among insurance companies in the environmental dimension, the hypothesis was excluded. The study recommended that insurance companies pay more attention to sustainability dimensions, and increase the level of education and awareness of sustainability.

**Keywords** Sustainable development · (MV) · Jordanian insurance company

## 1 Introduction

Organizations face many challenges in the twenty-first century, and the most important is that their traditional roles have changed, since they are no longer limited to serving customers, providing products and services, and obtaining profits, but now are also responsible for improving their communities' well-being and livelihoods. Even though most organizations play this role voluntarily, people and governments

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are increasingly demanding that these communities be supported and that organizations play a role in developing and developing the communities through which they make their profits [1–4].

Sustainable accounting is the process of measuring and reporting on the sustainability performance of an organization. In addition, it includes measuring and disclosing information related to the company's environmental, social, and governance ESG impacts [5–8]. (SA) can contribute to the (MV) of insurance companies by providing transparent and comprehensive information about the sustainability performance of companies they invest in, which will increase investors' interest in the sustainability performance of companies they invest in. Insurance companies can attract investors who have a socially responsible inclination and are willing to pay a premium for companies committed to sustainable practices [9–12].

Furthermore, (SA) can assist insurers in identifying and managing risks associated with environmental, social, and institutional elements such as climate change, natural catastrophes, and societal difficulties [13–16]. They can enhance their long-term financial success and lessen the possibility of unfavorable ESG events that could harm their reputation and (MV) by aggressively managing these risks [17–19].

Overall, putting (SA) into practice can give insurance businesses a competitive edge by showcasing their dedication to sustainability, controlling ESG risks, and luring socially conscious investors [20–22].

The market's evaluation of the company's potential for future earnings is represented by the (MV), which takes into consideration elements like the company's financial performance, growth projections, and overall risk profile [3, 23–25]. The (MV) of insurance providers may be impacted by a number of factors, with one of the primary ones being.

This paper aims to answer the following questions:

- Is there an effect of applying (SA) on the (MV) of the (ICLASE)?

Sub-questions are:

- Is there an impact of the social dimension in (SA) on the (MV) of the (ICLASE)?
- Is there an impact of the economic dimension in (SA) on the (MV) of the (ICLASE)?
- Is there an impact of the environmental dimension in (SA) on the (MV) of the (ICLASE)?

## 2 Previous Studies

Several studies have been conducted to investigate the effect of applying (SA) on the (MV) of insurance companies, including one conducted by [9], in which the researchers studied the impact of (SA) on the (MV) of insurance companies in Egypt, and the study concluded that (SA) has a positive and significant effect on the (MV), indicating that companies that adopt sustainable practices have a higher (MV). Nitim et al. [5] evaluated the impact of corporate social responsibility (CSR) on the market

value (MV) of African insurance companies. They also concluded that corporate social responsibility has a positive and significant impact on the (MV), implying that firms that practice corporate social responsibility have a higher (MV), and Faisal et al. [23] concurred with these findings.

KPMG [6] investigated the relationship between sustainability reporting and (MV) in the insurance industry in a study. According to the study, companies that reported more sustainability information had a higher (MV) than companies that disclosed less. Adeyemi et al. [2] confirm that (SA) has a favorable influence on financial performance in Nigeria, demonstrating that companies who implement sustainable practices outperform their competitors.

### **3 Methodology**

To address the study questions, this paper used an analytical descriptive technique, therefore data were gathered from the annual reports of the studied companies during the period (2022–2017). (2) These data were then processed, categorised, and analyzed in order to test hypotheses, generate results, and determine their consequences, as well as link and interpret them to make appropriate suggestions.

#### ***3.1 Population Study and Sample***

The population of this article was all the (ICLASE), which numbered (21) firms, and the study sample was all the (ICLASE). During the period (2017–2022), there are (8) (ICLASE).

#### ***3.2 Sources of Data and Information***

There are two sources:

##### **Secondary Sources**

The researcher referred to books, sources, scientific references, university research, master's theses, published and unpublished theses, paper and electronic, written in Arabic and English, which dealt with sustainability concepts, dimensions of sustainability, (MV), statistics and official annual reports issued by the competent authorities in Jordan.

##### **Primary Sources**

The study's goals were met by using the information from the annual financial reports (ICLASE) produced for the years (2017–2022), with (MV) serving as the dependent

variable and sustainability (social, economic, and environmental) as the independent variables.

### **Study hypothesis**

Based on the aims of the study and its problem, the following was the key hypothesis:

Main hypothesis

$H_0$ : The application of (SA) has no impact on the (MV) of the (ICLASE).

The basic hypothesis is the basis for the subsequent sub-hypotheses.

The supporting hypothesis:

$H_{01}$ : The application of the social dimension in (SA) has no impact on the (MV) of (ICLASE).

$H_{02}$ : The use of the economic dimension in (SA) has no impact on the (MV) of (ICLASE). Profiling data.

### **3.3 Profiling Data**

This study used sectional time series data, which is known as (Panel Data Analysis), and this type of data depends on the characteristics of each of the time series data and cross sectional data, as the panel data analysis method is concerned with the effect of individual factors and time effects.

Thus, the current study used primary data for the purpose of statistical analysis, by using the annual financial reports issued by the (ICLASE) for the period (2017–2022), where these data are also available on the website of the Amman Stock Exchange.

### **3.4 Study Form**

Initial study form:

Model:

$$P/B = \alpha + \beta_1 SoS + \beta_2 NaS + \beta_3 EcS + E$$

whereas:

P/B: Price-to-Book.

SoS: Social Sustainability.

NaS: Nature Sustainability, Environmental Sustainability.

EcS: Economic Sustainability.

$\alpha$ : constant limit coefficient.

$\beta$ : model coefficients.

Error: E: Random error.

### 3.5 Testing the Study Hypotheses

The data for these companies were obtained for the aforementioned period from their annual reports, and after checking that the data fit the study model and describing the study variables earlier, the study sample is Jordanian (ICLASE) enterprises. In this section of the study, hypothesis testing is presented. Multiple regression analysis was used to examine each hypothesis that branched off from the primary hypothesis.

**The main hypothesis:  $H_0$ : The application of (SA) has no impact on the (MV) of the (ICLASE)**

Table 1 illustrates the results of the use of the multiple regression equation to examine the impact of applying (SA) (social and economic sustainability) on the (MV) through [(MV) to book value] in the (ICLASE).

$$P/B = 461.1449 + 18.265 SoS + 0.125 EcS + E$$

According to Table 1, the application of (SA) (social and economic sustainability) has explained 26.8% of the variation in ((MV) (P/B), with a determination coefficient value of ( $R^2 = 0.268$ ). Additionally, it transpires that the value of (F) has reached (9.89719) at the level of confidence (Sig = 0.00421), which supports the regression's significance at the level of (0.05). Based on the above, the alternative formula, which

**Table 1** The results of applying multiple regression to study the effect of applying (SA) (social sustainability and economic sustainability) on the (MV) through [(MV) to book value]

Variable	Coefficient	Std. error	t-statistic	Prob.
SoS	18.265	37.2745	3.383	0.0000
EcS	0.125	0.1178	5.1489	0.0040
C	461.1449	169.4811	2.720923	0.0013
$R^2$	0.268236	Mean dependent var	0.792083	
Adjusted $R^2$	0.241134	S.D. dependent var	0.214813	
S.E. of regression	6369.381	Akaike info criterion	2044549	
Sum squared resid	1.79E + 09	Schwarz criterion	2060142	
Log likelihood	- 486.6918	Hannan-Quinn criter.	2050442	
F-statistic	9.89719	Durbin-Watson stat	1.817435	
Prob (F-statistic)	0.00421			



reads: “There is an effect for the application of (SA) (social and economic dimensions), on the (MV) Through [the (MV) to the book value], in the (ICLASE),” is accepted and the main hypothesis is rejected with the null formula.

### Sub-hypothesis

#### **H<sub>01</sub>: The application of (SA) has no impact on the (MV) of the (ICLASE).**

Referring to Table 1, we find that the value of t-test is (3.383) in relation to the social dimension, which is a (SV) at a (SL) of 5%, and the value of (65 Coefficient was 18.2). This means that every change by one unit of social sustainability is explained by 18 of the (MV) of insurance companies.

Thus, the null hypothesis is rejected and the alternative hypothesis is accepted, which states that there is effect of the economic dimension in (SA) on the (MV) of (ICLASE).

#### **H<sub>02</sub>: The use of the economic dimension in (SA) has no impact on the (MV) of (ICLASE). Profiling data.**

Referring to Table 1, we find that the value of t-test is 5.1489 in relation to the social dimension, which is a (SV) at a (SL) of 5%, and the value of (65 Coefficient was 18.2). This means that every change by one unit of economic sustainability is explained by 0.125 of the (MV) of insurance companies.

Thus, the null hypothesis is rejected and the alternative hypothesis is accepted, which states that there is effect of applying the economic dimension in (SA) on the (MV) of (ICLASE).

## **3.6 Findings and Discussion**

The study reached the following results:

1. “The results of the study showed that there is a positive effect at the (SL) ( $0.05 \geq \alpha$ ) for the application of (SA)(social dimension, economic dimension) in (MV) through [(MV) to book value], in the (ICLASE).” This result may be due to an increase Community awareness of the role of public shareholding companies in community service and the importance of their economic contribution towards achieving societal well-being, which is located in the company’s environment.
2. The results of the study indicated that there was positive effect at the (SL) ( $0.05 \geq \alpha$ ) for applying the social dimension on the (MV) of the (ICLASE). The researcher may attribute this result to the fact that the insurance companies began to pay attention to the social dimension as a result of the global trend of interest in sustainability accounting, as well as the orientation by the Amman Stock Exchange in 2017, inviting companies to apply (SA) and its various dimensions.
3. The results of the analysis indicated that there is little interest in the economic dimension among insurance companies, and this result is consistent with what [2] concluded. This is due to the fact that the field is relatively new and has not received appropriate attention, especially at the local and Arab levels.

### 3.7 Recommendations

Depending on the previous results, the study recommends the following:

**First:** The need to pay attention to the environmental dimension because of its direct impact on the (MV) of the company.

**Second:** “Encouraging insurance companies’ departments to increase disclosures about (SA) in its various dimensions because of its impact on the (MV) and corporate profitability, and the need to report on fundamental sustainability issues with the companies’ annual financial reports, because it helps to make decisions based on the financial and material aspects.

**Third:** “The need to increase awareness and education campaigns on the importance of applying (SA) in all its dimensions and its direct impact on the (MV) of companies and their financial performance as well.

**Fourth:** “Directing public shareholding companies to apply the sustainability standards issued by the International Accounting Standards Board.

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# Knowledge Management and Its Impact on Organizational Learning, a Case Study: Greater Amman Municipality



Hazem Khaled Shehadeh and Shaimaa Abbas Al-Thneibat

**Abstract** This study aims at identifying the impact of knowledge management, with its dimensions (knowledge generating, knowledge storing, knowledge sharing, and knowledge application), on the organizational learning of the employees of the Greater Amman Municipality. The analytical descriptive approach is adopted, as the researchers designed a questionnaire consisting of (41) items to measure the variables, and adopted distribution to easy proper study sample. (500) copies are distributed to the study community, and the valid copies were (409), with retrieval rate of (82%). The Statistical Package for Social Sciences (SPSS) is used for testing, and the results show that there is a positive impact that is statistically significant for the dimensions of knowledge (knowledge generating, knowledge storing, knowledge sharing, and knowledge application) on organizational learning in Greater Amman Municipality, and that the dimensions of knowledge management explains 78.5% of organizational learning, and dimension of knowledge application explains the highest of organizational learning with a rate of 75.7%. The study recommends developing knowledge management in Greater Amman Municipality for its importance in improving organizational learning through raising the level of applying the dimensions of knowledge management, providing good work environment for the employees that encourages the exchange of ideas and information among them, and raise it in a way that achieves learning for all.

**Keywords** Knowledge management · Organizational learning · Greater Amman Municipality

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## 1 Introduction

The way people act is influenced by what they learn from both inside and outside of their organization. A person starts learning when they are exposed to new experiences. He thinks and comes up with ideas, then tries them out by doing something new, or changing what he already does. This is called the learning wheel. Organizational learning is when a company gathers and remembers information, then uses that information to solve problems in the future. It's all about how the company's culture helps with this process.

Knowledge and how it is used is an important trend in modern management. It helps organizations generate, distribute, and use knowledge to make decisions, be creative, be competitive, and perform better [1].

When people in an organization share what they know, it helps the organization remember things and solve problems faster. This also makes the organization work better [2, 3]. It creates a place where people can learn and the organization can learn too. Learning happens not just through formal systems in an organization, like rules and procedures, but also through informal conversations and questions among members [4, 5]. The study seeks to find out about knowledge management and how it affects a city organization's learning. It looked at a specific case study: the Greater Amman Municipality.

## 2 Study Problem

The main issue of the study is to understand how organizational learning and its changes are affecting Greater Amman Municipality. The goal is to prepare the municipality to easily adjust to changes in its surroundings by doing certain tasks, such as giving individuals more power and utilizing their experiences and expertise. This should be done by creating a culture within the organization where everyone shares a common vision and supports and encourages each other in their work, learning together and continuously developing. This will help the Greater Amman Municipality to learn quickly and achieve its goals efficiently and effectively [6, 7, 2]. However, when the researchers met with a group of employees, they noticed that there is a lack of understanding among them about knowledge management and its importance in their work. There have also been very few studies on this topic, so the current study is a response to previous recommendations, such as the study by Al-Taher [8]. Additionally, Al-Rawashdeh [9] further explored the relationship between knowledge management and organizational learning.

This study aimed to find out how knowledge management, including knowledge generation, storage, sharing, and application, affects organizational learning in the Greater Amman Municipality.

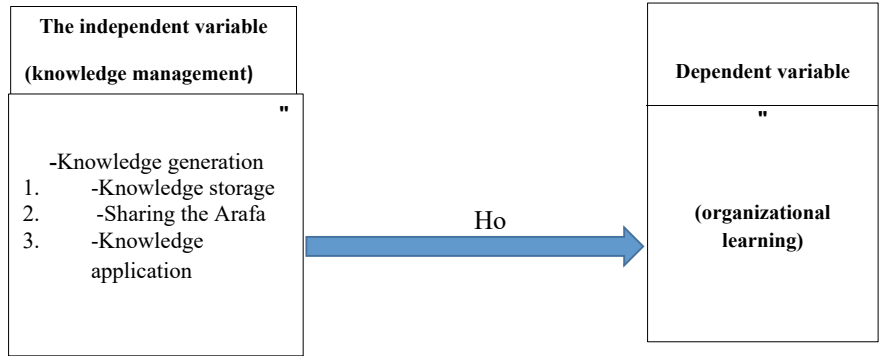


Fig. 1 Study model

3 Study Hypothesis

**The main Hypothesis  $H_0$ :** There is no important effect at a significant level ( $\alpha \leq 0.05$ ) of knowledge management on organizational learning at the Greater Amman Municipality. This is based on four different aspects of knowledge management: generating knowledge, storing knowledge, sharing knowledge, and applying knowledge.

4 Study Model

The study form is designed based on the variables of the study after examining each part of the study (Fig. 1).

5 The Concept of Knowledge Management

Qasimy and Mostafi [10] and Zaid et al. [11] described it as getting new knowledge from different sources, which helps people become more aware and able to solve problems in their work or field of expertise. Meanwhile, Al-Taher [8] thinks of knowledge as either personal experience or information that is passed on to others for them to learn and share.

This means that teamwork, learning, and positive attitudes are important for achieving the organization’s goals.

So basically, knowledge is what we get from science, experience, and technology. Science is how we learn and improve our skills. We can do this by using trustworthy or untrustworthy sources. Experience refers to the skill and knowledge gained by doing a job or practicing a particular profession over a period of time [12, 1, 5].

Knowledge management is a modern concept in management that is really important for improving the quality of work. It is especially useful in competitive situations, which are seen as crucial for success in today's energetic societies. Robbins and Coulter [13], mentioned in Al-Yarubi [14], defines it as when members of an organization regularly meet to share knowledge and improve performance. Mcshane and Glinow [15], mentioned in Al-Zoman [16], define it as an organized activity that helps an organization acquire, share, and use knowledge to improve its survival and success. Al-Taher [8] defines it as using systems and practices to increase knowledge sharing within the organization.

## ***5.1 The Importance of Knowledge Management***

Knowledge management is really important in organizations because it helps them do well, make progress, and be successful. Knowledge management is important because it helps organizations by giving them information regularly and at the right time. This information is then used to make practical decisions that support the organization's goals and objectives.

Booker [12] also mentioned that knowledge management is important because it helps organizations make small and big changes to deal with the growing intricacies of the business world and adjust to them.

### **5.1.1 Dimensions of Knowledge Management**

Knowledge management is a process of doing different activities together to gain knowledge and use it effectively. These activities include finding, getting, sharing, and using knowledge. When these activities are done in a sequence, they help the organization learn and improve [17]. This knowledge helps the organization to achieve its goals and be better than its competitors [10].

[18] explained that people can gain knowledge in different ways, like being creative or doing research. Only individuals can come up with knowledge, and organizations can't do it without people. Generating knowledge means making more knowledge from what individuals have created and then developing it in the community through talking, discussing, and sharing experiences. Researchers like Al-Yarubi [14], Al-Zoman [16], Al-Qadi [19], Boushnaka [18] and Tunsi et al. [20] have mentioned different aspects of managing knowledge. It starts with creating knowledge and ends with using it, as shown below:

**Knowledge Generation** refers to creating new information or ideas, and it is closely connected to being creative. In simple terms, knowledge is created by forming teams that can work together and come up with ideas. These ideas help the company make good decisions and get a bigger share of the market. This benefits the company in making important choices [16].

Boushnaka [18] talked about how there are many things that can get in the way of gaining knowledge. Some of these things are individual obstacles, which means that people might not like change, new ideas, or events because they struggle to adapt to them or because they are afraid it might hurt their self-image.

**Knowledge Storing** is about how we keep and remember information. It connects how we learn things with how we can find and remember them later. So, a lot of the value in knowledge management comes from different pieces of knowledge and its subjects, and the need to connect them, keep them going, and always keep them up to date [18]. Booker [12] talked about different things that happen when we keep knowledge, like saving, keeping it for a long time, looking for it, getting to it, holding onto it, and finding it again.

**Knowledge Sharing** means that everyone in a team interacts and exchanges modern knowledge that they have learned through their shared experiences. A shared way of thinking and trust between people, and knowledge that is not spoken but understood through watching, copying, practicing, and using in real situations.

[12] talked about different ways to share knowledge. These include having teams with different knowledge, using internal networks connected to the Internet, and learning from experienced specialists. They also mentioned using knowledge agents and learning circles to help with sharing knowledge.

Hamshari's study [21] found that students' opinions and beliefs about the impact of digital culture on them were not affected by factors like gender, academic year, or specialization. The students generally had positive and favorable attitudes towards this culture.

**Knowledge Application** has the goal of using the information that a company has gathered or created. This involves actually using the knowledge in practice, which is the process of practice and actual use of acquired or generated knowledge [18]. It also involves incorporating the knowledge into the decisions the company makes. This helps the company make successful and appropriate decisions that consider its conditions and abilities [8].

## 6 The Concept of Organizational Learning

Organizational learning evolved as a way to deal with the increase in problems caused by the surroundings. In order for any organization to survive and do well, it needs to be knowledgeable in its specific area of work.

A study by Bilan [22] found that when an organization becomes a learning organization, it can get information and knowledge from different sources. These sources include the experiences of managers, training programs, technology for leaders and employees. The study also found that this process helps the organization adopt positive trends and new values, and turn them into actions. It can be used at work. According to Al-Sayani [23] and Kanan et al. [24], culture and organization work together to create a shared vision that promotes teamwork and involves constantly learning and improving skills and knowledge. Belmohoub [25] described it as an



ongoing process in which a company focuses on developing the abilities of its employees, such as their skills, knowledge, experiences, and behaviors. This is done to prepare them for future challenges they may encounter in the workplace. According to Berbawi [26], knowledge management is when an organization helps its employees share information so that everyone can learn from it and use it in their work. Belmohoub [27] described it as a way of learning and growing where we use new information, experiences, and abilities to make lasting changes in how we behave and achieve success in our work. Abu Al-Mulla and Abbas [28] said that organizational learning means making planned changes in the organization so it can adjust to changes in the environment quickly. Kamouna [29] says that organizational learning helps increase the value of knowledge by making it easier to understand and use. This improves how the organization performs and helps it adjust to changes in the environment.

## ***6.1 The Importance of Organizational Learning***

Organizational learning is really important because it affects how successful and long-lasting a company can be. It's all about the organization's ability to help its members learn and improve their skills and knowledge to perform really well and be able to compete with other companies. According to Barbewi [26], organizational learning is important for individuals, institutions, and employees because it helps them stay prepared and maintain a balanced and dynamic environment.

A study by Shehadeh [30] shows that the way people work from home has a major effect on how happy and balanced they feel at work in the Jordan Telecom Company. This includes things like stress levels, being able to choose their work hours, how satisfied employees are, and balancing work with their personal lives.

According to a study by Al-Azzam and Al-Jadi [31], they found that individual learning is the most important aspect of organizational learning, based on their sample data.

## **7 Study Methodology**

This can be defined as the best way to organize different useful ideas, to reveal the truth and make it clear.

### ***7.1 Study Community***

The people being studied are workers at the Greater Amman Municipality who have different job positions and ranks. The Human Resources Department in the

**Table 1** The results of the stability analysis of the Questionnaire

No.	Variants	The number of paragraphs	Cronbach alpha coefficient
1.	Knowledge generation	5	0.880
2.	Knowledge storage	5	0.868
3.	Knowledge sharing	5	0.875
4.	Knowledge application	5	0.899
5.	Organizational learning	14	0.897
	<b>Aggregate scale</b>	<b>41</b>	<b>0.960</b>

municipality says that there are about 23,000 employees in the study. This information is from the Greater Amman Municipality report for 2022.

## 7.2 Study Sample

500 questionnaires were given out to people, and 409 employees answered them, which is about 82% of the total number of questionnaires given out. The way things were given out was based on a simple way of picking a sample. The researchers used electronic methods to distribute a survey using a program called Google Form. This program allowed them to design and distribute the survey online, and also receive responses electronically.

## 8 Believe Internal Consistency

### 8.1 Consistency of Performance

According to Table 1, the Cronbach alpha values for the questions on the survey range from 0.868 to 0.924. These values meet the requirement of being above 0.7, which means that all the questions on the survey are consistent and reliable. In terms of how well the paragraphs performed, the Cronbach Alpha Coefficient for all paragraphs was 0.968.

### 8.2 Multicollinearity Test

To ensure that the different factors we are studying are not related to each other, we use some calculations. We want the variance inflation coefficient to be less than 10, and the Tolerance coefficient to be greater than 0.1 out of 10. If the Tolerance

**Table 2** Variance inflation factor (VIF and tolerance)

Variable	Inflation factor (VIF)	Tolerance
Knowledge generation	3.386	0.295
Knowledge storage	4.507	0.222
Knowledge sharing	4.296	0.233
Knowledge application	3.103	0.322

coefficient is greater than 0.1, it means that there is no relationship between the factors we are studying (Table 2).

### 9 Testing the Hypothesis

Multiple linear regression analysis is used to test the hypothesis, and Table 3 shows the results.

The main hypothesis was tested at a level of significance ( $\alpha \leq 0.05$ ), and the results were as follows:

- The F value from the table was used to compare it with the calculated value from the analysis. This was done to confirm if the regression is statistically significant.
- The researchers compared the level of importance of their test to the level they had set for their study. They found that the test showed a statistically significant effect on the thing they were studying. The number (23) in the table showed that the level of importance for the test was very low (0.000), which is less than what they had decided for their study ( $\alpha \leq 0.05$ ). Because of this, they rejected their main hypothesis and accepted a different one, which states that there is a significant effect at a significant level ( $\alpha \leq 0.05$ ) for knowledge management in its dimensions: (knowledge generation, knowledge storage, knowledge sharing, and knowledge application) on organizational learning in the Greater Amman Municipality.
- The value of R tells us about the relationship between the independent and dependent variables. In Table 2, it shows that there is a strong positive correlation between the different dimensions of the independent variable (knowledge generation, knowledge storage, knowledge sharing, and knowledge application) and the dependent variable. The value of the correlation is 0.886, which is higher than 0.5.
- The determination coefficient was 0.785 and it shows how well the independent variables (knowledge generation, knowledge storage, knowledge sharing, and knowledge application) can explain 78.5% of organizational learning. The value of the corrected determination coefficient ( $R^2$  Adjusted) was 0.782. This measures the amount of explanatory power that influences organizational learning after removing errors in the study model.

Table 3 Results of hypothesis testing

Dependent variable	Model summary		Variance analysis ANOVA			The independent variable the independent variable	Regression coefficients		
	R correlation coefficient	R <sup>2</sup> The coefficient of determination	Adjusted R <sup>2</sup>	F calculated	Df	Sig	B value	T value	Sig
Organizational	0.886	0.785	0.782	293.540	4	0.000	0.0790	1.759	0.0690
					404		0.0090	1.669	0.0780
					408		0.0110	2.541	0.1150
							0.000	1.759	0.0690

- The table shows that the independent variables (knowledge storage, knowledge sharing, and knowledge application) have a significant impact on organizational learning. The significance levels for each variable are lower than the test's significance level of at a significant level ( $\alpha \leq 0.05$ ) for knowledge management in its dimensions: (knowledge generation, knowledge storage, knowledge sharing, and knowledge application). Specifically, the significance levels are (0.009), (0.0011), and (0.000). This means that these variables have a statistically significant effect on organizational learning.
- However, the (Generation of Knowledge) dimension had greater importance than the expected significance level of the study, which was (0.05). It reached a significance level of (0.079). It does not have a strong statistical importance.
- The constant B, which is needed for the regression equation, was equal to (0.484). After seeing the results above, it is obvious that the equation for the relationship between the size of the variable we're studying and the variable we're measuring is as follows:

$$\begin{aligned}\text{Organizational learning} = & 0.484 + 0.078 \text{ Knowledge storage} \\ & + 0.115 \text{ Knowledge sharing} \\ & + 0.577 \text{ Knowledge application}\end{aligned}$$

We used stepwise regression analysis to figure out which dimension of the independent variable has the most impact on the dependent variable. The text is saying that the independent variables should be arranged in order from strongest to weakest in their ability to explain the dependent variable. This helps to show which variables have the most influence and which have the least influence. Table 4 shows the results of the linear regression test.

The results of the analysis found that there are three groups of factors that affect the outcome. This is shown in Table 4. The dependent variable is interpreted alone at a rate of 75.7%, which is the highest among the dimensions of knowledge management in understanding organizational learning. It is believed that sharing knowledge has the

**Table 4** The results of the gradual linear regression analysis of the hypothesis

Form	Knowledge management	R	R <sup>2</sup>	F calculated	Significance level Sig
1	• Application of knowledge	0.870	0.757	1265.404	0.000
2	• Application of knowledge • Sharing knowledge	0.881	0.777	706.343	0.000
3	• Application of knowledge • Sharing knowledge • Knowledge storage	0.884	0.782	485.136	0.000

second highest impact on how an organization learns. Regarding the last group, it was created by adding the ability to store knowledge, which increased the interpretation rate to 78.2%.

The test did not include the aspect of creating knowledge, because it did not have a significant impact on how the organization learns.

## Results

The dimensions of knowledge management (knowledge generation, storage, sharing, and application) have a positive and significant impact on organizational learning in the Greater Amman Municipality. The study found a strong positive connection between the two variables. This means that when the Greater Amman Municipality focuses on knowledge management, it leads to improvements in organizational learning. The different aspects of knowledge management can help us understand 78.5% of how organizations learn and improve. 78.5% of the success in organizational learning is because of knowledge management. The size of the knowledge management application has the biggest impact on organizational learning, explaining 75.7% of it. However, the knowledge generation factor does not have a significant effect on organizational learning. The research agreed with what [8] found. The study found that knowledge management practices have a significant positive impact on the amount of organizational learning. The study agreed with another study by [10] that sharing knowledge at work has a big positive impact on how organizations learn and grow.

## 10 Recommendations

### *10.1 Recommendations Related to Knowledge Management*

- Working to improve knowledge management in the Greater Amman Municipality. This will help us learn better as an organization by using knowledge management practices effectively.
- Decision makers in the Greater Amman Municipality should create a plan to promote the idea of knowledge management and its value. They can do this through training programs, discussions, seminars, and conferences. This will help improve knowledge sharing and application within the municipality.
- Creating a good workplace at the Greater Amman Municipality to help employees share ideas and information and develop new knowledge. This will help everyone learn and grow.
- Increasing formal and informal meetings between Greater Amman Municipality employees and other organizations, both within and outside the company, to improve knowledge sharing and brainstorming creative ideas.

## 10.2 Recommendations Related to Organizational Learning

- More interest should be given to attending training courses and more staff members are participating. This is to help improve their education and skills. It is important to set aside enough money for these courses.
- Using organizational learning is important for the Greater Amman Municipality to become successful and excellent in the information age.
- Keeping skilled, well-informed, and experienced workers to help train and assist other employees in sharing knowledge.

### Suggestions for Further Studies

We need to do more research on the following areas.

- How knowledge management affects how banks learn and improve.
- How the quality of work life affects knowledge management.

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# The Consequences of Foreign Company's Acquisition of Legal Personality in Jordanian Legislation



Yassar Fawaz Alhunieti, Khalif Saleh Dhiab Amoush,  
and Ahmad Abdulkadir Ibrahim

**Abstract** This study delves into the economic and legal significance of acknowledging foreign companies' legal personality in Jordan. Jordanian Company Law No. (22) Of 1997 requires foreign companies to abide by several obligations and rights as a result of receiving legal personality in Jordan. Ascertaining a myriad of conclusions and suggestions from the study, it has been identified that one of the primary recommendations is to modify Jordanian Company Law No. (22) Of 1997 by imposing penalties on foreign companies that fail to abide by the legal obligations set forth. Furthermore, the study proposes the elimination of Article (243/A/3) from Jordanian Company Law No. (22) Of 1997, which authorizes the Minister of Industry and Trade to exempt foreign companies from publicizing their financial statements in two local newspapers. This particular clause hampers regulatory scrutiny and raises concerns about the legitimacy of their financial and legal status. The Paris and Bern Conventions, which cover industrial and commercial intellectual property rights as well as literary and artistic rights, are the focal point of research on global protection of intellectual property rights. The study delves into the role of the World Intellectual Property Organization (WIPO) in agreeing to and implementing these conventions. Furthermore, the investigation is driven by an exploration of the ability of national laws to keep up with rapid technological progress in response to these agreements. Starting with an in-depth examination of historical patterns, the study details the evolution of intellectual property rights, tracing their origins and emphasizing the diverse multinational groups committed to their safeguarding. By utilizing an analytical methodology, it references crucial clauses within global agreements and tracks their impact in the digital era, identifying key milestones. Additionally, a descriptive technique is applied to scrutinize these agreements and increase comprehension of their significance.

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**Keywords** Foreign company · Legal personality · Acquisition · Jordanian legislation

## 1 Introduction

In the Hashemite Kingdom of Jordan, foreign companies receive legal recognition through Article (4) of Jordanian Company Law No. “22” of 1997. This law mandates that all companies must be established and registered in the Kingdom for legal purposes and designates them as possessing Jordanian nationality, with a main headquarters situated in the nation. Consequently, foreign companies receive a range of rights and obligations by virtue of this recognition [1].

Various implications arise when foreign companies are recognized as possessing legal personality, both as a direct consequence of this recognition mandated by law, and when these companies satisfy registration requirements and participate in business on domestic soil.

Legislative shortcomings related to foreign company legal personality acquisition in Jordanian legislation will be explored in this study. Insufficiencies in legal texts regarding the rights and obligations of foreign companies who operate in Jordan under Jordanian Company Law No. 22 of 1997 is the underlying issue at hand.

An inquiry arises over the government’s lack of penalties for foreign companies that do not adhere to Jordanian Company Law No. 22 of 1997. Additionally, the Minister of Industry and Trade has the power to exempt these companies from certain obligations, leading to a potential increase in the manipulation of budgeting, profit, and loss accounts, and less oversight.

While monitoring compliance with imposed duties, this research illuminates the impact of foreign companies obtaining legal identity in Jordanian law [2, 3]. Moreover, it pinpoints regulations that need improvement and establishes the company’s rights.

## 2 The Implications of Foreign Company’s Acquisition of Legal Personality

Foreign companies are able to engage in activities within a host country by simply acknowledging their legal personality, as long as the laws of the host state are observed. This allows for the establishment of offices and branches outside of their home country. It is important to keep in mind that the purposes for which the foreign companies were created must be respected and the laws and public order of the host state must not be violated.

Given the ever-changing nature of internationally recognized legal principles, the foundation for these privileges is rooted in international law [4]. Enumerated in the

International Convention on the Recognition of the Legal Personality of Foreign Companies are several rights granted to such companies under Articles 1 through 6. To have access to these rights, the foreign company must have its legal standing established in the parent company's home country. The first entitlement afforded is the right to engage in litigation. Recognizing the legal personality of foreign companies, associations, and institutions, the international convention affirms their right to approach the national courts of the host country. Whether as a plaintiff or defendant, this right is inherent for the foreign company operating. It's natural, having legal personality, as stated in Articles 1, 5, and 6 of the convention.

When disputes arise involving a foreign operating company, national courts take jurisdiction whether the disagreement is between it and a national or legal person or another foreign party. A prime example can be seen in the Jordanian Court of Cassation's pronouncement, which affirms, "Jordanian Civil Law's Article 256 demands that anyone that inflicts damage on another is culpable for compensation, which holds true even when the plaintiff is a non-operating foreign company... The plaintiff company, even if foreign and non-operating, is an official entity registered with the Companies Registrar and has a commercial office. Compensation for damages incurred is to be paid by the defendant—irrespective of whether they are a Jordanian or foreign establishment... The defendant is indistinguishable from any Jordanian company" (Cassation Rights No. 66/1996).

The foreign operating company's ability to litigate is not an unrestricted right, but instead, subject to the same principles that govern national courts' authority to resolve conflicts. According to Article 12/2 of Jordanian Civil Law No. 43 of 1976, legal procedures that bind foreign legal entities, including corporations, establishments, and organizations are under the jurisdiction of the state in which they maintain their principal place of business. If these companies' primary operations are conducted within the borders of the Hashemite Kingdom of Jordan, then the Jordanian legal system will supplant any other applicable laws. And a violation of international law, trying to limit litigating foreign operating companies, is deemed a denial of justice, as it is a universal right that is assured [5].

Allowing foreign operating companies to use national courts, Jordanian legislation permits lawsuits against them under Article 27 of the Jordanian Civil Procedures Act No. 24 of 1988. This article sets out a principle for Jordanian courts to hear all civil suits against natural or legal persons, whether they are Jordanians or foreigners, regardless of international jurisdiction.

Stated in the Court of Cassation's decision was affirmation that foreign non-operating companies are deemed domiciled for legal matters if their branch is registered with the Ministry of Industry and Trade and operates in Amman city. The alignment of this judgment with laws regarding operating company branches allows for Jordanian courts to preside over any claims against said foreign branch. Justification for this decision falls under the observance of Article 188/4 from the Civil Procedures Act. Cassation Rights No. 2889/2003 provides the accompanying ruling.

The right to engage in legal transactions is granted to foreign operating companies through their recognition as having legal personality. This recognition is affirmed by Article 1 of the international convention regarding the recognition of legal personality

for foreign associations, companies, and institutions, which specifies that foreign operating companies have the ability to litigate, own property, and execute contracts and other legal transactions. In essence, foreign operating companies can also enter into legal transactions as a part of their rights.

“Directing one’s will to establish a legal effect, whether it be a modification, transfer, or gift, or to end it, such as discharge,” is the official definition of a legal transaction [6].

Through its agent or legal representative in the Kingdom, the foreign operating company can engage in lawful transactions like sales, leases, exchanges, and gifts as long as they meet the company’s objectives, adhere to the law and public order, and aren’t restricted in the location of the company’s primary enterprise [5].

Investment promotion and national economic development rely heavily on acknowledging foreign companies’ rights to participate in lawful transactions. In deference to this idea, the Jordanian legislator removed some limitations that restricted foreign companies; one of which was a prohibition on owning movable and immovable property by non-Jordanians. In order to lure investment to the Kingdom, these companies receive special treatment, which benefits the national economy significantly. They enjoy the liberty of conducting legal transactions, like procuring raw materials and taking possession of economic projects [7].

Public facilities are available for use by foreign operating companies who pay the required fees and taxes, just like domestic companies. These companies are entitled to use different transportation methods and enjoy applicable services such as electricity, water, and roads. Such entitlements were established in Articles 1 and 6 of the international agreement that recognizes the legal identity of foreign institutions, associations, and companies.

Under the watchful eye of public authority, individuals work to satisfy the general needs of the public through activities deemed as public facilities. This can be achieved through direct involvement by the administration or by ordinary citizens working under their supervision as stated by [8].

Having the ability to possess belongings that are mobile or stationary is a crucial liberty for international businesses, verified by the worldwide accord clarifying the acknowledgement of foreign firms, groups, and establishments in Article 1, previously declared. Nonetheless, there are regulations established by Jordan’s governing body that curb foreign ventures from holding certain assets, restricting them only to what is required for fulfilling their objectives, known as the concept of allotment. The Jordanian Civil Law No. 43 of 1976’s Article 51/2/b firmly reflects the principle: “Within the limits set by legal provisions or its governing constitution, the company shall be authorized.” Besides, No. 61 of 1953’s Legal Persons in Non-Movable Property Act’s Article 5 granted permission to industrial, commercial, and financial firms registered in Jordan and overseas entities to possess non-movable assets that are necessary for their activities, with the Council of Ministers’ consent [9].

In the Jordanian Investment Environment Law No. 21 of 2022, investors are given the opportunity to fully participate, own, or contribute to economic endeavors within the Kingdom, as long as said activities aren’t restricted by regulations. One of the law’s provisions, Article 5/a, states that “an investor’s rights consist of investing in the

Kingdom by full ownership, participation, or contribution to any economic activity, except for economic activities restricted by regulations.” This law further guarantees that non-Jordanian and Jordanian investors should be equivalently treated in terms of rights, responsibilities, and advantages. The prerequisite of treating all investors equitably, ethically, and transparently is emphasized in Paragraph (a) of Article 3 of the aforementioned law.

The Law on the Lease and Sale of Non-Movable Property to Non-Jordanians and Legal Persons No. 47 of 2006 treats Jordanian and non-Jordanian legal persons equally in terms of property ownership. But, there are distinctions made between two property ownership situations. Legal persons can own land within regulated boundaries for their projects. As long as the property does not exceed 30,000 sq, the Minister of Finance and the Director of Land and Survey must approve the location. Approval from the Council of Ministers is needed if the land area is over 30,000 sq, as specified by Article 10 of the law. A second circumstance arises when the property lies outside regulated boundaries. Then, legal entities may possess land as required for their investment ventures, subject to the nod of the Finance Minister, upon recommendation of the Land and Survey Director, provided the land area does not go beyond 50,000 sq. Approval from the Council of Ministers is mandatory for land exceeding 50,000 sq, according to Article 11. As for Article 16/a, foreign operating companies can own land within industrial cities for economic activities without exceeding 50,000 sq, as long as registration procedures are completed with the Jordanian Department of Land and Survey [10]. Approval is not required from the Council of Ministers or the Minister of Finance.

To attract investors and foreign funds, Jordan's lawmakers formulated an acquisition approach [11]. This led to revised economic policies, featuring privatization. A new law, known as the Law on the Lease and Sale of Non-Movable Property to Non-Jordanians and Legal Persons, which includes Article 12, permits foreign companies to lease lands beyond 10,000 sq. For this, the Minister of Interior or a designated representative must give their approval. The lease term is subject to the minister's instructions and can be greater than three years if documented accordingly.

Law No. 21 of 2022 regarding the Investment Environment in Jordan has notably given out rewards, exemptions, and special privileges to foreign companies eager to lease state-owned land in order to pursue their economic endeavors. Article 13/a/1 in the identical law provides confirmation of this.

Imposed to safeguard national economy and stimulate investment, Jordanian legislation permits foreign businesses to possess immobile property inside and outside regulated boundaries, yet with specific conditions. For projects relating to commercial or residential purposes, foreign-owned establishments must complete their ventures within three years, while all other projects must be finished within five years. If the project period ends without completion, there is a ten year period where an annual fine of 5% of the determined property market value is imposed. To extend this period for three years, the Director of Land and Survey must recommend it and the Minister of Finance must approve it. Law No. 47 of 2006 outlines that in the event the owner of a property is unsuccessful in selling it, the Land and

Survey Department may request approval from the Minister of Finance to auction the property to the public. This is done according to the provisions in Article 13.

Article 14 of Law No. 47 of 2006 outlines a restriction placed on foreign companies operating in the country. The stipulation forbids the transfer of non-movable property ownership for a specific duration from the acquisition date. Nevertheless, it allows for an exception when the acquisition purpose relates to residential or commercial plans, and urgent action is necessary.

The national economy relies heavily on the support of foreign operating companies, leading the researcher to believe they deserve granted rights. To conduct business within the country, these companies must adhere to domestic and international laws, including the utilization of public facilities, accessibility to national courts, and owning necessary property for their commercial projects. Granting Jordanian citizenship eliminates the risk of dual citizenship issues and allows for the exercise of political rights [12]. To prohibit these basic rights after already permitting them to conduct their activities in the host country would be incomprehensible [13].

### **3 Duties of Foreign Operating Companies**

To safeguard the national economy and protect against outsiders, foreign operating companies have been assigned a crucial role and additional duties by the legislator. Control must be exercised through either the Minister or the Company's General Controller to ensure financial and legal compliance. It is important to verify their status and protect those who engage with them. These obligations can be found in Jordanian Companies Law No. 22 of 1997 in Articles 243 and 244. Thus, the researcher will delve into a discussion of the responsibilities of foreign operating companies.

#### **Submission of Financial Statements and Profit and Loss Accounts to the Companies' General Controller**

In Jordan, following Article 243/a/1 of the Companies Law No. 22 of 1997 is a critical obligation. Essentially, "financial statements" means a rundown of all the cash an association or department intends to earn or spend over a defined time period. A legitimate and truthful financial statement prepared by an authorized auditor indicates the precise fiscal status of the international business. It reveals the net earnings procured by the enterprise over the year, after having subtracted all costs but before any allocation of proceeds. In order for a foreign operating company to comply with regulations, it is necessary to provide financial statements and profit and loss accounts for its operations in the Kingdom. Capturing all operations and transactions, these documents must be validated by a Jordanian legal auditor who meticulously calculates all incurred cash and non-cash costs required to generate revenue [14]. The company's capital must be preserved, loss avoided and intangible assets safeguarded, all while calculating any financial or non-financial resources that are deemed necessary by accounting standards. These calculations are integral to

arriving at the annual activity, disclosing both ordinary and extraordinary profits and losses.

To guarantee that the auditor is qualified to practice under the Auditors Profession Law, it is necessary for the Jordanian legislator to require the auditor to hold Jordanian nationality. This guarantees the auditor's capacity to diligently perform his responsibilities while also obliging him to exercise adequate caution when validating the foreign operating company's financial statements. In addition, the submission of financial statements and profit and loss accounts by the foreign operating company enhances its credibility and financial achievement to those who engage with it.

### **Publication of Financial Statements and Profit and Loss Accounts in Two Local Daily Newspapers within Two Months from the Date of Submission to the Controller**

In order to promote transparency and accountability, foreign operating companies are required under Article 243/3/2 of Jordanian Companies Law No. 22 of 1997 to publish their financial statements and accounts of profits and losses in two local daily newspapers within 60 days. This responsibility serves to inform partners, shareholders, and other stakeholders with interests in these companies about their financial situation and promotes confidence in their businesses. Furthermore, the Companies' General Controller is granted the power to enforce oversight over these foreign companies as mandated by the law.

This information warrants attention: the duty to submit financial statements, profit and loss accounts, and publish in local newspapers, as stated in Jordanian Companies Law No. 22 of 1997's Article 243/3/3, may be waived by the Minister upon the recommendation of the Companies' General Controller, exempting foreign operating companies. The law specifies, "The Minister may exempt any company from the provisions of paragraphs (1) and (2) based on the recommendation of the Companies' General Controller.

### **Placing Company Records and Documents under the Control of the Companies' General Controller**

Under Article 243/b of Jordanian Companies Law No. 22 of 1997, foreign companies operating in the Kingdom must surrender their paperwork to either the controller or their delegate while carrying out their duties. This requirement serves as a means of external monitoring that the Companies' General Controller has established on foreign firms. Both foreign and local entities are subject to this responsibility under Articles 273 and 276 of the same law. These statutes are covered in Chapter 14, which is a universal provision.

Based on the recommendation from the Companies' General Controller, it is worth noting that the Minister can exempt foreign operating companies from duty, but only if they are a bank or insurance company. This particular exception follows Article 276 of the Jordanian Companies Law No. 22 of 1997, paragraph (b), which explicitly states, the provisions of this article do not apply to banks and insurance companies.



### **Obligation to Notify the Controller in Writing of the Date of the Conclusion of Its Work or the Expected Conclusion Date in the Kingdom**

In order to protect the rights of those who work with foreign companies, the Jordanian legislature has mandated that these entities disclose their work conclusion date or expected date at least a month in advance to the Companies' General Controller. Article 244/A of Jordanian Companies Law No. 22 of 1997 highlights this responsibility.

Regarding the kind of work carried out by foreign operating companies, it varies between short-term projects that end with the conclusion of a tender unless they secure future contracts, and long-term operations within the Kingdom. If a foreign company wishes to deregister from the foreign companies' records, they must inform the Companies' General Controller about the date of concluding their work or the expected conclusion date, no less than a month before the said date. This enables the controller to assess the company's compliance with settling its financial obligations to third parties who may have claims against it [10].

## **4 Conclusion**

Companies from other countries play a vital role in helping the national economy and decreasing unemployment, so many countries are working hard to attract them for investment. As a result, these countries provide tax breaks and incentives. In addition, they've established laws that treat international and domestic companies similarly, specifically for investment purposes. Investment Incentives and Guarantees Law No. 72 of 2017 was introduced by Egypt, whereas Investment Environment Law No. 21 of 2022 is in place in Jordan. Careful regulation of provisions dealing with foreign companies operating within the Jordanian legal system is evident, ensuring a framework that serves the interests of both host state and investor companies.

## **5 Results**

Exhibiting their legal capacity akin to legal and natural entities, foreign companies are bestowed with a host of rights and responsibilities upon their reception of legal personality. In order to comply with these standards, an exemption from budget submission and publication in two local newspapers are allowed to foreign businesses at the discretion of the Minister of Industry and Trade as granted by Jordanian legislation. By removing the Companies' General Controller's oversight role, concerns arise regarding the financial and legal standing of said companies. Penalties for non-compliance with the Jordanian Companies Law No. 22 of 1997 have not been outlined by Jordanian lawmakers, particularly with regards to foreign operating companies. Granting foreign companies legal personality grants them several

recognized rights, such as the ability to litigate, own property, take legal actions, and access public amenities. These rights, however, are not exhaustive.

## 6 Recommendations

- Under the Jordanian Companies Law No. 22 of 1997, a penalty provision could be established to discourage foreign companies from neglecting their duties. This would require obeying the law during business operations.
- Jordanian Companies Law No. 22 of 1997 requires some adjustments. Let's scrap paragraph 3/a/243, which permits the Minister of Industry and Trade to exempt foreign operating companies from submitting budgets and profit & loss statements.
- In light of the increasingly limited role of print newspapers, the Jordanian Companies Law No. 22 of 1997 needs some revision in Article 243/3/2. Specifically, the requirement for companies to publish their budgets and profit and loss statements in two local newspapers ought to be reconsidered. It is important to find newer and more efficient ways to allow the public access to a company's financial position.

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# The International Framework for the Protection of Intellectual Property Rights



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**Abstract** Through this study, we seek to gain insight into the primary global agreements pertaining to the safeguarding of intellectual property rights. Of particular interest are the Paris and Bern Conventions, which encompass both industrial and commercial rights as well as literary and artistic ones. Our analysis encompasses the role that the World Intellectual Property Organization (WIPO) has played in the implementation of these conventions and subsequent agreements. Furthermore, we will evaluate the effect of these agreements on national laws and their capacity to adapt to substantial technological advancements. Tracing the evolution of intellectual property rights through history, this research identifies pivotal moments that have shaped the landscape—both historically and in the digital age—while highlighting the responsible international organizations. Utilizing a descriptive approach, key provisions within global agreements will be referenced and analyzed through an analytical methodology.

**Keywords** International protection · Intellectual property · Industrial property · Literary property

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## **1 Introduction**

Our world's technological progression has blurred the lines between states and, as such, brought about a heightened awareness towards intellectual property. This property comes from the creative ideas that emanate from human minds in every society. People now prioritize protecting these ideas from being misrepresented, distorted, or imitated. Such concerns have become legitimate given that intellectual property spans both literary and industrial advancements.

This topic, "International Protection of Intellectual Property Rights," was chosen due to the heightened significance of safeguarding intellectual, industrial, literary, creative, and artistic endeavors. The intention is to provide further insight to current research by highlighting the notable global agreements and evaluating their influence on domestic laws concerning intellectual property rights.

## **2 Definition of Intellectual Property Rights**

Various types of intellectual property, such as trademarks, patents, author rights, integrated circuits, industrial designs, trade secrets, unfair competition, and related rights, fall under the legal term defined by the Arab League as intellectual property. These rights are granted to individuals for a limited time and allow for the exclusive use and benefits gained from their intellectual creations.

Legal protection against infringement on intellectual output is provided by national laws and international agreements. Intellectual property rights, also known as mental rights or moral rights, guarantee rights for creators, authors, and inventors of diverse intellectual creations.

In this study, our attention is drawn towards international organizations and the protection of property rights in industries, commerce, art, and literature. These rights work towards a monopolization of an idea's commercial exploitation, safeguarding information for a certain amount of time.

## **3 The Historical Evolution of Intellectual Property Rights**

In 1873, there was International Exhibition of Inventions in Vienna. Many inventors from abroad decided not to participate in this exhibition because they were afraid that their ideas might be taken and commercially used in other countries. This caused the issue of international protection of patents and intellectual property to come into play. Hence, the first significant international treaty to allow citizens of a certain nation to safeguard their intellectual works in other countries was established. This treaty came about as a result of the exhibition. The year 1884 marked the initiation of the Paris Convention for the Protection of Industrial Property that had been introduced

on March 23rd, 1883. This convention served to establish unequivocal definitions for industrial property rights, encompassing “patents”, “trademarks” and “industrial designs”.

Established in 1883, the Paris Convention initiated a succession of global pacts and systems safeguarding intellectual property in its many expressions (such as written and visual arts). The outcome of the Convention stands today as the founding of the United Nations-supported World Intellectual Property Organization (WIPO), whose primary mandate is the management of intellectual property affairs [4], as of December 17, 1974. The value of a nation’s standing correlates more and more with its ownership of intellectual property rights [1].

Innovation and creativity necessitate considerable financial and temporal investments. This means that countries with robust intellectual property rights often have the power to progress more effectively than others. Hence, the world is divided into advanced, developing, and underdeveloped countries based on their IP holdings. Disparities among nations in possessing such rights have led to divergences in production, quality, individual living standards, and national income levels [1]. “Intellectual property rights” are used by inventors to reap the rewards of their labor, allowing them to regulate the use of their intellectual property. This means that without the inventor’s approval, no one can manufacture, sell, cultivate, display or use an invention. A wide range of protective measures are available, such as patents, plant breeders’ rights, trademarks, trade secrets, and copyright [3].

Intellectual property regulations underwent international development beginning with the Vienna Conference in 1873, ultimately leading to the establishment of WIPO in 1974. The driving force that propelled these regulations forward was the desire to uphold creative expression and safeguard intellectual creations.

During negotiations for the Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS), member states were startled by a proposition from large companies in Geneva in June 1988. Although not part of the negotiations, these corporations presented a paper to the GATT secretariat suggesting an agreement on “intellectual property rights related to trade.” Intriguingly, these businesses exerted their suggestion on the negotiations, as membership is reserved solely for countries. This occurrence was fleeting. In pursuit of safeguarding intellectual property rights, global operations of international business entities desired elevated levels of protection for patents and trademarks. This led to the signing of the TRIPS Agreement, a component of the GATT agreements, in April 1994. The establishment of the World Trade Organization (WTO) on January 1, 1995, was intended to regulate the implementation of these agreements. Collectively, these agreements are now known as the World Trade Agreements [5].

## **4 International Agreements Concerning Intellectual Property Rights**

This section will cover international intellectual property agreements in the industrial and commercial field, as well as in the literary and artistic field.

### ***4.1 International Agreements in the Field of Industrial and Commercial Intellectual Property***

Intellectual property rights in the commercial and industrial sector are governed by several international agreements. These include the Paris Convention, the Madrid Agreement, the Hague Agreement, the Brussels Convention, and the Patent Cooperation Treaty. Our attention will be drawn to the crucial terms and conditions outlined in these agreements.

#### **Paris Convention (1883) for the Protection of Industrial Property**

Due to variations in national laws involving industrial property, acquiring protection at an international level had been difficult until the Paris Convention for the Protection of Industrial Property came into being. This agreement served as a basis for the creation of overall international agreements regarding industrial property protection. Handling technological advancements and thriving global trade posed challenges, making cooperation among distinct legal systems essential in achieving international protection for industrial property [4].

In 1883, 11 countries signed the Paris Convention, which has since expanded to 166 countries as of January 15, 2004. This convention has undergone multiple revisions and is relevant to all types of industrial property rights. Its importance lies in its foundation, which acts as a global constitution for safeguarding industrial property as a whole, and trademarks specifically, overruling any conflicting laws of its member nations.

#### **Brussels Convention on the Distribution of Signals Carrying Programmes Transmitted by Satellite (1974)**

The Satellite Convention or the Brussels Convention requires that appropriate measures be taken by contracting states to prohibit the spread of satellite signals carrying programs within or originating from their territories that are not authorized. The broadcasting entity typically determines the content of the program, and therefore only these entities are authorized to distribute programs. Entities having the nationality of one of the contracting states are subject to these regulations.

Program excerpts carried by signals may be distributed by unauthorized individuals if they only contain short extracts of the program. This is allowed under the Convention, which also permits this practice for educational purposes in developing countries, including adult education and scientific research. However, there is no

specified protection duration under the Convention, leaving this decision to be made by local laws.

### **Madrid Agreement Concerning the Suppression of False or Misleading Indications of Source (1891)**

Suggesting that origin stems from a contracting country or its parts, any item with fraudulent indications of source is subject to import seizure or other penalties according to this agreement.

Seizure and execution procedures are detailed in addition to outlining the conditions that must be met. It is strictly prohibited to use false advertising to mislead customers about the source of goods at the time they are sold or offered for sale. Any labeling decisions that do not fall under the agreement's jurisdiction are at the discretion of the courts in each contracting country, as long as they are not generic. The exception to this rule pertains to regional wine product labels that identify their origin, as they are not covered by this reservation. The Agreement's establishment is not indicative of any union, presidential, or budgetary body. It underwent several modifications in several cities: concluding in 1891 and amending in 1911 in Washington, 1925 in The Hague, 1934 in London, 1958 in Lisbon, and 1967 in Stockholm.

### **Hague Agreement Concerning the International Registration of Industrial Designs (1925)**

The world today recognizes two forms of the Hague Agreement: the 1999 Act and the 1960 Act. The 1934 Act of the Hague Agreement was made inactive in September 2009, thereby easing the management of the global registration system for designs. To receive international registration for a model or design, the applicant must be tied to a contracting party from either or both the 1960 Act and the 1999 Act, depending on the country of origin. This criterion must be fulfilled by a legal or a natural person. WIPO or the industrial property office of the country of origin can receive direct international registration, if the country's law allows or requires it. It is common practice for international applications to be submitted directly to WIPO, usually via the online filing system found on WIPO's website [7].

The International Classification for Industrial Designs (Locarno Classification) allows up to 100 designs or industrial models from the same category to be submitted in international applications. English, French, or Spanish can be used to file the application. At least one designated contracting party must be included in the application and weekly publication of international registrations is available in the International Designs Bulletin. Applicants can choose to defer publication for 30 months from the international registration date or the priority date if requested, depending on the chosen contracting party [8].

### **Patent Cooperation Treaty**

On September 28, 1979, February 3, 1984, and October 3, 2001, amendments were made to this treaty which was originally concluded in Washington on June 19, 1970.



## **International Agreements in the Field of Copyright and Related Rights**

The WIPO Convention, Geneva Convention, Berne Convention, and Rome Convention are the main international agreements that oversee copyright and related rights in regards to intellectual property.

### ***4.2 Berne Convention for the Protection of Literary and Artistic Works (1886)***

The protection of works and their authors' rights are addressed by the Berne Convention. Its basis is rooted in three fundamental principles, along with provisions for minimum protection requirements and specialized considerations for developing nations.

#### **First: The Three Fundamental Principles**

##### **A. (Principle of National Treatment)**

That is, works that have either been first published or authored by a citizen from one of the signing nations must be protected as equally as the works coming from the country of the receiving end. This policy extends to every contracting country that accommodates the same protection towards works by its own people.

##### **B. (Principle of Automatic Protection)**

Protection must not be conditional on any formalities.

##### **C. (Independence of Protection)**

The protection offered is independent of the origin country's protection policies. Nevertheless, if the laws of a participating nation offer a protection span longer than the minimum duration mandated by the Convention, then it is possible to reject protection after the longer span has ended in the country of origin.

### ***4.3 Secondly: Criteria for Protecting Works and Rights That Must Be Protected and the Duration of Protection***

Whatever the mode or form of its expression, all works in the literary, scientific, and artistic domain should be protected, according to Article 2/1 of the agreement. However, there are exceptions, restrictions, or reservations allowed. The exclusive rights that must be recognized include rights for translation, adaptation, and modification, public performance of musical works and plays, public reading of literary works, transmitting performances of works to the public, broadcasting, reproduction, and using a work to create an audiovisual work.

Protection for creative works is typically granted for fifty years after the author's death, but there are some exceptions to this. One exception pertains to works that are published under a pseudonym or by an unknown author. In these cases, protection lasts until fifty years after the work is made public, unless the author's true identity is revealed within that time. However, if the author does reveal their identity during that period, the general rule of fifty years after the author's death applies once again. 25 years from their creation is the minimum duration of protection applied arts and photographic works receive. In regards to audiovisual works, specifically cinematic works, the minimum duration of protection is 50 years. This duration starts from the date of release or creation and applies to the work becoming available to the public.

### **Geneva Agreement on the Protection of Producers of Phonograms against Unauthorized Duplication of Their Phonograms (1971)**

Each contracting state must abide by the Geneva Phonograms Agreement with regards to safeguarding phonogram producers against unauthorized reproduction and distribution to the public. The agreement entails that "phonograms" which are solely sound recordings (unrelated to accompanying video) regardless of their format, must be protected. This protection may be provided through copyright, special related rights, unfair competition or criminal law. Such measures must be enforced to deter citizens of other contracting states from infringing upon producers' rights.

From the date of the first fixation or publication of the phonogram, a duration of at least two decades for protection must be provided.

### **Rome Convention for the Protection of Performers, Producers of Phonograms, and Broadcasting Organizations (1961)**

National laws are allowed under the Rome Convention to provide limitations and exclusions to safeguard the performances of performers, phonograms of producers, and broadcasts of broadcasting organizations. Private use and short excerpts can be restricted, educational or scientific research purposes can be permitted, and temporary recordings for broadcasting organizations' programs can be made. For literary and artistic works, exceptions to author rights may also be allowed by national laws in other instances.

Provisions related to performers' rights become inapplicable when they agree to include their performance in an audiovisual or audio recording. Duration-wise, protection must persist for no less than 20 years, and the method for calculation is as follows:

- Performances included in sound recordings are subject to fixation as of the end of the year
- For performances that are not part of sound recordings, the year at the end of their performance is taken into account.
- National laws regarding the protection of sound recordings or performances are becoming more common, with a minimum of 50 years for duration. This period is measured from the year of broadcast's end.

In collaboration with the International Labour Organization (ILO) and the United Nations Educational, Scientific and Cultural Organization (UNESCO), WIPO is tasked with administering the Rome Convention. Jointly, these three organizations function as the secretariat of the International Governmental Committee established by the Convention. This committee is comprised of delegates from 12 contracting states.

In several respects, the related rights protection rules have distinguishing features that set them apart from those of the Rome Convention and the Geneva Agreement on the Protection of Producers of Phonograms against Unauthorized Duplication of Their Phonograms (1971). Such distinct provisions are also present in the Convention.

### **WIPO Copyright Treaty (1996)**

Focusing on safeguarding the works of authors and their digital rights, the WIPO Copyright Treaty stands as a distinct agreement within the Berne Convention framework. Despite being unbound by the Berne Convention, every contracting party is mandated to adhere to the substantive provisions of the 1886 agreement and the 1971 (Paris) Agreement for Literary and Artistic Works protection.

Under the WIPO Copyright Treaty, it is essential to protect computer programs and collections of data or other materials, commonly referred to as “databases,” as long as they are considered intellectual creations due to their content’s selection or arrangement. However, it is worth noting that the Treaty has no jurisdiction over databases that do not qualify as intellectual creations.

As long as their content’s selection or arrangement qualifies them as intellectual creations, computer programs and collections of data, or “databases,” must be safeguarded according to the WIPO Copyright Treaty. It should be kept in mind that the Treaty has no control over databases that don’t meet the criteria for intellectual creation.

The WIPO Copyright Treaty takes into account the digital ecosystem’s two classes of beneficiaries: performers (actors, singers, musicians, etc.) and phonogram producers (people or entities who capture sounds at their own initiative and with their own responsibility). The reason both these rights holders are included in the treaty is that most of the rights afforded to performers relate to their audio-only performances (i.e., recordings of sound).

For commercial purposes, broadcasting or communication to the public, the producers and performers of phonograms are entitled to just compensation, as per the treaty. However, reservations can be made by any contracting party to limit or abolish the application of this right. This would also result in a possible loss of national treatment for the reserving party, if reciprocated by other contracting parties.

For any work to receive protection, a minimum of 50 years is required. The exercise of rights granted by the treaty does not rely on any formalities, allowing for full enjoyment.

The management of rights for licensing, distribution, and royalties necessitates data that identifies authors and their works. The treaty requires contracting parties to incorporate legal remedies against the avoidance of technological measures

(including encryption) that authors implement while enforcing their rights and any modification or deletion of crucial information (information on rights management).

According to the treaty, each contracting party must take necessary measures, in accordance with its legal system, to enforce the treaty. Specifically, the party must provide effective remedies for infringements and impose penalties that discourage future infringements.

WIPO, established in 1996 and put into effect in 2002, is responsible for administrative duties connected to a treaty safeguarding its development and preservation. Within it, there lies an Assembly of the Parties, whose focus is on matters relating to the treaty.

## 5 Conclusion

In clarifying the involvement of these agreements and organizations in safeguarding intellectual property rights, it was examined how successful they have been in realizing their aspirations in national legislation. From this analysis, recommendations were drawn and various results were uncovered.

## 6 Results

- While the Paris Convention dealt with rights surrounding commerce and industry, the Berne Convention aimed to address rights in literature and art. Although these agreements contained essential rules and content, they failed to keep pace with technological advancements that had affected the global protection offered by them.
- The international legislators had to take note of the defects and inadequacies in these previous treaties. This resulted in the need for a broader global safeguard of intellectual property rights. The TRIPS Agreement was then formulated as an extension. It laid out legal regulations that apply to all forms of intellectual property and devised legal methods and tactics for the safeguard of intellectual property. Additionally, it dealt with the noteworthiness of specific laws for stopping and resolving disputes over intellectual property.
- The TRIPS Agreement has been criticized for prioritizing trade, disregarding the need for proper safeguarding of moral rights and the advancement of thought and creativity. Despite the importance of this agreement, its aim to generate profit often comes at the cost of these crucial factors.

## 7 Recommendations

- With technology advancing at a rapid pace, it is crucial that we focus on expanding international protection for intellectual property rights. Collaboration on a global scale is necessary to achieve this goal.
- To incorporate the agreements into national laws, practical mechanisms must be established and tailored to the unique needs of developing countries. Major countries should provide additional support and facilitation to aid the incorporation process. This will ensure that the provisions of the agreements are properly reflected in national legislation.
- Establishing an international court for cases concerning intellectual property has been suggested. The goal is to increase worldwide safeguarding of these rights by utilizing judges who specialize in this area.

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# The Role of Administrative Empowerment Strategies in Organizational Change Success: An Empirical Study in Jordanian Banks



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and Mohammad Abdullah Al-Mubaideen

**Abstract** This study aims to determine the role of administrative empowerment strategies (collective work, sharing information, power delegation) in the success of organizational change in the Jordanian bank sector. The study sample included all members of the study community, and a questionnaire is distributed to all branches of the Jordanian banks (Jordan Islamic Bank, Islamic International Arab Bank, Bank of Jordan) in Zarqa Governorate, and the retrieved copies of the questionnaire that could be analyzed were (406). To achieve the aim of the study, the researchers used the questionnaire as a tool to collect information. And to test the hypothesis of the study, the descriptive analytical statistical method is adopted by using SPSS program. The results show that there is an important influence of statistical significance at ( $\alpha \leq 0.05$ ) level of significance for the independent variable of administrative empowerment strategies with its dimensions, partly in the dependent variable of the organizational success of staff member of the Jordanian banking sector. The researchers recommend that Jordanian banks pay more attention to developing administrative empowerment strategies among its employees for its great importance, and they should do that among the employees regardless of their gender, age, qualifications, job title, of experiences for administrative empowerment strategies are not related to a category more than another.

**Keywords** Administrative empowerment strategies · Organizational change success · Jordanian banks

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# 1 Introduction

Organizational changes play an effective and important role in the development of organizations, their renaissance, the achievement of their goals and the ability to grow, develop and adapt to various environmental variables, since employees are one of the most important factors in comprehensive organizational changes, and they are the center of organizational change. In order to achieve a significant level of organizational change, we need to raise the level of human resources and allow them to grow and develop from within.

In recent years there have been major developments in the economic sector and a renaissance of organizations. Since the 1980s, the concept of administrative empowerment strategies has received a great deal of attention from managers, as [1, 2] confirms that it is in the light of management's responsibility for the success or failure of organizations. Attention to the employee and his skills and direction has become very important, and its importance outweighs the importance of profit, organizational structure, and technical matters, as it has many skills, abilities, competences and intangible knowledge that needs to be valued. This is how the main issues related to the human dimension emerged [3, 4]. The issue of employee empowerment is one of the modern management concepts, as the concept of empowerment is about strengthening the relationship between management and employees by breaking down barriers between management and employees and helping motivate them and their involvement in decision-making, what makes employee empowerment an essential element for the success of organizations [5, 6].

[7–9] believe that the role of administrative empowerment strategies is that they are an important vehicle for using the skills, knowledge, ideas, and abilities of employees to make the needed improvements at the service level, since development and creativity are an inevitable necessity to adapt to the demands of the times and improve employee performance, since the organization's ability to develop its employees depends on several factors that must be studied and taken into account, such as e.g. B. Developing employees and increasing their ability to further develop the organization follows several factors based on the principle of creativity and innovation as effective means of supporting the performance, effectiveness and loyalty of employees to the organization [10].

Therefore, the model of administrative empowerment strategies and their role in the success of organizational change has evolved into a model that aims to empower employees and strengthen their ability to make and make decisions, and the ability to plan develop and make proposals that help organizations evolve and improve their performance [11, 12].

## 2 Study Problem and Question

The problem of the study revolves around two main dimensions. The first dimension is a theoretical dimension reflected in the scarcity of writings dealing with administrative empowerment strategies as a strategic choice that American, European and Japanese business organizations have historically worked with as a philosophy essential to the growth and survival of the organization leads, and it is one of the strategic goals of organizations in the face of the turbulent business environment after paving the way [13, 14].

Some researchers suggest that employee development theory goes back to the principles of the human relations school, which focused on the need for a response to academic schools' neglect of the human aspect in labor relations [15, 16]. Many researchers support the humanistic school's ideas of empowering workers by giving them more authority, involving them in decision-making processes, and increasing their effective participation in the organization [17, 18]. There are many organizations that suffer from the disadvantages of the traditional management model, hierarchical levels, the way decisions are implemented, long and complex official communications and limited powers of employees, because today these matters have become obstacles to managerial progress and organizational prosperity. For this it was necessary to build organizations that make the principle of employee empowerment the basis of their work [19, 20].

Some researchers suggest that employee development theory derives from the principles of the Human Relations School, which focused on the need for a response to academic schools' neglect of the human aspect in labor relations [16, 21]. Many researchers support humanistic schools' ideas of empowering workers by giving them more authority, involving them in decision-making processes, and increasing their effective participation in the organization. Many organizations suffer from the disadvantages of the traditional management model, hierarchical levels, the way decisions are implemented, long and complex official communications and limited employee powers, since today these issues have become obstacles to management progress and organizational success are. For this it was necessary to build organizations that make the principle of employee empowerment the basis of their work [19, 22].

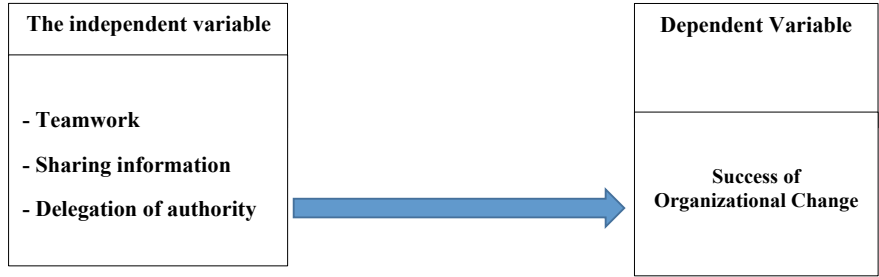
During the on-site follow-up, which also included Jordanian banks, the researchers found that the focus was not on the impact of administrative empowerment strategies on the success of organizational change.

Based on the above, this study identified the role of administrative empowerment strategies in the success of organizational change in Jordanian banks.

The problem of the study can thus be presented more clearly by asking the following question:

**To what extent does the application of administrative empowerment strategies with their dimensions (collective work, information exchange, delegation of authorities) affect the organization? Success of organizational change in Jordanian banks?**





**Fig. 1** Study form

**3 Study Importance**

Empowerment of employees is one of the most important reasons for the company’s growth, development, differentiation and strong entry into the world of competition with other companies [23, 24].

Empowerment of employees is one of the most important reasons for the company’s growth, development, differentiation and strong entry into the world of competition with other companies [23, 25]. This study can draw the attention of managers and decision-makers in Jordanian organizations to the importance of adopting the concept of administrative empowerment strategies with the aim of strengthening them as they contribute to the success of organizational change. Presenting recommendations to decision-makers in Jordanian banks on activating strategies for administrative strengthening and improving the success of organizational changes given their importance to the organization’s overall performance. It also contributes to enriching the Arabic library with a new topic that might be of interest to researchers. It is considered a starting point for further studies on strategies for administrative strengthening and the success of organizational change.

**4 The Study Model**

See Fig. 1.

**5 The Study Hypothesis**

H01: At the significance level (0.05), there is no statistically significant role for administrative empowerment strategies with their dimensions (teamwork, information exchange and delegation of authority) for the success of organizational changes in the Jordanian banking environment.

## 6 Administrative Empowerment Strategies

There is a strong belief among researchers that delegation of authority is part of the empowerment process, not the empowerment required, [26] because delegation of authority means delegating some of the powers exercised to others to do so to facilitate the process of implementation and achievement of the necessary organizational goals, since delegation does not remove the delegate's responsibility for the end result of the work, and in empowerment, employees are empowered, that is, they are given the authority to make decisions, and they do so responsible for the end result of these decisions [27].

Empowerment is seen as key to the employee participation process [28] defined the participatory style in management performance as the managerial style based on the concrete participation of employees in the organization in the decision-making process related to the organization's policies, tasks and problems.

## 7 Dimensions of Administrative Empowerment Strategies

Administrative empowerment strategies aim to provide an effective and prominent level of management within the organization and the application of administrative empowerment strategies requires the availability of a set of management practices that indicate their application, namely:

### a. Teamwork

Teamwork is when a group of individuals in an organization achieve common goals together [29, 30]. Teamwork promotes the application of the concept of collaboration, mutual dialogue and respect for different opinions among team members [23, 31]. The development of work teams in any organization depends on the presence of a manager who can provide support, give direction and direction to the work team, motivate and encourage them to do better the work required of them and the problems and resolve difficulties they face [32, 33]. The team members who commit to teamwork need to have different skills and commitment to achieve common goals and social responsibility [34, 35]. Also, teamwork is a means of achieving goals and carrying out planned actions, since some actions require the presence of more than one element to achieve them and achieve the desired goals among them, and these goals require the collective participation of specialists, to reach them.

#### a.1. The Importance of Teamwork

Teamwork is of great importance as it helps enhance experiences and complete tasks assigned to people faster and better. Teamwork is of great importance in the life of the individual [36].

#### a.2. Teamwork Success Factors

Teamwork has benefits and for success to be achieved there must be foundations and factors to achieve that success [37]:

**Diversity in Expertise:** The presence of expertise increases opportunities for the sharing of skills and knowledge between team members.

**Effective Communication:** One of the characteristics of teamwork is the existence of continuous and effective communication between team members and their management.

**Adaptability:** Teamwork is characterized by flexibility between the work team and management.

**Seeking New Opportunities:** Progressive organizations are characterized by their confidence in new and developed plans and are dissatisfied with their old plans.

#### b. Sharing Information

Information sharing is when individuals within an organization share the information they hold [38]. It means that employees have the opportunity to participate in decision-making related to their work. The exchange of information is one of the most important decision-making bases, be it operational or administrative [39]. The exchange of information strengthens the self-discipline of employees. This is to instill confidence in them that they know more about the information than people outside the organization [40].

#### c. Delegation of Power

The delegation of authority means that workers have the ability to control decisions related to their work [41]. Delegation requires moving from the level of leadership and control to the level of delegation and trust [2, 42].

Reference definitions commonly used on the issue of delegation of authority include those provided [4, 43], where empowerment is defined as the process by which the individual feels to be confident. Effectiveness is increased by identifying the conditions that lead to his feeling of weakness and inability to accomplish tasks, eliminating them through organizational practices that rely on providing him with the necessary information.

Therefore, the basic idea of the concept of delegation of authority is that the process of delegating some authority from the president to his subordinates increases the ability of employees to influence decisions related to their job performance, since the devolution of authority requires changes from traditional leadership patterns to new leadership patterns that increase the percentage of participation, requiring a shift from leadership and control to authorization and trust, as the responsibility for delegating authority to employees in decision-making shifts to diagnosing problems and discovering and evaluating solutions expands.

[8] stated that there is a statistically significant effect of employee empowerment on organizational performance and a partial mediation of quality of work life in the relationship between employee empowerment and organizational performance.

The results of [9] study showed that the administrative competence of the school heads was high in Ramallah and Al-Bireh governorate.

[12] that empowering workers with their dimensions has an effect on marketing performance in Jordanian Islamic banks.

## 8 Concept of Success of Organizational Change

Referring to many previous studies, the researcher found several definitions of organizational change success and its diversity according to the researchers' vision of how the organizational change process succeeds. [44] said the success of organizational change is one of the most important requirements of the coercive age in organizations as it compels the organization to innovate and change to adapt to developments in the environment around the organization in order to continue its activities and to ensure their sustainability and distinctiveness. Change is a long-term planned effort aimed at improving the organization's efficiency, solving its problems and renewing its processes through a comprehensive development of the organization's organizational climate and increasing work effectiveness [45]. This is a plan to partially or fully improve and develop organizational work, taking into account changes in the environment [44]. The success of organizational change is one of the solutions that organizations resort to to solve problems related to underperformance or high cost and production levels and low profit and turnover levels [43]. It is the transformation that takes place in the organization's activities, operations and all people in response and response to external changes [42]. Likewise, the success of organizational change is: the process by which the organization moves from its current situation to the future status of desirable goals to increase its effectiveness [41]. Change is also a purposeful program aimed at helping people in the organization to better perform the tasks required of them [40].

Based on the above, the two researchers summarized the concept of organizational change success as a set of targeted actions undertaken by the organization to adapt to external conditions in order to further develop its operations and demonstrate its competitiveness with other organizations.

## 9 Study Methodology

### 9.1 Study Population and Sample

## 10 Study Population

The study population consists of all employees working in the branches of Jordan Islamic Bank, Arab Bank of Jordan and Bank of Jordan in Zarqa Governorate and is (420) employees spread across (25) branches of the three banks, and the questionnaire was distributed to all branches of the three Jordanian banks concerned, and the number of copies of the questionnaire retrieved and analyzed was (406) out of (420).

### 10.1 Validity of the Study Tool

Consistency of the study tool: The internal consistency test (Cronbach Alpha) is used to measure the degree of consistency of the items that make up the study.

#### 10.1.1 The Stability of the Study Tool

In Table 1 we note that Cronbach's alpha values (alpha 0.50) are all high, giving the researcher an idea of the robustness of the tool and its applicability to the study sample.

**Table 1** The value of the Cronbach stability coefficient (Cronbach alpha) for each dimension of the study and its variables and for the tool as a whole

No.	Dimension/variable	Cronbach alpha value
1	After group work	0.79
2	After sharing the information	0.78
3	After the delegation of authority	0.85
4	Administrative empowerment strategies variable	0.88
5	The success variable of organizational change	0.92
The tool as a whole		0.94

## 11 Testing the Study Hypothesis

To test the main hypothesis and its sub-hypotheses, the suitability of the data for statistical analysis was checked to ensure the suitability of the data with the assumptions of the regression analysis, since it was confirmed that there was not a high correlation between the dimensions of the independent variables (multicollinearity) using the Variance Inflation Factor (VIF) and its test. Tolerable variance for each variable of the study, bearing in mind that the tolerable variance inflation factor (VIF) does not exceed the value (10) and the tolerance value should be greater than (0.05). It was also confirmed that the data follow the normal distribution (Kolmogorov–Smirnov test).

Table 2 shows the inflation factor (VIF) values and the allowable variation test (tolerance) values.

The results from Table 2 show that there is no multicollinearity between the dimensions of the independent variables (teamwork, information sharing, and delegation of authority), with the values of the coefficient of variance inflation (VIF) test for the three dimensions (0.1551, 2.087, and 1.821), which is less than (10). It can also be seen that the values of the tolerance test (tolerance) were respectively (0.648, 0.479 and 0.549), which is greater than (0.05), and this is an indication that there is not a high correlation between the dimensions of the independent variables.

### 11.1 Hypothesis

To test this hypothesis, multiple regression analysis is used, and the results are as shown in Table 3.

Table 3 clearly shows that the dimensions of administrative empowerment strategies play a statistically significant role in the success of organizational change ( $R^2 = 0.402$ ), while the value of the modified  $R^2$  was adjusted ( $R^2_{adj} = 0.398$ ). This indicates that administrative empowerment strategies with their dimensions (teamwork, sharing of information and delegation of authority) could explain 39.8% of the differences in the success of job changes, (0.187) for information sharing and (0.359) for delegation of powers. This means that an increase of one unit in each dimension of administrative empowerment strategies (teamwork, information sharing and delegation of authority) leads to an increase in the success of organizational change by

**Table 2** The values of the variance inflation factor (VIF) and the values of the tolerance test (tolerance)

Dimensions of the independent variable		VIF	Tolerance
Teamwork	1	1.551	0.645
Exchange of information	2	2.087	0.479
Delegation of authority	3	1.821	0.549

**Table 3** Multiple regression analysis

Dependent variable	Model summary			Variance analysis ANOVA			Transaction table Coefficient				
	(R) correlation	(R <sup>2</sup> ) coefficient of determination	Adjusted R <sup>2</sup> Modified coefficient of determination	F calculated	DF degrees of freedom	Sig** significance level	B degree of impact	T calculated	Sig** significance level		
Career change	0.634	0.402	0.398	90.14	Regression	3	0.000	Team work	0.196	4.08	0.000
					Residuals	89.21		Sharing information	0.187	3.36	0.001
					The total	149		Delegation of authority	0.359	6.91	0.000

\* The effect is statistically significant at the level ( $\alpha \leq 0.05$ )

(16.9%) in teamwork and (18.7%) in information sharing and (35.9%) for delegation of authority, and the significance of this effect is confirmed by the calculated F-value, which amounted to (90.14), which is a function at the ( $\alpha \leq 0.05$ ) level. Accordingly, the null (null) hypothesis is rejected and the alternative hypothesis accepted, which states:

### Discussing the Findings

The following is a discussion of the findings of the study:

The results show that there is a high and direct correlation with statistical significance between the independent variable (administrative empowerment strategies) with its three dimensions (teamwork, information sharing and delegation of authority) and the dependent variable. The success of organizational change, with the value of ( $R^2$ ) being statistically significant at the ( $\alpha \leq 0.05$ ) level of significance, with the three dimensions of the independent variable (administrative empowerment strategies) explaining 40.2% of the variation in the dependent variable (the organizational change success), (38.7%) for the cultural change dimension, (20.7%) for the organizational structure change dimension, (19.6%) for the technology change dimension, and (23.5%) also for changing the task dimension.

The value of ( $\beta$ ) indicating the impact of each dimension of the independent variable (strategies for administrative empowerment) on the dependent variable (success of organizational change) and each dimension of statistical significance (0.05), with teamwork (16.9%) was explained on the dependent variable overall, (17.7%) the variation in the dimension of change in culture, (16.2%) in the dimension of change in technology, and (18%) in the dimension of change in the tasks, and There was no independent variable for teamwork with a statistically significant effect on the dimension of change in organizational structure.

As for the dimension of information exchange, it had a positive impact on the dependent variable (the success of organizational change) overall with a percentage of (18.7%), on the dimension of change in organizational structure by (24.7%), on the dimension of change in technology by (13.5%), (14.5%) on the dimension of change in tasks, and it had no statistically significant effect on the dimension of change in culture.

As for the delegation of authority dimension, it had a (35.9%) positive impact on the dependent variable, overall organizational change success, (44%) and on the cultural change dimension (27.1%). the dimension of the change in organizational structure, (22.4%) the dimension of change in technology and (23.4%) the change in tasks. The results of this study are consistent with the study by [39], which showed that administrative empowerment strategies have a positive impact on the performance of work teams, and with the study by [2], which indicated this that there is strong correlation between administrative empowerment strategies and decision-making.

This result means that the interest of banks in Jordan in their staff having administrative empowerment strategies increases their ability to be successful in organizational change. In the development and improvement of banking.



## Recommendations

Based on the previous results, the study makes the following recommendations:

1. Increasing the interest of Jordanian banks in promoting and strengthening the areas of administrative empowerment strategies for their employees, as this is important for the development and advancement of the bank's work.
2. Pay special attention to the development of administrative empowerment strategies for employees, regardless of their gender, age, qualifications, job title or experience, as managerial empowerment strategies are not tied to one particular group over another.
3. Providing appropriate training programs in Jordanian banks leading to increased efficiency and managerial empowerment strategies for employees strengthens their ability to carry out the tasks entrusted to them and trains them on change and how to manage it.
4. Improving communication between employees and management, and between bank departments and general administration, and providing effective communication tools in more than one direction and in multiple ways.
5. Introducing an approach by management of Jordanian banks to drive the success of organizational change as an entry point for further developing the work of banks, raising their level and keeping pace with local, regional and global trends of change.
6. Adoption of administrative strengthening strategies as a basis for recruitment and promotion in Jordanian banks.
7. Expand delegation of authority to employees in Jordanian banks and involve them in decisions related to their work.

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# The Contract of Professional Football Player: A Comparative Study Between Qatari and Jordanian Legislation



Mohammed Muslim Al-Zawahreh and Safaa Ziad Omar Al-Hashaikah

**Abstract** The aim of this investigation is to address two primary questions: do the current legal regulations governing this particular contract align with the laws of Jordan and Qatar, and what is the legal nature of contracts for professional football players? Additionally, the study seeks to elucidate various issues pertaining to the nature of the relationship established within the parameters of the professional contract between the players and the clubs, highlighting the differences between this contract and other comparable contracts. Furthermore, the study aims to outline the rights and obligations of the parties involved, resulting from the adjustment of this relationship. The researchers utilized an analytical approach to examine the legal texts and general principles related to professional football player contracts, and a comparative approach was utilized to determine the position of Jordanian legislation in relation to Qatari legislation in specific aspects. The inquiry's findings demonstrate that the lack of specific legal provisions in contracts for professional football players is attributable to their relatively new emergence and necessity. As a result of their examination, the researchers have reached the conclusion that the legal texts that govern the contracts of professional football players must be revised, and that distinct legislation is necessary to accommodate this level of professionalism. Additionally, the study emphasizes the significance of specialized legal measures to settle sports-related disputes that stem from contracts involving professional football players. The study also suggests that there should be enforced responsibilities grounded in labor laws or local regulations whenever players' rights and obligations are not explicitly defined in the fundamental regulations of the Association, or in the regulations pertaining to the status of professional players and the sports organizations to which they belong.

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**Keywords** Professional football player contract • Professional football player • Sport club • National football association • Labor law • Civil law • Arbitral tribunal

## 1 Introduction

In contemporary society, sports have emerged as a crucial aspect of social culture. Football, in particular, has seen notable expansion and transformation over the years. However, the legal dimension of sports, including football, has been overlooked. Several research studies categorize sports as mere physical exertion and disregard it as a profession or expertise. To foster the advancement of sports, a well-regulated environment is necessary. Therefore, it is imperative to establish a legal structure that directs this growth and enforces associated laws. By implementing appropriate regulations, sports can maintain their momentum and continue to progress.

Progress in sports is being witnessed in Qatar, evident in its upcoming hosting of the FIFA World Cup 2022, a significant achievement for the state. Consequently, Qatar has become a central territory for sports devotees. However, despite the boom in professional sports, regulation of the professionalism process is insufficient. As for Jordan, it has also seen remarkable advancements in the sports scene as traditional perceptions are being supplanted by the idea of professionalism. Jordanian and non-Jordanian professionals have been lured to football in the kingdom due to a recent shift, making it an increasingly popular sport worldwide. The competition has improved as a result of many skilled players joining Jordanian clubs. Football is now the most well-liked sport in Jordan. However, despite this trend, there are no updated laws governing the professional contracts of football players [1, 5, 30]. As a result, this study will compare the regulations governing professional football player contracts in the Hashemite Kingdom of Jordan and Qatar.

### 1.1 Research Problem

The main focus of this study is to evaluate the effectiveness of legal regulations that govern professional soccer player contracts in the legal systems of Qatar and Jordan. Additionally, it aims to elucidate the legal foundation of these agreements and to clarify the nature of the relationship between the player and their sports club that develops through the professional contract [1–4, 32, 33]. This inquiry also aims to distinguish the unique features of this type of contract from other similar agreements. Ultimately, it seeks to provide insights into the rights and obligations of both parties involved in this contract and how they may be modified over time.

## ***1.2 Research Importance***

In summary, the significance of this investigation can be succinctly stated as follows:

- The examination of a professional football player's contract and its fundamental components is crucial in determining its legal status.
- The identification of inadequacies or imperfections in legal regulations governing the professional contracts of football players.
- As the misconceptions surrounding sports continue to grow, there is a clear need for precise legal provisions that govern sports activities.
- The topic under consideration is the prospect of utilizing the legal system as a means of resolving conflicts in sports.

## ***1.3 Scope of the Study***

The Jordanian Labor Law No. (8) of 1996 [13], the Jordanian Civil Law No. (43) of 1976 [14], the Regulations on the Status and Transfers of Football Players in the Hashemite Kingdom of Jordan (2019–2020), the Law of the Supreme Youth Council, Law No. (13) [17], the Basic System of the Jordan Football Association 2019, the Licensing and Registration of Clubs and Youth Organizations Law and its amendments No. (33) of 2005 [19] issued under the Youth Care Law, and its amendments, the Instructions for Registering Professional and Amateur Players, Technical and Administrative Staff, and Medical Staff for the 2022 season, as well as the Qatari Civil Law No. (22) of 2004 [21], Qatari Labor Law No. (14) of 2004 [22], the International Federation of Association Football (FIFA) Regulations on the Status and Transfers of Players 2020, the Basic System of the Qatar Football Association, issued on April 18, 2017, and the Regulations on the Status and Transfers of Players issued by the Qatar Football Association for the year 2022/2023 will all be utilized in conducting this study [29].

## ***1.4 Research Methodology***

In order to conduct a thorough study, it is imperative to utilize a variety of research techniques, rather than relying solely on a singular method [12, 34]. The initial phase of this study will employ an analytical approach to scrutinize and examine the core principles and regulations pertinent to the chosen research topic [6]. This will allow for the identification and resolution of any potential issues that may arise throughout the course of the study [7]. Following this, a comparative methodology will be utilized to understand the different legal frameworks adopted by various countries in regards to the issues under examination [8]. The study will specifically focus on the regulations and laws enforced by FIFA and its associated committees,

as well as those implemented in the Hashemite Kingdom of Jordan and the State of Qatar. To achieve this objective, the research will be divided into two distinct sections:

- Professional Player Commitments
- Club Commitments

## **2 Professional Player Commitments**

The contracts of professional football players are characterized by a distinct degree of precision and scrutiny from the public eye. As a result, there are primary and secondary duties for all parties involved that are not typical of other contracts [9]. The public's fascination with these players has engendered particular expectations regarding their behavior, both in public and in front of the media [11]. Furthermore, the physical health and safety of the player requires a commitment from all parties involved in the contract [35].

We will delve into the obligations placed on a professional player through their contract, as dictated by national federations, labor law, and civil law [10]. These obligations can be categorized into primary and secondary responsibilities, which we will examine in the subsequent sections [36].

### ***2.1 Primary Obligations of the Professional Player***

Both Jordanian and Qatari laws require that players perform their assigned tasks independently. In no situation is it permissible to transfer these duties to another individual. Article 814/1 of the Jordanian Civil Law states, "The work must be performed personally." This requirement is also imposed by the Jordanian Labor Law in Article 19/1, which states, "Perform the work personally and exercise the care of an ordinary person..." Similarly, Article 42/1 of the Qatari Labor Law states, "Perform the work personally and exercise the care of an ordinary person in its performance."

As per Article 814/3 of the Jordanian Civil Law, professional athletes are required to comply with the directives of their employers as long as it does not contravene the law or moral code or pose a risk to their safety [2]. This obligation is reiterated in Article 19/1 of the Jordanian Labor Law, emphasizing the importance of following the employer's instructions within the confines of law and public ethics. The Qatari Labor Law, on the other hand, enforces this obligation in Article 42/2, mandating that athletes must carry out their employer's orders regarding their work performance, provided that it does not violate the contract or the law and does not jeopardize their well-being.

As per Article 816 of the Jordanian Civil Law, a professional player is legally bound to abstain from working for any other club while under contract [13]. The



Qatari Labor Law further enforces this mandate in Article 42/3, which stipulates that a player cannot work for another entity, whether compensated or not, during the duration of their contract. The consequences of violating this edict may include penalties, as outlined in the regulations overseeing the status and transfer of football players in Jordan, specifically in Article 16/6 [14].

In accordance with Article 42/7 of the Qatari Labor Law, it is obligatory for athletes to continuously improve their skills and expertise by following their employer's directives and procedures, collaborating with pertinent entities, and utilizing available resources. This progress involves physical and technical training that is deemed suitable by the club for the accomplishment of their objectives [28, 34].

The Qatari Labor Law's Article 42/8 imposes a responsibility on players to keep all information received from their club confidential, even after their contract has come to a close [15]. This responsibility aligns with the mandates outlined in Article 814/5 of the Jordanian Civil Law, which requires players to protect their employer's industrial and commercial secrets beyond the termination of their employment contract, in accordance with any established agreements or customs. Further emphasizing this obligation to maintain confidentiality, the Jordanian Labor Law's Article 19/2 mandates that players must refrain from disclosing their employer's industrial and commercial secrets in any form, in accordance with any agreements or customs, even after the contract has ended [16].

## ***2.2 Specific Professional Player Obligations***

Professional athletes must comply with the governing rules and regulations according to the regulations of Qatar and Jordan [17]. Article 5/3 of Qatar regulations and Article 14/1 of Jordanian regulations require athletes to follow the stipulated guidelines. During designated times, including training and playing, players must devote themselves entirely to their club and are not allowed to participate in matches for any other entity without the club's approval, as stated in Article 14/4 of Jordanian regulations. The player must adhere to their club's schedule, and if called up to play for another entity such as the national football team, precedence must be given to the club. To engage in other sports activities within the club, written consent from the club is mandatory [27]. Professional players are also prohibited from traveling outside the country without written permission from the club to follow Article 14/3 of Jordanian regulations and align their lifestyle with their profession [18].

It is imperative that a player prioritizes their physical well-being and avoids risky situations, as a single injury can significantly impair their capabilities on the field [37]. Additionally, they are mandated to promptly report any health complications or injuries to the club's medical team, who will then assess whether the player can participate in games or training sessions. Thus, a player's dedication to maintaining their health is regarded as paramount, since their overall health and preparedness serve as the bedrock of their profession [19].

As stated in Article 10/1 of the Qatari regulations, the player is obligated to undergo medical examinations. These examinations are crucial to ensuring the player's physical fitness and well-being prior to the start of the sports season. Passing these examinations is mandatory, and the player must be in good health and physical condition to be deemed successful [20].

### 3 Club Obligations

To ensure the stable functioning of its sports activities, the club must abide by a set of obligations imposed by previous laws and regulations. According to Jordanian regulations (Article 12/2), professional clubs are required to adhere to all regulations, decisions, and instructions issued by the federation. Similarly, Qatari regulations (Article 1/2) require all member clubs and their affiliates to follow the regulations [26]. In view of these laws and regulations, we will examine the main obligations related to two specific requirements [21, 31].

#### 3.1 Club's Main Obligations

The Qatari regulations, in Article (24), state: "Clubs are obliged to fulfill their financial obligations towards players and other clubs according to the conditions and terms stipulated in the contracts signed with their professional players [22]." Meanwhile, the Jordanian regulations, in Article (12/6), mention that "the club must provide professional players with the following privileges: (1) A monthly basic salary as agreed upon in the contract signed between the club and the player. (2) Any bonuses or other allowances agreed upon either in the contract or in the club's internal regulations [23]."

The club is also obligated to respect the contract with the professional player, as detailed in Article (23) of the Jordanian regulations, which states that "clubs must maintain the stability of contracts with professional players by respecting the contracts signed with them." In the Qatari regulations, the fifth chapter contains a comparable provision, stating that professional players must be provided with health insurance by their clubs. Similarly, the Jordanian regulations set forth in Article (12/6) require clubs to supply their players with health insurance that offers comprehensive coverage [30]. This coverage includes necessary treatments, regular medical check-ups, injury compensation, disability coverage, and protection for events that occur during the contract period and their aftermath [24].

### 3.2 *Club's Specific Obligations*

For a player to perform as a professional, the club they belong to must provide them with all the necessary preparations. This includes access to appropriate training facilities, a team of qualified coaches for both physical and health training, specialized training programs, dietary plans, personal guidance for players, sports attire, and pre and post-match medical care to prevent injuries. In case an injury is sustained as a result of playing or training, the club is responsible for providing the player with qualified medical treatment and care to ensure their ability to continue working [38].

Furthermore, Article (44) of the Qatari Labor Law states that “the employer is obligated to enable the worker to perform the work and provide all necessary supplies for it. If the worker arrives at the workplace ready to work but cannot do so for reasons beyond their control, it shall be considered as if the work has been performed, and the corresponding benefits shall be granted [25].”

## 4 Conclusion

When examining the contract of a professional football player within the context of Jordanian and Qatari law, it becomes apparent that this is a crucial legal aspect of the sport. The professional player is a fundamental element of football, and the regulation of the game—locally and globally—begins with the agreement between the player and their affiliated club. This analysis involves providing a comprehensive explanation of the legal nature and aspects of a professional player's contract. The first section outlines the components of the contract, its legal definition, and what it entails. Subsequently, the primary pillars and consequences of the professional player's contract are discussed, with an emphasis on the importance of a signed contract between the player and the club. The concept of the professional player's contract is defined through the laws and regulations that govern professional football. Ultimately, it is evident that the professional player's contract is an essential component of the legal framework that governs football. There is a noticeable disparity between the legislation of Jordan and Qatar when it comes to defining the legal status of a professional player's contract. In Qatar, the regulations explicitly designate this contract as an employment agreement, as evidenced by some texts in the Qatari Players' Status and Transfer Regulations. The researchers have concluded that this contract is more akin to an employment contract due to the presence of two fundamental components—remuneration and subordination. However, the professional player's contract is distinguished by unique rules and regulations that are imposed by the nature of the sporting activity and the governing regulations at both national and international levels, such as FIFA. Therefore, it is regarded as a specialized type of employment contract.

## 5 Results

1. The outcomes of this examination affirm that a professional football player's agreement is, at its core, an employment agreement. This is clearly evident in the player's duty to perform for their sports club and the club's obligation to provide remuneration to the player. However, this contract is distinctly different from other types of employment contracts due to the extraordinary nature of athletic labor.
2. A contract for a professional football player is unique in its features, setting it apart from other types of contracts. It is a formal agreement that is entirely voluntary and is always for a predetermined duration. It is binding for both parties involved and is classified as a reciprocal contract. Even though the regulations in Jordan and Qatar do not explicitly state these defining attributes, they can be deduced from the fundamental principles of contract law.
3. In order to maintain order and consistency, professional sports organizations are required to follow the regulations established by the national sports federations. These federations have designated committees to handle the affairs of professional players in football, ensuring that their contracts are implemented properly. The Hashemite Kingdom of Jordan abides by these regulations, while in Qatar, the Qatar National Federation and the "Stars of Qatar" Foundation are responsible for monitoring and enforcing professional contracts.
4. The creation of a contract for a professional football player is contingent upon certain conditions that are integral to its validity. However, the guidelines outlining the formation of these contracts are not explicitly outlined in professional sports regulations. Consequently, the creation of such contracts is subject to the general rules governing the formation of contracts.
5. In order for a professional sports contract to be considered valid, it must be put in writing and adhere to a predetermined format. Oral agreements are insufficient in providing all the necessary details of the contract and the written documentation serves not only as verification but as proof of the contract's existence. The authentication of the contract is a necessary and obligatory step in the process of validating it.
6. Professional status for a player requires three conditions to be fulfilled: firstly, there must be a contract between the club and the player; secondly, the player must commit their physical abilities to the club; and thirdly, the player must receive financial compensation for their services. Furthermore, a professional club must meet certain requirements and be registered with the national federation. The Jordanian regulations provide clear guidelines for these conditions, however, the Qatari regulations do not have any provisions for the regulation of professional clubs in Qatar.
7. When registering a professional player in Jordan, it is mandatory to include a medical examination certificate as part of the required documentation. However, the regulations in Jordan do not state that regular medical evaluations are necessary to uphold the player's contract. In contrast, Qatar's legislation mandates

that all professional players undergo a medical examination before each sports season to ensure their physical fitness.

## 6 Recommendations

1. According to the researchers, it is essential to establish unique legal protocols for professional sports as a whole, with a special focus on football. The reason for this lies in the critical importance of contractual arrangements between sports organizations and their athletes.
2. It is imperative that the Jordanian legislative body provide a clear and concise definition regarding the legal status of a contract between a professional soccer player and their respective club. This will provide much-needed clarity regarding the rights and responsibilities of both parties involved in the agreement.
3. The current laws pertaining to the minimum age requirement for professional players in Qatar may need to be reviewed and revised by the legislative body. It may be beneficial to permit players who are under 18 years of age to enter into professional contracts, as this would facilitate the growth and cultivation of their skills.
4. The researchers propose that the legislatures of both Jordan and Qatar should clearly indicate the importance of consulting labor laws or local regulations in scenarios where the basic regulations of the federation or the regulations that govern the status of the players do not offer lucid guidance on the rights and responsibilities of professional players and their associated sports clubs.

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# Life Stress Among Working Women and Its Relation to Physical Fatigue



Nisreen Hassan Hussein Al-Nawrasi

**Abstract** The present analysis focuses on the physical fatigue experienced by women who work, and seeks to examine the different types of stress they encounter. The study aims to compare the levels of stress and physical fatigue between working women and those who do not work, while also establishing a correlation between life stressors and physical exhaustion in working women. A sample of 45 working women and 45 non-working women were studied to facilitate comparison. The results indicate that there were no significant differences in levels of physical exhaustion or life stressors, except for the workplace and study environment, which favored working women.

**Keywords** Life stressors · Working women · Non-working women · Physical fatigue

## 1 Introduction

The job market has seen a surge of women in various professions due to a number of factors. Among these are recent tangible changes in technology and education that have allowed women to pursue higher education and compete with men. This shift has produced economic and psychological benefits as women seek self-fulfillment and productivity. As a result, women have emerged from this era of change and are now able to hold advanced positions usually associated with men.

Today, there has been a noteworthy advancement in women's rights, however, the outcomes have not been entirely positive. Women now frequently encounter a challenge managing their time to meet all of their responsibilities. They carry a heavy load at both work and home, which can result in emotional distress, particularly when

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trying to juggle their commitments to both family and careers, specifically if they have kids. This, accordingly, raises the probability of encountering mental health problems.

Despite facing diverse obstacles and challenges, Arab women have assumed leadership positions and possess decision-making capabilities equivalent to men. These women competently contend with male counterparts for parliamentary representation and hold diverse ministerial roles. While these triumphs are noteworthy, they remain mainly responsible for managing their households in several areas and aspire to seek financial and mental improvement through employment.

Since the dawn of mankind, the problem of work-related stress and its impacts on individuals has persisted. Despite the challenges that are met in the workplace, people remain devoted to their progress and development, eager to compete with others. However, this very competition can give rise to additional issues and pressures, all fueled by a natural desire to win in a world where technology advances by the day. As a result, tension increases and people's mental health becomes impacted involuntarily [1].

In certain emotionally-demanding areas that demand patience, roles are taken on by women where men find them difficult to fulfill. This shift in dynamics has led some to question if women are capable of competing with men in all fields, particularly in creative ones [2], where some hold the belief that male capabilities are superior to women's. Despite the changing landscape, this mentality persists.

## 2 Previous Studies

Ben Zahy's study [3] focused on pinpointing what causes job-related stress while also analyzing women's ability to manage both work and home duties within the Oran area. In order to do so, 250 selected wives were chosen purposely to participate in the researcher's descriptive-analytical methodology. The Working conditions and control questionnaire (WOCCQ) scale was utilized in order to diagnose professional stress, while the household roles scale was used as well. What this showed was that there was a clear connection between stress on the job and household responsibility, yet no age-based, shift-based, housing-based, or child number-based variations were found in a woman's potential to handle a job and household obligations.

Reducing the daily pressures faced by women in the workforce was the aim of Al-Sayyad's [4] study. Through conducting interviews with 17 working women from Kafr El-Sheikh University, the researcher gained valuable insight using a descriptive approach. The study's focus was to discover the reasons for daily pressures on working women and the strategies they use to cope and adjust. By utilizing the role theory, the researcher discovered that women have multiple motivations for working, such as freeing men from financial strain, seeking personal growth, and obtaining self-reliance. Furthermore, the study implied that women may struggle to manage their domestic responsibilities towards their family and partners due to demanding work schedules.



From 1970 to 2012, Al-Batayneh and Al-Basit Athamneh [5] analyzed the economy's various sectors in Jordan to measure the productivity of working women. Their study aimed to construct a comprehensive measurement model that would evaluate the level of production among Jordanian women. By using the least squares method, the researchers gathered data and found that compared to men, women in Jordan had lower productivity rates across multiple sectors.

In Islamabad and Rawalpindi Universities, a research carried out by Shahab, Fatima, and Ali investigated the correlation between environmental standards and work quality among female professors. Their goal was to shed light on how supportive surroundings influence the productivity of female employees. The study involved 320 female professors, and the outcome indicated that the individuals' output increased in a favorable atmosphere.

## ***2.1 Research Problem***

Bearing numerous, stress-inducing responsibilities has become a common experience for women in today's society. Their entry into the workforce has led to a shift in traditions that held them back, allowing them to make greater contributions and improve their economic status. As a result, they are seeking self-realization, coming into their own as valuable members of our communities.

Working women, often under significant stress and pressure, have been shown by a multitude of studies to experience negative effects on their physical and mental well-being. This can result in decreased motivation and heightened emotional reactions, making it more challenging to move forward. As a researcher, it was important to shed light on this societal segment, offering encouragement and empathy to these women.

## ***2.2 Study Questions***

- Is there evidence of substantial distinction between the average life stress levels of working women and non-working women at the significance threshold of 0.05?
- Is there a statistically significant distinction, at a significance level of 0.05, between the average levels of physical fatigue experienced by women who work and those who do not?
- Can a positive correlation be drawn between physical fatigue and life stress that is both significant and measurable?

## 2.3 *Study Significance*

The study's significance lies in two aspects:

### 1. **Theoretical Significance:**

- Theoretical significance is reflected in the scientific contribution that the current study aims to make to the Arabic literature in this regard.
- The significance of the subject being studied is also rooted in its relevance—the examination of the life stress that women experience while also working, and its correlation with physical exhaustion.

### 2. **Applied Significance:**

Based on the study's results, they can be utilized in the following ways:

- Incorporating this particular demographic and drawing comparisons with women who do not work can aid in managing stress levels. Women who hold jobs display fewer negative effects on their physical and mental well-being despite experiencing internal and external stressors.
- The outcomes of this research have the potential to offer viable resolutions for both counselors and employed women who are experiencing stress. Furthermore, it can recommend various approaches that utilize constructive and adaptable psychological practices in directing employed women.

It is imperative to bring attention to this particular group within society, as women are frequently confronted with the challenge of balancing their duties at home and work, which can lead to both physical and psychological consequences. The research and examination of the causes and consequences of stress on women's health is a crucial area of study, and it is essential to develop effective programs and solutions to support women who embody society's fortitude and resilience in striving towards success.

## 2.4 *Study Objectives*

The current study aims to:

- Explore the contrasts between women who are employed and those who are not, in relation to the impact of life stress and physical exhaustion.
- The objective of this study is to explore the correlation between stress experienced in daily life and the manifestation of physical fatigue in women who are employed.
- Encouraging women to handle life's harsh pressures can greatly boost their productivity. This is especially true when a particular segment of society is highlighted for support. By reducing stress levels, women are able to perform better in various aspects of their lives.

## 2.5 *Study Hypotheses*

- On average, there are notable discrepancies in levels of life stress between women who work and those who do not, with the former experiencing less stress. These differences are statistically significant.
- Based on statistical data, there exists a notable contrast in physical fatigue levels between women who engage in paid work and those who do not. The data indicates that working women exhibit lower levels of physical exhaustion compared to their non-working counterparts.
- Working women who experience a high degree of stress in their lives are more likely to report experiencing physical fatigue, as evidenced by a statistically significant positive correlation between these two factors.

## 2.6 *Study Terms*

- Life Stress
- Internal Stressors
- External Stressors
- Physical Fatigue

## 2.7 *Operational Definitions of Study Concepts*

- **Life Stress:** according to Shaqeer [6], are accumulations that arise from different sources, whether they be internal or external that hinder a person's ability to respond to multiple situations. This can lead to emotional behavior in individuals. Kaplan [7] describes them as external events that demand adaptation from the individual. These events are critical moments in a person's life where they test their adaptability to the demands and pressures of life. Failure to adapt may result in psychological and physical problems, leading to continuous fatigue. As per Maquet's [8] definition, life pressures are fluctuations and changes that occur in a person's life, which require them to adapt. These may include financial struggles and academic challenges. However, these experiences also contribute to a person's adaptation, which helps them overcome physical exhaustion resulting from these changes.
- **Operational Definition:** The degree obtained by women on the life stress scale used in this study, categorized as follows:
  - Category 1: (0–63) representing low stress.
  - Category 2: (64–89) representing moderate stress.
  - Category 3: (90–210) representing high stress.

- **Physical Fatigue:** The issue at hand is a genuine concern that can have adverse effects on an individual's psychological and social well-being. It has the potential to cause disruption within families, discomfort in social settings, and the manifestation of a range of psychological symptoms. The severity of fatigue experienced is a determining factor in the nature of these symptoms [9].
- **Operational Definition:** It is the degree obtained by women on the physical symptom scale from the Cornell Scale.

### 3 Study Procedures

#### 3.1 Research Method

In order to achieve the study's objective of examining the relationship between life stress and physical fatigue among women who work, the researcher employed a research methodology that combined descriptive, correlational, and comparative approaches. This methodology involved comparing two distinct groups of women: those who work and those who do not.

#### 3.2 Study Sample

For this study, a purposive sampling approach was employed. Two groups, each with 45 participants, were formed based on age, marital status, and educational level. The sample was equally divided into working and non-working women to ensure a balanced representation.

#### 3.3 Study Tools

##### Physical Symptoms Scale in the Cornell Medical Index

Abu Al-Nabil (2000) made revisions to the scale by dividing it into four distinct sections: Physical Symptoms, Past Illness, Family History, and Behavior, Mood, and Emotions. These sections are then further categorized into two groups: Physical Aspects and Emotional Aspects. The researcher in question utilized the Physical Aspects group of the scale in her study, which explored the correlation between life stress and physical fatigue among working women. Each section of the scale is evaluated separately, with scores of 1 assigned to "Yes" and 0 assigned to "No."

## Life Stress Scale

The creation of the scale was attributed to Konstant L. with an Arabic translation made by Hassan Abdel Moe'ti in 1909. In Egypt, the researcher used this scale to collect data from her sample. The scale is composed of 79 items that are distributed into seven categories: Work, Financial, Health, Family, Marriage, Parental Stress, and Personal Events. Depending on the frequency of an event, the scale is three-dimensional; it is rated as Never (1), Occurred Once (2), or Occurred More Than Once (3).

## 4 Study Results

There are statistically significant differences among working women:

- **Hypothesis 1:** The independent samples t-test was conducted to compare working and non-working women, and it revealed notable differences with a calculated t-value of (3.27) at a significance level below (0.05). The results favored working women, with an average score of (12.47) and a standard deviation of (2.79), which was higher than the average score of non-working women (10.68) with a standard deviation of (2.32). The t-values ranged between (1.59 and 0.06), indicating that there was statistical significance at a significance level above (0.05).
- **Hypothesis 2:** Based on the results obtained, there were no notable differences between working women and those who do not work in terms of physical exhaustion. The t-value calculated was (0.65), rendering it statistically meaningless at significance levels above (0.05).
- **Hypothesis 3:** In order to confirm this hypothesis, the calculation of Pearson's linear correlation coefficient was conducted. The correlation coefficient was calculated between the scores attained from the Life Stress Scale and the scores acquired from the Physical Symptoms Scale. The results showed:
  - A notable correlation exists between physical exhaustion and various stressors, including financial, work-related, health-related, familial, and personal events. Additionally, the total scores of life stress are linked to this correlation. The correlation coefficient values range from 0.33 to 0.53, which are considered statistically significant at a level above 0.05.

## 5 Discussion of Results

The results of the study, which aims to compare life stress and its correlation with physical fatigue between working and non-working women, suggest the following:

- The dissimilarities that exist between women who are employed and those who are not, with regards to various aspects of stress in their lives, are demonstrably substantial. However, when it comes to burdens related to work and education, it was found that those who were employed suffered less stress compared to their counterparts who were not.
- With the exception of stress related to work or study, which was found to be more favorable among working women, there were significant variances noted in numerous dimensions of life stress between working and non-working women according to statistical data.
- There is no discernible correlation between physical exhaustion and economic strain, stress within a marriage, or stress related to parenting.
- When it comes to work and study-related stress, it seems that working women have an advantage over non-working women. This could be due to the intricate nature of working women's lives, where they must juggle multiple roles and relationships, making it more challenging to adapt and balance everything effectively.

The lack of statistically significant differences in the average physical fatigue scores of employed and unemployed women may be due to the similarity in their overall life stress levels, as determined by the absence of significant differences between the two groups.

## 6 Conclusion

Societal pressures on women have heightened over time, resulting in new trends. Women are now considered to be an essential component of society, particularly the family, which translates to an increase in their work responsibilities and the challenges of balancing work and life both inside and outside of work. Sometimes, silence is not an indication of satisfaction, and even if women accept some forms of pressure, it does not mean they are happy with what is imposed upon them. Despite acknowledging that women cannot handle pressures as men do, they are still subjected to them. While men resist women working, they are also reluctant to support a non-working woman. It is certain that the absence of open acceptance of these pressures does not mean they are welcomed by women. The reaction and response of women towards the matter are not consistent and hinge on factors such as social status, education, profession, family's financial state, and age. Additionally, it is crucial to note that the responsibility level amplifies when the family has children present.

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# The Management of Customer Relationships and Its Influence on Marketing Performance: An Empirical Study on Jordanian Telecommunication Orange Company



Mustafa S. Al-Shaikh, Tareq AL-Harashseh, and Mahmoud Ali Salahat 

**Abstract** The Jordanian Telecommunication Orange firm's marketing performance is the focus of this study, with the aim of determining the impact of customer relationship management. To achieve this objective, a cohort of 80 randomly selected personnel from the company received a tailored questionnaire. 87.5% of the originally distributed corpus, or a total of 70 questionnaires, met the necessary standards. As a result of the survey, it was revealed that customer relationship development, quality of service, and interactive management all have a significant effect on marketing performance, specifically market share and sales. As a result, the study recommends that the Orange Company of Jordan prioritize the development and improvement of customer relations through modified marketing strategies that aim to strengthen the bond between both parties. Furthermore, the research advises that the elements used by customers to evaluate service quality be identified through regular satisfaction surveys. In conclusion, it is evident that customer relationship management is a crucial factor in achieving marketing success for any company.

**Keywords** Customer relationship management · Marketing performance · Jordanian telecommunications company · Orange

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# 1 Introduction

Scholars have taken a keen interest in the implementation of Customer Relationship Management (CRM) in various companies, resulting in the development of specialized technologies and dedicated systems [1–8]. Effective CRM protocols are essential for attracting and retaining customers, which involves addressing their needs and desires and ensuring their satisfaction with the company's offerings [9–11]. Building loyalty among the customer base through this process leads to a positive reputation and the attraction of new clients [12, 13]. In today's fiercely competitive industry, catering to customer behavior and characteristics is a critical factor for a company's success. With these concepts in mind, this study was undertaken [14–16].

## 1.1 Problem Statement and Research Questions

The rise of technology has resulted in intense competition among businesses operating in the same sector [17, 18]. This has led to a transformation in how organizations market themselves, with a major emphasis on attracting and retaining customers, which in turn, determines a company's competitiveness and profitability [19, 20]. Telecommunications services, given their primary focus on computer and internet-related technology, are particularly vulnerable to these changes. As a result, the implementation of CRM has become essential for such firms. Should Jordanian Telecommunications Company Orange fail to retain customers due to poor CRM practices, a decline in marketing performance, sales, and competitiveness could result. The purpose of this research paper is to investigate the impact of CRM, specifically in terms of customer relationship development, interactive management, and service quality, on the marketing performance of Jordanian Telecommunications Company Orange.

## 1.2 Significance of the Study

The importance of a critical topic in marketing cannot be overstated, as it has a significant impact on customer satisfaction, loyalty, and the expansion of a customer base. It is therefore essential to conduct continuous research in this area [21]. The investigation delves into the relationship between Customer Relationship Management (CRM) and marketing performance, examining the various factors that influence marketing performance. This study is particularly relevant to Orange, the largest telecommunications company in Jordan, as it provides valuable insights into their marketing performance and CRM strategies that can enhance customer retention.

### **1.3 Study Objectives**

This study aims to explore the influence of Customer Relationship Management (CRM) on marketing performance in Orange, a telecommunications company in Jordan. The primary goal of this research has multiple sub-objectives that investigate various aspects. These include the development of customer relationships, management interactions, and service quality assessment. The study evaluates the impact of these factors on marketing performance, particularly in terms of sales and market share.

### **1.4 Study's Hypotheses**

Drawing on the research questions and the objectives of the research, the following hypotheses are proposed:

#### **The first central hypothesis**

- Ho: No statistically significant effect is there at a significance level ( $\alpha \leq 0.05$ ) of CRM on marketing performance, represented by market share and sales, in Jordanian Telecommunications Company Orange. The following sub-hypotheses stem from the central hypothesis:
- Ho1: No statistically significant effect is there at a significance level ( $\alpha \leq 0.05$ ) of customer relationship development on marketing performance.
- Ho2: No statistically significant effect is there at a significance level ( $\alpha \leq 0.05$ ) of interactive management on marketing performance.
- Ho3: No statistically significant effect is there at a significance level ( $\alpha \leq 0.05$ ) of service quality on marketing performance.

#### **The second central hypothesis**

- Ho: No statistically significant effect is there at a significance level ( $\alpha \leq 0.05$ ) of CRM, represented by customer relationship development, interactive management, and quality-service, on the satisfaction of customer in Jordanian Telecommunications Company Orange.

#### **The third central hypothesis**

- Ho: At the significance level ( $\alpha \leq 0.05$ ) of CRM represented by customer relationship development, interaction management and service quality, there is no statistically significant impact of Jordanian telecommunications company Orange on customer loyalty.

1.5 Operational Definitions

- CRM: All activities aimed at understanding and better understanding customers, focusing on relationships with them to design individualized and personalized offerings [9].
- Customer Satisfaction: A measure that can be used to determine the extent to which an organization’s performance matches customer expectations. If performance exceeds expectations, customers are satisfied; otherwise, they are not [10, 20].
- Customer Loyalty: The desire to deal with a particular organization over others in the same field [11].
- Interactive Management: The process of direct communication and personal interaction with the customer. The stronger and more effective this interaction is, the better the service delivery [12].
- Customer Relationship Development: The process of searching for the foundations of the relationship between the provider and the customer, focusing on communication interaction between the parties [14, 22].
- Service Quality: A criterion for the degree of alignment between customer expectations and perceptions of actual performance [15].
- Marketing Performance: The final outcome of organizational activities, a series of activities related to a specialized function or partial activity performed by management to achieve a specific goal [23].
- Sales: The final test of business activity that reflects the ability to achieve high levels of competitive performance in production and sales and the vitality of the product line [24].
- Market Share: The ability of an organization to develop strategies that put it in a better position and to implement these strategies for other organizations engaged in the same activities [17].

2 Study Model

The study model was constructed based on the following studies [19, 21, 25] (Fig. 1).

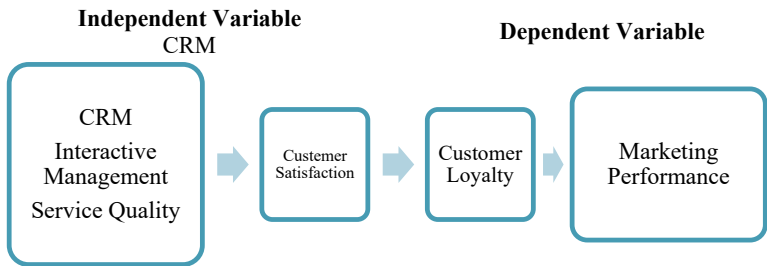


Fig. 1 Study model

### **3 Theoretical Framework**

#### **3.1 CRM**

The origin of CRM can be traced back to the year 1949. This was when the “father of direct selling,” Lester Wanderman, coined the term for the first time. He indirectly spoke about the interaction between sellers and buyers, the importance of dialogue and the importance of building long-term connections with customers [26, 27]. CRM is a set of practices in business tailored to build close relationship between a company and their customers. This is done to learn more about each customer and provide greater value to each customer, which is in line with the company’s overall goal of having each customer contribute the most value to the company [28, 29]. From a technical perspective, CRM is established through the appropriate use of information technology and communication [30]. On the other hand, from a management perspective, CRM is a comprehensive management process that establishes and develops relationships with customers under any circumstances to maximize the value of these relationships. [13, 31].

#### **3.2 Customer Satisfaction**

Customer satisfaction is defined as a customer’s response to the perceived differences between the previous expectations and the actual performance of goods and services after consumption [32, 33]. It also refers to a personal judgment that a product or service has given a pleasurable level of utility after consumption [34]. It measures how the firm’s products and services meet its customers’ expectations [35]. It refers to meeting the needs, wishes and expectations of customers throughout the lifetime of a product or service [36]. The growing interest in CS is derived from the traditional concept of cost benefit relationship. Actually, the cost of acquisition new customers is higher than the cost of retention currents [37].

#### **3.3 Customer Loyalty**

In the world of business, customer loyalty is often considered an essential factor in determining success. However, measuring and evaluating changes in customer behavior can be extremely challenging. The term “loyalty” itself refers to the preference customers have in purchasing products from one organization over another [38]. Today’s companies have come to recognize and appreciate the importance of customer loyalty, as it leads to positive economic outcomes. This can be seen in the higher profits of organizations that boast higher customer loyalty, attributed to higher rates of repurchasing and a willingness to pay higher prices [39]. Overall, loyalty is

defined as the inclination to do business with a particular organization instead of its competitors [11].

### **3.4 Marketing Performance**

Organizational activities culminate in marketing performance [40], which comprises of a set of specialized functions and sub-activities undertaken by management to accomplish certain objectives [23]. Marketing performance is a vital aspect that offers a comprehensive overview of an organization's policies, plans, budgets, and operations. This is because performance not only reflects the strategic position of the organization within its internal and task environment but also the strategic position attained by the organization externally [41, 42]. As per Ambler's definition, marketing performance is the level of achievement of an organization with regards to the goals established in its marketing plan [43].

## **4 Previous Studies**

During the pandemic of COVID-19, a study was conducted to demonstrate the influence of digital marketing endeavors on the commercial success of small and medium-sized businesses. The utilization of digital technologies allowed these businesses to remotely communicate and engage with their clientele, ultimately improving their customer relationship management (CRM) [16].

A study indicates that CRM has an important and a significant positive influence on customer loyalty [44]. CRM, as shown in a study [45], is seen as a managerial approach that helps companies increase customer retention through good CRM, supporting the ability to develop new products.

A study [46] highlighted the positive influence of using CRM dimensions in fulfilling a competitive advantage. Among the most important dimensions were quality dimension and strengthening customer relationships. Researchers benefited from this study to conclude that focusing on customers and developing special marketing programs for them has a positive impact on an organization's profitability.

On the other hand, a study [47] showed that good CRM leads to increased customer loyalty and customer satisfaction, subsequently improving marketing procedures. Another study [48, 49] highlighted a positive influence of relationship marketing on achieving a competitive advantage, as it helps in retaining customers and facilitates interaction and communication between them.

A study [50] indicated that the personal characteristics of customers do not affect the length of the relationship between the customer and the bank. The results also revealed a certain level of relationship and loyalty between the bank and its customers.

Furthermore, a study [51] illustrated a positive impact of CRM on the five-star and four-star hotels performance of in Amman. The study revealed a high level of interest in CRM in the sample hotels.

In addition, a study [21] pointed out that not all dimensions of CRM affect customer satisfaction and loyalty. The study found that the most influential dimension is employee behavior, which has a statistically significant and positive effect on loyalty and customer satisfaction. Finally, a study [52] indicated a statistically significant and positive impact of CRM on marketing performance.

## 5 Methodology

### 5.1 The Sample and Population of the Study

Orange Jordan, a telecommunications company, was home to the research participants. The sample for the study included employees from different departments, amounting to 80 individuals. The percentage of the distributed questionnaires that were retrieved is 85.5%, accounting for 70 valid ones to be analyzed statistically.

### 5.2 Hypothesis Testing

**Results of the central hypothesis H0: No statistically significant effect is there at the ( $\alpha \leq 0.05$ ) level of significance of CRM on marketing performance, represented by sales and market share in Orange Jordan (Table 1).**

The analysis of multiple regression was used, and from our examination of the computer results, it is clear that the computed F-value (F Calculated = 140.869) is higher than the tabular value. According to the decision criterion: The null hypothesis (Ho) is accepted provided that the computed value is lower than the tabular value, and the significance value (SIG) is higher than 0.05. The null hypothesis (Ho) is rejected provided that the computed value is higher than the tabular value, and the significance value (SIG) is lower than 0.05. Therefore, the null hypothesis (Ho) is rejected and the alternative hypothesis (Ha) is accepted. This indicates that a statistically significant effect is there at the significance level ( $\alpha \leq 0.05$ ) of CRM on marketing performance represented by sales and market share in Jordanian telecommunication company Orange. The relationship is strong as indicated by  $r = 0.93$ , and the independent variables explain 86.5% of the variance in the dependent variable.

**Table 1** The first central hypothesis results

F calculated value	F tabular value	Sig F	Non-significant result	r	r <sup>2</sup>
140.869	1.9949	0.000	False negative	0.93	0.865

**Results of the Sub-Hypothesis H01: There is no statistically significant effect at the significance level ( $\alpha \leq 0.05$ ) of customer relationship development on marketing performance represented by sales and market share in Jordanian telecommunication company Orange (Table 2).**

Simple regression analysis was used, and from our examination of the, we find that the calculated T-value (9.065) is higher than the tabular value. According to the decision criterion: The null hypothesis ( $H_0$ ) is accepted provided that the computed value is lower than the tabular value, and the significance value (SIG) is higher than 0.05. The null hypothesis ( $H_0$ ) is rejected provided that the computed value is higher than the tabular value, and the significance value (SIG) is lower than 0.05. Therefore, the null hypothesis ( $H_0$ ) is rejected and the alternative hypothesis ( $H_a$ ) is accepted. This indicates that there is a statistically significant effect at the significance level ( $\alpha \leq 0.05$ ) of customer relationship development on marketing performance represented by sales and market share in Jordanian telecommunication company Orange. The relationship is moderate as indicated by  $r = 0.74$ , and the independent variable justifies 54.7% of the variance in the dependent variable.

**Results of the Sub-Hypothesis Ho2: No statistically significant effect is there at the significance level ( $\alpha \leq 0.05$ ) of interactive management on marketing performance represented by sales and market share in Jordanian telecommunication company Orange (Table 3).**

Simple regression analysis was used, and from our examination of the results, we find that the calculated T-value is higher than the tabular value. According to the decision criterion: The null hypothesis ( $H_0$ ) is accepted provided that the computed value is lower than the tabular value, and the significance value (SIG = 0.000) is higher than 0.05. The null hypothesis ( $H_0$ ) is rejected provided that the computed value is higher than the tabular value, and the significance value (SIG) is lower than 0.05. Therefore, the null hypothesis ( $H_0$ ) is rejected and the alternative hypothesis ( $H_a$ ) is accepted. This indicates that a statistically significant effect is there at the significance level ( $\alpha \leq 0.05$ ) of interactive management on marketing performance represented by sales and market share in Jordanian telecommunication company Orange. The relationship is strong as indicated by  $r = 0.873$ , and the independent variable justifies 76.2% of the variance in the dependent variable.

**Table 2** The 1st sub-hypothesis results

T calculated value	T tabular value	Sig T	Non-significant result	r	r <sup>2</sup>
9.065	1.9949	0.000	False negative	0.74	0.547

**Table 3** The second sub-hypothesis results

T calculated value	T tabular value	Sig T	Non-significant result	R	r <sup>2</sup>
14.751	1.9949	0.000	False negative	0.873	0.762

**Results of the Sub-Hypothesis H03: No statistically significant effect is there at the significance level ( $\alpha \leq 0.05$ ) of service quality on marketing performance represented by sales and market share in Jordanian telecommunication company Orange (Table 4).**

Simple regression analysis was used, and from our examination of the results, we find that the calculated T-value is higher than the tabular value. According to the decision criterion: The null hypothesis ( $H_0$ ) is accepted provided that the computed value is lower than the tabular value, and the significance value ( $SIG = 0.000$ ) is higher than 0.05. The null hypothesis ( $H_0$ ) is rejected provided that the computed value is higher than the tabular value, and the significance value ( $SIG$ ) is lower than 0.05. Therefore, the null hypothesis ( $H_0$ ) is rejected and the alternative hypothesis ( $H_a$ ) is accepted. This indicates that a statistically significant effect is there at the significance level ( $\alpha \leq 0.05$ ) of service quality on marketing performance represented by sales and market share in Jordanian telecommunication company Orange. The relationship is strong as indicated by  $r = 0.928$ , and the independent variable justifies 86.1% of the variance in the dependent variable.

**Results of the Central Hypothesis H0: No statistically significant effect is there at the significance level ( $\alpha \leq 0.05$ ) of CRM represented by (customer relationship development, interactive management, and service quality) on customer satisfaction in Jordanian telecommunication company Orange (Table 5).**

Simple regression analysis was used, and from our examination of the results, we find that the calculated T-value is higher than the tabular value. According to the decision criterion: The null hypothesis ( $H_0$ ) is accepted provided that the computed value is lower than the tabular value, and the significance value ( $SIG = 0.000$ ) is higher than 0.05. The null hypothesis ( $H_0$ ) is rejected the computed value is higher than the tabular value, and the significance value ( $SIG$ ) is lower than 0.05. Therefore, the null hypothesis ( $H_0$ ) is rejected and the alternative hypothesis is accepted.

**Results of the third central hypothesis:  $H_0$ : No statistically significant effect is there at the significance level ( $\alpha \leq 0.05$ ) of CRM, represented by customer relationship development, interactive management, and service quality, on customer loyalty in Jordanian telecommunication company Orange (Table 6).**

**Table 4** The third sub-hypothesis results

T calculated value	T tabular value	Sig T	Non-significant result	R	$r^2$
2.496	1.9949	0.000	False negative	0.928	0.861

**Table 5** The second central hypothesis results

T calculated value	T tabular value	Sig T	Non-significant result	r	$r^2$
64.493	2.60	0.000	False negative	0.864	0.746



**Table 6** The third main hypothesis results

T calculated value	T tabular value	Sig T	Non-significant result	r	r <sup>2</sup>
7.258	1.9949	0.000	False negative	0.661	0.437

A simple regression test was conducted, and according to the results, it is found that the computed value is higher than the tabulated value. Following the decision criterion: the null hypothesis ( $H_0$ ) is accepted provided that the computed value is lower than the tabulated value, and the significance value ( $SIG = 0.000$ ) is higher than 0.05, and the null hypothesis ( $H_0$ ) is rejected the computed value is higher than the tabulated value. Since the significance value ( $SIG$ ) is lower than 0.05, the null hypothesis ( $H_0$ ) is rejected, and the alternative hypothesis ( $H_a$ ) is accepted. This indicates that a statistically significant effect is there at the significance level ( $\alpha \leq 0.05$ ) of CRM, represented by customer relationship development, interactive management, and service quality, on customer loyalty in Jordanian telecommunication company Orange. The connection is strong, with  $r = 0.661$ , and the independent variables explain 43.7% of the dependent variable's variation.

## 6 Discussion of Results

1. Represented by sales and market share, CRM has a significant impact on the marketing performance of Orange, a telecommunications company in Jordan. At a significance level of  $\alpha \leq 0.05$ , this effect is statistically significant and strong with an  $r$  value of 0.93. Surprisingly, this study reveals a different outcome from the research conducted in [53], which did not highlight a direct effect of CRM on company performance. But, it does support the results of [54], indicating that this strategy can help in achieving a competitive advantage. Furthermore, the independent variables explain 86.5% of the variation observed in the dependent variable.
2. In Jordanian Telecommunication Company, Orange, the development of customer relationships has a noteworthy effect on marketing performance. Sales and market share are the primary representation of this effect, and it has a moderate correlation of  $r = 0.74$ . The dependent variable sees around 54.7% variation explained by the independent variable, leading to a statistically significant impact with  $\alpha \leq 0.05$ . This coincidence with a previous study [46], confirms the effectiveness of emphasizing client relationships to gain a competitive edge.
3. Represented by sales and market share, there's a strong relationship ( $r = 0.873$ ) with interactive management and its effect on the marketing performance of Orange, a Jordanian telecommunication company. The relationship is significant at  $\alpha \leq 0.05$  level of significance, with the independent variable explaining 76.2% of the variance in the dependent variable.

4. In the Jordanian telecommunication company Orange, the significance level ( $\alpha \leq 0.05$ ) has indicated a statistically significant effect of service quality on marketing performance. This is reflected by sales and market share and the relationship between the two variables is quite strong with  $r = 0.928$ . Surprisingly, the independent variable proves to explain 86.1% of the variation in the dependent variable. Comparing our findings with [46], the impact of service quality cannot be underestimated when it comes to gaining competitive advantage.
5. In Orange, customer satisfaction is highly influenced by the management of customer relationships. Specifically, customer relationship development, interactive management, and service quality play a significant role in this regard. The strength of this relationship is demonstrated by a correlation of 0.864, while the variation in the dependent variable is explained by 74.6% of the independent variable. This effect is statistically significant at a significance level of  $\alpha \leq 0.05$ .
6. In Orange, customer loyalty is greatly impacted by their CRM practices. Through customer relationship development, interactive management, and service quality, the company can significantly influence the loyalty of their consumer base. This correlation is evidenced by a strong  $r$  value of 0.661 and a large variation of 43.7% explained by the independent variable. These results align with previous research, specifically study [47], which supports the idea that effective CRM can lead to increased loyalty and better marketing practices.

## 7 Recommendations

The study draws the following recommendations:

1. To enhance their customer relations, the Jordanian telecom company Orange must prioritize replenishing their marketing tactics exclusively for retaining customers.
2. Enhancing interactive management is crucial for a company to maintain sustainability and profitability. Knowing that customer demands and expectations are always changing, a company must respond accordingly.
3. Regularly measuring customer satisfaction is important in identifying the key factors that customers use to evaluate service quality. By doing so, businesses can pinpoint the specific elements that factor into customer satisfaction.
4. High-quality service provision must be impressed upon all levels of Orange, a Jordan-based telecommunication company, through adequate employee training.
5. Explore how CRM affects marketing performance by conducting studies on telecom companies like Umniah and Zain, in addition to Orange.
6. In order to provide services tailored to customers' needs, it is important for a company to take into account their unique viewpoints and suggestions. Customer feedback can be invaluable in refining and enhancing the services offered by a company.

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# The Impact of Innovation on Achieving Competitive Advantage: A Case Study of Jordan Telecom Group—Orange



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**Abstract** The objective of this research is to investigate the influence of innovation in its diverse forms, including marketing innovation, production innovation, operational innovation, and organizational innovation, on obtaining different types of competitive advantage like cost leadership, differentiation, and focus on supervisory roles within Jordanian Telecommunications Group—Orange. The researcher employed a descriptive analytical approach utilizing (SPSS). Due to the large size of the study population, the researcher used a purposive sample, with a minimum of 480 supervisory positions in accordance with Sekaran's table. The sample of 313 questionnaires was disseminated, approximately 65% of the study population, with 250 workers returning completed questionnaires, resulting in a response rate of around 64%. The study discovered that innovation in all four dimensions had a statistically significant positive influence on achieving a competitive advantage in the Jordanian Telecommunications Group—Orange. Therefore, the study recommends that innovation in all its forms should continue to be developed and supported, as it plays a vital and constructive role in maintaining and achieving a competitive advantage within the Jordanian Telecommunications Group—Orange.

**Keywords** Innovation · Competitive advantage · Jordanian telecommunications group—orange · Jordan

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# 1 Introduction

With globalization eliminating regional and international barriers between nations, and technology advancing at an unprecedented rate, the proliferation of business institutions has been instrumental in raising the quality of goods and services satisfaction in the market. These institutions have expanded their focus beyond their immediate vicinity to create demand for their products and differentiate themselves from rivals. As customers' wants and needs have become more varied, these institutions have begun collecting data on their competitors, clients, and market trends both within and outside their organization. This has compelled businesses to investigate and establish tactics and methodologies to contend with the heightened competition in the market [1].

Innovation and novel ideas arise from both internal and external sources for an organization. Several studies have concluded that external resources, such as new knowledge, varied perspectives, and innovative ideas, can lead to more creativity than those generated within the organization. The exchange of knowledge between the organization and other external entities represents the horizontal transfer of knowledge between the organization and its competitors. This transfer of knowledge is aimed at developing novel and innovative products which lead to an improvement in business performance and a competitive edge [2].

The primary objective of this research is to examine the effects of innovation, in its various forms, on the attainment of a competitive edge in numerous aspects of the Jordanian Telecommunications Group—Orange.

## 1.1 Problem Statement and Research Questions

Among Jordan's economic sectors, telecommunications companies hold a crucial and influential position, playing a pivotal role in driving the national economy and providing essential support for revenue and economic growth. However, these companies have been subject to a series of challenges both domestically and regionally, which have resulted in declining sales and financial standings. One of the significant challenges they have faced is intense competition, which has compelled them to adopt new management strategies like innovation to attain profitability and gain a competitive edge.

In a world where numerous industries and sectors face constant challenges and rapid change, it is common for organizations to seek out ways to maintain a competitive edge that will allow them to thrive. Such an advantage is a crucial strategic objective for any organization looking to establish a unique position in the marketplace. The swift development of product and process innovations has become increasingly crucial in a variety of global industries as a method for achieving or preserving this competitive advantage [3].

The purpose of companies is to provide customers with goods and services [4, 5]. To survive and thrive in a competitive external environment, companies must seek out the necessary means and processes to develop new products and improve upon existing ones to meet customer demands. Innovation is considered a primary source of competitive advantage as it allows organizations to distinguish themselves in terms of cost, quality, flexibility, or delivery [6, 7]. This is essential for survival and growth in competitive markets, particularly during unusual circumstances or crises such as the COVID-19 pandemic [4, 8, 9]. The telecommunications sector emerged as a crucial supporter of state institutions and companies that continued to operate to meet the needs of citizens during the pandemic. Orange played a significant role in helping to contain the crisis [6, 10, 11]. The pandemic also highlighted the increased need for electronic services during the nationwide lockdown, leading telecommunications companies such as Orange to race to meet their customers’ demands [8, 12]. It is evident that companies must adapt and innovate to remain competitive and relevant in today’s ever-changing landscape [8, 11, 13].

Looking at the issue through this lens, the problem that arises can be succinctly stated as follows: Is it true that innovation, in all its different forms, has a direct influence on the attainment of a competitive edge in the various aspects of the Jordanian Telecommunications Group—Orange?

1.2 Study Model

To achieve the study’s objectives, the following model was adopted to illustrate the relationship between the independent variable and the dependent variable, as depicted in Fig. 1

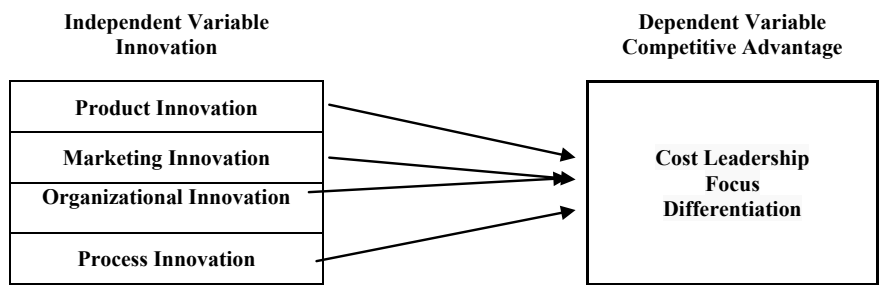


Fig. 1 Study model



### ***1.3 Hypotheses of the Study***

The central assumption (H0) of the investigation posits that there is no noteworthy impact at a 0.05 significance level ( $\alpha \leq 0.05$ ) for innovation in its multiple facets (productive innovation, marketing innovation, organizational innovation, and process innovation) on the attainment of competitive superiority in its diverse dimensions (cost leadership, focus, and differentiation) within the Jordanian Telecommunications Group—Orange.

## **2 Theoretical Framework**

### ***2.1 Concept of Innovation***

Innovation encompasses the creation, development, and execution of novel products with the goal of enhancing efficiency, effectiveness, and competitive superiority [14, 15]. This process adds value to an organization and [4, 5].

The definition of innovation, according to [2], pertains to novel concepts that originate either from within or outside an organization. These innovative ideas are then exchanged among employees, and may even migrate from one organization to another, ultimately giving rise to fresh and original breakthroughs.

According to [16], the term innovation can be described as the introduction of new or enhanced products, services, or processes that are based on novel scientific, technological, organizational, intellectual, or business knowledge.

### ***2.2 Dimensions of Innovation***

To conduct this research, the researcher utilized the subsequent dimensions: productive innovation, marketing innovation, organizational innovation, and process innovation. The definitions of these dimensions will be provided in a conceptual manner by the researcher.

- The term “productive innovation” is used to describe enhancements in product features and performance characteristics. This may also entail the utilization of components that differ from those used in previous iterations. Product innovations are typically discernible and can either involve groundbreaking new technologies or the combination of existing ones in novel ways [14].
- Marketing innovation encompasses a wide range of marketing activities, including product, distribution, promotion, and pricing [5]. It extends beyond specific marketing areas and encompasses all facets of marketing. Marketing innovation

also encompasses various marketing-related activities, such as advertising and product innovation [7, 17].

- The concept of organizational innovation pertains to the implementation of novel methods of conducting work within an organization to cultivate and augment a competitive edge [9]. This encompasses the approaches undertaken by both individual team members and the organization to manage work processes, including but not limited to customer relations, employee retention and performance, as well as the management of knowledge [10, 11].
- Process innovation refers to the enhancement of the technical and economic productivity of the production procedure [12]. This can be achieved through investing in new technology that employs modern production methods, mastering current methods and applying them, incorporating previous experiences, simplifying the configuration of production models, deepening technical expertise, improving individual performance, and reducing fixed production costs [13]. The correlation between product innovation and process innovation is closely intertwined, as alterations in products may necessitate changes in their corresponding production methods [15, 18].

## 2.3 *Competitive Advantage*

### **Concept of Competitive Advantage**

According to Hoffman, the concept of competitive advantage is the capacity of an organization to execute a plan that generates value that cannot be duplicated by current or future competitors. Additionally, this strategy should be one that other competing organizations are unable to benefit from by imitating it, as stated in reference [19].

### **Dimensions of Competitive Advantage**

- Cost Leadership

According to [20], cost leadership involves targeting a particular subset of customers who value product affordability above all else. To appeal to these customers, products are priced lower than those of competitors, resulting in a boost in market share and profit growth. The cost leadership strategy seeks to obtain a competitive edge by implementing a low-cost approach that allows for lower prices than rival companies. This strategy achieves price differentiation and drives customer demand while also reducing fixed production costs through increased unit volume to meet demand.

- Focus

The objective of this approach is to establish a competitive edge and attain superior market standings by meeting the distinct requirements of a particular consumer group. This is achieved by concentrating on a limited geographic market or by focusing on specific applications of a product for a specific group of customers [21].

**Table 1** Number of distributed and analyzable questionnaires

Distributed questionnaires	Retrieved questionnaires	Questionnaires valid for analysis	Excluded questionnaires	Percentage of retrieved questionnaires	Percentage of excluded questionnaires
313	250	200	50	64%	16%

- Differentiation

Distinguishing a company’s product from competitors’ products can be achieved through several methods, such as offering unique product features and diverse product configurations, providing superior customer service, furnishing spare parts, implementing advanced engineering and performance design, maintaining high-quality standards, leading in technology, providing a wide range of services, and establishing a positive reputation. The success of the differentiation strategy is contingent upon the economic unit possessing specific skills and efficiency aspects that are challenging for competitors to replicate [5].

### 3 Method and Procedures

#### 3.1 Study Sample

The research conducted utilized a purposive sample that aligned with the research’s objectives and nature. The size of the sample was determined based on the population size, which consisted of 480 supervisory positions. To determine the sample size, the Sekaran table was utilized, which resulted in the distribution of 313 questionnaires to the purposive sample, representing roughly 65% of the study’s population. The distribution of the questionnaires was carried out in collaboration with the Human Resources Department at the Jordanian Telecommunications Group—Orange. In total, 250 employees responded to the questionnaires, with 50 questionnaires being excluded due to incomplete responses. This resulted in a questionnaire retrieval rate of approximately 64%, which is higher than the minimum requirement set by the Sekaran table for the study’s sample size. Google Forms and electronic distribution were utilized by the researcher to distribute and collect responses to the questionnaires. Table 1 provides a summary of the number of distributed and retrieved questionnaires.

#### 3.2 Study Tool (Questionnaire)

To gauge the feedback of the participants involved in the study [7], the researcher utilized the well-known Likert scale with five points. The answers provided by the

participants were then converted from words to numerical values to simplify the analysis and measurement process. This scale is widely used due to its impartiality and ease of comprehension. The responses range from one to five, as shown in Table 3, where 5 corresponds to strongly agree and 1 correspond to strongly disagree (Table 2).

**Table 2** Questionnaire items

<i>Part one: demographic characteristics</i>			
<i>Dimension</i>	<i>Categories count</i>		
Gender	2		
Age	4		
Educational qualification	3		
Job title	6		
<i>Part two: dimensions of the innovation variable (independent variable)</i>			<i>Previous studies</i>
<i>Variables</i>	<i>Number of items</i>	<i>Item numbers</i>	The role of innovation in creating competitive advantage , study [22], the impact of marketing innovation on customer loyalty
Product innovation	5	1–5	
Marketing innovation	5	6–10	
Organizational innovation	6	11–16	
Process innovation	5	17–21	
<i>Part three: dimensions of competitive advantage (dependent variable)</i>			<i>Previous studies</i>
<i>Variables</i>	<i>Number of items</i>	<i>Item numbers</i>	The impact of strategic orientation on achieving competitive advantage: a field study in Jordanian public universities [23], study [21], The impact of strategic leadership practices on achieving competitive advantage in Jordanian Commercial Banks
Cost leadership	5	22–26	
Focus	5	27–31	
Differentiation	5	32–36	

**Table 3** Likert five-point scale

Response	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
Code	<b>5</b>	<b>4</b>	<b>3</b>	<b>2</b>	<b>1</b>

**Table 4** Internal consistency measurement (Cronbach's alpha coefficients)

No.	Variables	Number of items	Cronbach's alpha
1	Product innovation	5	0.829
2	Marketing innovation	5	0.767
3	Organizational innovation	6	0.857
4	Process innovation	5	0.877
5	Cost leadership	5	0.868
6	Focus	5	0.763
7	Differentiation	5	0.868
Total scale		36	0.955

### 3.3 Internal Consistency of the Study Tool

To evaluate the dependability of the instrument, an internal consistency test was administered to assess the accuracy and coherence of the questionnaire's items. Internal consistency is evaluated using different tests, with Cronbach's Alpha coefficient being the most widely used. The Cronbach's Alpha coefficient ranges between (1) and (0), with a minimum consistency of (0.7) expected among questionnaire items. Table 4 demonstrates the Cronbach's Alpha coefficients for the study variables.

After analyzing the data presented in Table 4, it is evident that the Cronbach's Alpha coefficients for all variables ranged between (0.763) and (0.877), surpassing the minimum internal consistency criterion of (0.7). As a result, it can be concluded that all questionnaire items demonstrate internal consistency. The dimension of "Process Innovation" displayed the highest level of consistency, with a Cronbach's Alpha coefficient of (0.877). On the other hand, the "Focus" dimension showed the lowest consistency, with a coefficient of (0.763). The instrument achieved a high internal consistency coefficient of (0.955).

### 3.4 Testing the Main Hypothesis

**The main hypothesis H0: No statistically significant effect is there at a significance level ( $\alpha \leq 0.05$ ) for innovation in its dimensions (Product Innovation, Marketing Innovation, Organizational Innovation, and Process Innovation) on achieving competitive advantage in its dimensions (Cost Leadership, Focus, and Differentiation) in the Jordan Telecommunications Group—Orange.**

To test the main hypothesis, Multiple Linear Regression analysis was used, and the results are presented in Table 5

The main hypothesis was tested at a significance level ( $\alpha \leq 0.05$ ), and the results are as follows:

**Table 5** Multiple linear regression analysis results for the main hypothesis

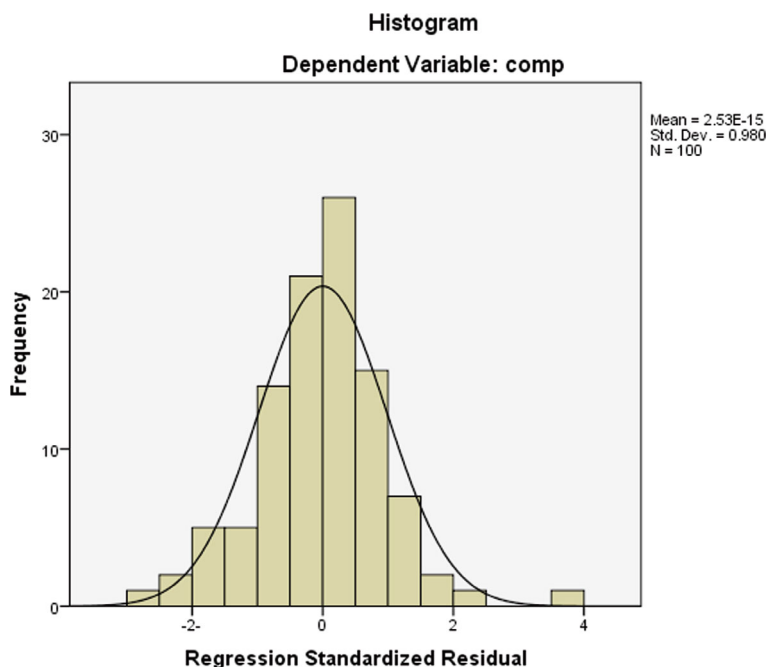
Dependent variable	(R)	(R2)	Computed F	Freedom degrees	Significance level (Sig.)	Independent variable innovation	B value	t value	Significance level (Sig.)
Competitive advantage	0.742	0.551	29.168	4	0.000	<i>Product innovation</i>	- 0.0146	- 0.141	0.887
						<i>Marketing innovation</i>	0.479	4.292	0.000
				95		<i>Organizational innovation</i>	0.225	2.551	0.0123
				99		<i>Process innovation</i>	0.0838	0.774	0.440

- The significance of the regression model used for analysis was confirmed by comparing the computed F-value (29.168) to the critical value (2.47). The F-value computed was found to be greater than the critical value, indicating the statistical significance of the model.
- Upon analysis, it was discovered that the significance level for F (F) was (0.000), which is less than the significance level (0.05) put forth in the study. As a result, the primary hypothesis is negated, and the alternative hypothesis is embraced. This denotes that the impact of innovation in its various facets (Product Innovation, Marketing Innovation, Organizational Innovation, and Process Innovation) on the attainment of competitive advantage in its various dimensions (Cost Leadership, Focus, and Differentiation) in the Jordan Telecommunications Group—Orange is statistically significant at the significance level ( $\alpha \leq 0.05$ ).
- The correlation coefficient for R (0.742) denotes a robust and affirmative correlation between the independent variables, namely Product Innovation, Marketing Innovation, Organizational Innovation, and Process Innovation, and the reliant variable of Competitive Advantage.
- The R<sup>2</sup> coefficient, which signifies the combined influence of the independent variables (Process Innovation, Organizational Innovation, Product Innovation, and Marketing Innovation) on the dependent variable (Competitive Advantage), was determined to be at 0.551. This means that the variables have a substantial effect on competitive advantage, explaining about 55% of it.
- According to the statistical analysis, the independent variables of Marketing Innovation and Organizational Innovation hold great significance with a level of (0.05). This indicates that the statistical significance of these variables falls below the adopted level of significance (0.05) for both dimensions.
- Despite being tested for significance, the independent variables (Product Innovation and Process Innovation) were found to be statistically insignificant at the (0.05) level. This leads to the conclusion that there was no discernible impact on the dependent variable (Competitive Advantage).
- To create the regression equation, a constant value (B) of 0.724 was deemed necessary. By utilizing the findings, the regression equation for the independent variables in relation to the dependent variable can be written as follows:

$$\begin{aligned}
 [\text{Innovation} = & 0.724 - 0.0146 \text{ Product Innovation} \\
 & + 0.479 \text{ Marketing Innovation} + 0.225 \text{ Organizational Innovation} \\
 & + 0.0838 \text{ Process Innovation}].
 \end{aligned}
 \tag{1}$$

After estimating the above equation, the normality of residuals (error bounds) of this equation was tested using the Normal P-P Plot of Regression Standardized Residual test. The results are as shown in Figs. 2 and 3.

After examining these statistics, the data is arranged in a straight line as depicted in Fig. 2. This suggests that the residuals in the previously stated equation conform to a normal distribution. To verify this finding, a Kolmogorov–Smirnov test was

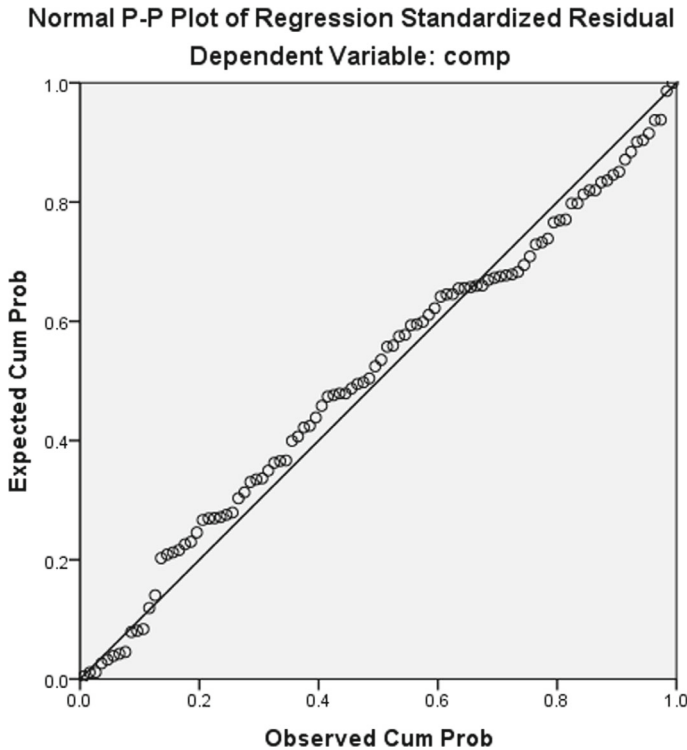


**Fig. 2** Histogram of regression equation normality test

performed on the dependent variable, the outcome of which indicated statistical significance with a p-value of 0.460.

- In the context of Jordan Telecom Group—Orange, innovation across four dimensions (Product Innovation, Marketing Innovation, Organizational Innovation, and Operational Innovation) has been found to have a statistically significant positive impact on achieving a competitive advantage. The findings reveal that there is a positive correlation between the dependent variable (Competitive Advantage) and the independent variables taken together. Innovation can account for 55.1% of the variability observed in competitive advantage.
- Innovation is a multidimensional concept, with Product Innovation being one of its crucial components. It is evident from the research that Product Innovation plays a pivotal and statistically significant role in achieving a competitive edge. The results of the study demonstrate a strong positive correlation between Product Innovation and Competitive Advantage, with Product Innovation explaining 32% of the variance in Competitive Advantage. Additionally, the predictive capability of Product Innovation was found to be 0.541, implying that changes in Product Innovation can lead to a 54.1% variation in Competitive Advantage.
- In the Jordan Telecom Group—Orange, it has been statistically proven that Marketing Innovation has a significant and positive impact on Competitive Advantage. The study yielded results that indicate a positive correlation between these





**Fig. 3** The frequency distribution plot for testing the normality of the regression equation

two variables. Marketing Innovation is responsible for explaining 49.7% of the attainment of Competitive Advantage. Given the positive relationship between the variables, enhancing Marketing Innovation will undoubtedly result in a positive effect on Competitive Advantage. A one-unit increase in Marketing Innovation leads to a moderate change of 0.678 in Competitive Advantage. Moreover, Marketing Innovation can contribute to changes of up to 67.8% in the Competitive Advantage.

- One of the facets of innovation that has a favorable influence on Competitive Advantage is Organizational Innovation. It accounts for 35.9% of Competitive Advantage, and the correlation between the two variables is positive. Thus, any positive changes made to Organizational Innovation will have a positive impact on Competitive Advantage. Organizational Innovation also can forecast alterations in Competitive Advantage by 53.1% for a single-unit shift in Organizational Innovation.
- The final facet of innovation is Operational Innovation, which has a beneficial influence on Competitive Advantage. This dimension can account for up to 39.2% of Competitive Advantage. The correlation between Operational Innovation and Competitive Advantage is positive, indicating that any constructive changes made

to Operational Innovation will have a positive effect on Competitive Advantage. Furthermore, Operational Innovation has a statistically significant impact on Competitive Advantage, with a moderate shift of 0.582 in Competitive Advantage resulting from a one-unit change in Operational Innovation. As a result, Operational Innovation will be responsible for 58.2% of shifts in Competitive Advantage.

- Jordan Telecom Group—Orange is an entity known for its high level of innovation, as confirmed by the relatively high importance achieved by the variable, averaging at 3.815. The study conducted covered various dimensions of innovation, with all of them being on the high side except for Organizational Innovation, which averaged at 3.630. This suggests that the top management of Jordan Telecom Group—Orange is invested in enhancing these dimensions to improve innovation. Out of all the dimensions, Operational Innovation had the highest average at 3.890. The variable has a predictive ability of 0.541, signifying that changes in Product Innovation will contribute to a 54.1% change in Competitive Advantage.

## 4 Recommendations

To improve the competitive advantage of Jordan Telecom Group—Orange, efforts should persist in enhancing the quality of services offered to customers. This is because customers hold significant influence over the competitiveness of the company.

In addition, encouraging a culture of constant growth and progress among staff members is essential. This can be achieved by providing them with the required knowledge and improving their practical skills. Offering various incentives, both tangible and intangible, can motivate innovative employees to contribute to the organization's overall success.

Moreover, by incentivizing employees to think creatively and propose beneficial ideas, the overall innovation process can be enhanced, and workers can feel more motivated to engage with innovation in a constructive manner.

Lastly, to achieve a competitive edge through innovation, it is imperative for Jordan Telecom Group—Orange to allocate sufficient financial resources.

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# Provisions of the Confiscation of the Debtor's Property with Third Parties in the Jordanian Execution Law



Ahmad Albnian and Ahmad Abdulkadir Ibrahim

**Abstract** The topic of this study focuses on the safeguarding of a debtor's assets with the involvement of third parties in the context of Jordanian execution law. This subject is crucial in the confiscation of a debtor's assets, regardless of their location, including those held by a third party. The principal objective is to confiscate the assets from being confiscated and to prohibit any action which would result in a decrease in their monetary value. The purpose of this confiscation is to entrust the assets of the debtor under the jurisdiction of the execution department, to fulfill the creditor's confiscation rights, and to prevent the diversion of these assets through executive confiscation procedures that would eventually lead to their public auction. This study raises the essential legal issue of the relationship between the creditor and the third-party holder, as the third party is not a part of the creditor-debtor relationship. It also scrutinizes the challenges encountered in executing the confiscation procedures when assets are held by a third party instead of the debtor. The focus of the study is centered on the verification of asset ownership by third parties and the creditor's entitlement to knowledge regarding the value of these assets. Additionally, the study delves into the process of confiscation, which aims to protect the interests of both the creditor and third-party holder. Split into two sections, the study examines the legal aspects of confiscating a debtor's assets with a third party in the first section and scrutinizes the procedures involved in the confiscation process as well as its effects in the second section.

**Keywords** Confiscation · Debtor · Third parties · Jordan execution law · Creditor

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# 1 Introduction

When it comes to a debtor's debts, all of their assets are considered as collateral for the repayment. This includes assets held by third parties. To prevent the third party from delivering these rights or movables to the debtor, which would jeopardize the creditor's right to claim the confiscated money or its equivalent, the creditor may take legal measures called "confiscation." Confiscation involves three parties: the confiscating creditor, the debtor subject to confiscation, and the third party who owes a debt to the debtor.

The Jordanian law on execution specifically tackles the issue of confiscating funds and lays out a separate set of procedures in articles 31 to 41. These procedures vary from those utilized for directly confiscating funds from the debtor [1, 2]. The inclusion of these articles illustrates the lawmaker's consideration for not only the creditor but also any third party that may possess the confiscated funds.

## 1.1 Research Problem

The core legal question raised by this study concerns the dynamics between a creditor who is confiscating funds and a third party who is not involved in the creditor-debtor relationship. Additionally, the study explores the challenges that arise when attempting to execute confiscation procedures when the funds in question are not in the debtor's possession, but rather held by another individual. Furthermore, the study delves into the process of establishing ownership of said assets by the third party, as well as the creditor's right to access information regarding the value of the assets held by the third party. The ultimate goal of the confiscation process is to protect the interests of both the creditor and the holder of the confiscated funds.

## 1.2 Significance of the Research

The importance of this research is to guarantee that the third party in possession of the confiscated assets does not behave in a manner that could lead to the forfeiture of these assets, which are categorized as part of the debtor's possessions. The objective is to forestall any activities or dealings that could result in the loss of these assets by recognizing them as an integral component of the debtor's property.

### ***1.3 Research Methodology***

This study involves a descriptive analytical approach. Specifically, it focuses on analyzing the texts of the Jordanian Execution Law, while also providing a detailed description of the process of confiscating a debtor's assets with a third party.

## **2 Nature and Legal Aspects of Debtor's Property Confiscation with Third Parties**

The act of debtor's property confiscation with third parties pertains to measures taken by a creditor to safeguard their rights to assets or moveable property belonging to the debtor, but held by a third party, referred to as the "debtor." This measure effectively prevents the debtor from transferring or fulfilling these assets to the debtor until the creditor's claim is satisfied from the proceeds of the property in question. This part will delve into this topic via two distinct sections.

### ***2.1 Nature of Debtor's Property Confiscation with Third Parties***

When a creditor requests confiscation of a debtor's property, it involves the sequestering of the debtor's assets or movable property that is being held by a third party. The purpose of this action is to confiscate the debtor's property with a third party, which includes the rights of the debtor being held by a third party. This type of confiscation involves three different parties: the creditor, who acts as the confiscator; the debtor, who is the confiscated; and the third party who holds the assets, and is known as the debtor's debtor [3].

#### **The Creditor (The Confiscator)**

To qualify for a general confiscation, the creditor must have a personal relationship with the debtor. Furthermore, any debt that may result in a general confiscation must fulfill the necessary conditions as set forth in the creditor's claim. In order to be considered a creditor, the individual or group must possess a legitimate legal relationship with one or more natural or legal persons, with regards to one or more individuals who are identified as debtors.

In addition, it is imperative that the creditor's entitlement fulfills the legal prerequisites and specifications demanded for a universal hold to be enforceable. These prerequisites encompass the actualization of the right and the determination of an exact sum [4].

Additionally, in the event that a debtor's creditors have opted not to pursue their outstanding debts from a separate entity, and instead pursue legal action to petition

for the seizing of the debtor's assets from said entity, those same creditors may act as the initiating party in the legal proceedings against the third-party debtor. This outcome then becomes a part of the overarching security for all creditors, not just those who initiated the lawsuit.

In addition, it is allowable for someone acting on behalf of the debtor, such as an agent, legal representative or public prosecutor, to request a confiscation with a third party. It is important to note that if the property is sold by the debtor to a third party who then leases it, the creditor cannot confiscate the rent as payment for the debt because they are no longer a personal creditor of the new owner, who is now the debtor of the lessees. Nonetheless, they can petition for the seizure of the real estate and caution the lessees against paying the rent to the new owner. The rent will be frozen and added to the real estate confiscation, where it will be allocated towards the settlement of the debt covered by the insurance.

### **The Debtor**

In the debtor-creditor relationship, the debtor is the party that finds themselves in the negative position, bound to the creditor who retains their assets. This debtor can be either a natural person or a legal entity, and the confiscation of their assets can be executed against any debtor, so long as they are a creditor of the person being confiscated or in control of the movable property possessed by the latter. For the confiscation to be valid, it is necessary that the movable property or money remain in the possession of the confiscated debtor at the time of confiscation. If said property or money is not under the debtor's ownership at the moment of confiscation, the confiscation will be deemed invalid [5].

In order for a confiscation to be valid, it must meet certain conditions. If the debtor either relinquishes the debt or sells the movable property prior to the confiscation being made, the confiscation is no longer possible. Any confiscation that is made without fulfilling these conditions is null and void because it is being placed on property that is not owned by the debtor. It is essential that the debtor has the status and capability to be personally obligated to the creditor since the basic principle is that an individual is liable only for their own assets, not those of others. Furthermore, the debtor must have the capability to dispose of their assets, as the execution process concludes with the seizure of their property and their transferal to an auction [6].

The implementation of the execution can occur in either the debtor's presence or in the presence of their general or special successor. In the event that the debtor passes away before the execution begins, it is necessary to inform their heirs. Nevertheless, if the debtor expires during the execution process, after receiving and acknowledging the execution request before their passing, there is no obligation to alert the heirs. The expiration of the debtor does not annul the execution procedure, nor does it necessitate a restart; instead, it proceeds against the heirs.

### **Third Party (The Possessor)**

The legal system creates a relationship between the initial lender and the debtor's indebted party, which permits the initial lender to place a hold on any possessions held by a third party on behalf of the initial debtor.



When a third party is holding funds or items on behalf of the original debtor, they are not classified as a third party in relation to the debtor if they lack independent possession. In this case, the debtor can claim their possessions at any time without the involvement of the judiciary system. A prime example of this scenario is the relationship between an employer and their cashier. The employer possesses the right to withdraw funds from the cashier as they please, which means that the cashier is not considered a third party in relation to the employer. However, if the funds are deposited into a bank, and the bank refuses to release them, a judicial order is necessary to claim them. Third parties can include the personal debtor of the lessee, the lessee themselves, the guardian, and the company.

For an item or funds to be considered a third-party confiscation, it must be held by an independent third party, separate from the debtor [7]. Only individuals with a distinct and autonomous role in relation to the debtor can be classified as third parties. Therefore, someone who has a direct relationship with the debtor, where their legal identity is merged with the debtor's, cannot be regarded as a third party.

### **The Legal Nature of Confiscating the Debtor's Property with a Third Party**

Even though the third party and the creditor are not legally connected, the law has established a direct legal relationship between them. This relationship is derived from the connection that the original debtor in confiscation has with the creditor. The creditor is responsible for monitoring the financial aspects of the original debtor's debt, wherever it may exist. Notably, the indirect claim is not utilized by the creditor in this particular situation. There are no prior requirements for this form of seizure. The creditor commences the seizure on their own behalf and for their own profit, rather than that of the debtor who is being confiscated [8].

Dealing with the relationship between a debtor and a third party involves an important consideration: the existence of a three-party dynamic. This tripartite relationship comprises the creditor, who is eager to collect a debt, and the debtor, who is the target of the said debt. No matter if it is based on personal rights or a derivative thereof, this connection falls under the standard debtor-creditor relationship [8]. There exists a bond linking the third party to the borrower. Ergo, in the primary rapport, the debtor is viewed as a debtor to the third party. This may be due to a personal entitlement or certain assets not in the initial borrower's custody, which now belong to the third party.

The third party's obligation to the debtor can manifest in various forms such as money, movable possessions, promissory notes, company shares, stocks, and other assets [9]. The debtor's liability to the third party need not necessarily be due, but it should be definite. The confiscation of this debt is not impacted, regardless of any conditions or added terms, as long as the debt remains in its original form during the confiscation.

Entities such as guardians, executors, and trustees can be categorized as third parties due to their role in holding assets under specific legal mandates or court rulings [10]. In instances where a guarantee contract is formulated for the benefit of a debtor, the creditor has the option to safeguard the value of the guarantee by enlisting a third party to act on the company's behalf. However, in scenarios where

the debtor enters a guarantee contract for someone else's benefit, the creditors of the initial debtor cannot confiscate this compensation [10].

When a credit bond [10] is issued, the issuer holds the right to withhold the value of said credit with the bank if the seller who opened the financial credit on their behalf owes them a debt. Whether or not this debt is connected to the contract is irrelevant. Once the issuer opens the credit bond for the beneficiary, they are no longer directly involved in the contract. Instead, the bank assumes the role of the direct debtor to the person who opened the credit on behalf of the issuer. Therefore, if the issuer becomes a creditor to the beneficiary, they can confiscate their assets with the bank as protection, similar to confiscating a debtor's property with a third party.

There are various types of confiscations that can be made by creditors, including confiscating nominal shares with the issuing company through third-party confiscation, either as a precautionary or executive measure. Another type of confiscation is self-confiscation, where the creditor places the confiscation on the debtor's property to ensure that the debtor fulfills their obligation under the creditor's supervision. In this scenario, the creditor takes on a dual role as both the creditor and the debtor, confiscating what belongs to the debtor under their own possession, effectively acting as a third party to themselves.

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### **3 Procedures for Confiscating the Debtor's Property with Third Parties and the Effects of Such Confiscation**

#### ***3.1 Procedures for Confiscating Property with Third Parties***

The act of confiscating property with third parties is subject to a number of regulations which are as follows:

1. Confiscating property that cannot be seized by the laws and regulations that apply to everyone is an impossibility.
2. For property to be considered as legally owned by the debtor with the possibility of being seized, it must be owned under confiscation.
3. It is an inherent quality or legal classification of real estate that it cannot be confiscated or taken away.
4. It is possible to confiscate property without the requirement for it to be currently existing or for payment to be due on it.

Article 31 of the Jordanian Execution Law stipulates that the creditor has the ability to place a confiscation on the debtor's movable assets with third parties, as well as on any debts or amounts owed, regardless of whether they are deferred or contingent.

Article 33 delineates the steps involved in alerting third parties about the debtor's confiscated property. The article mandates that the notification of confiscation must be conveyed to the individual who currently possesses the property that has been confiscated, and should also specify the initial amount that was confiscated, the accrued interest, and any expenses that were incurred during the procedures established in this law. Additionally, it states that if the judge makes the decision to prevent the individual in possession from paying the debtor or returning the property to them, it will be mentioned in the notification.

The Execution Department [11] is responsible for informing the third party of the confiscation decision. This is accomplished through the department's enforcement officers, who deliver a written notice containing a copy of the judgment or the judge's decision to impose the confiscation [12]. The notice must detail both the amount of the debt and the sum designated for confiscation.

The notification serves the purpose of revealing to the debtor under confiscation what the third party possesses on their behalf. Since the third party is not legally involved in the agreement between the creditor and the debtor, it is crucial for the third party to disclose any financial elements held on behalf of the debtor. This disclosure serves as a warning to the debtor to be aware of their legal obligation to report these assets or face legal consequences.

Once notified, the individual or entity that currently holds the assets under confiscation is prohibited from making any payments to the debtor or transferring ownership of the assets. If the party in possession disregards this prohibition and proceeds to pay the amount owed to the debtor, the payment cannot be used to offset the creditor's claim for the full amount specified in the confiscation decision. The creditor retains the right to demand the full amount from the party in possession.

Upon receiving notification of the confiscation decision between the indebtedness owed to the debtor under confiscation and the indebtedness owed by the debtor under confiscation, the individual in third-party possession is prohibited from utilizing legal set-off. Nevertheless, they are entitled to partake in the allocation of assets with the remaining creditors by adhering to customary regulations.

### ***3.2 Effects of Confiscating the Debtor's Property with Third Parties***

The objective of confiscating a debtor's assets with a third party is to safeguard the interests of the creditor who has made the confiscation [13]. Although the confiscation does not involve the transfer of ownership of the property, it restricts the owner's capacity to dispose of it when the confiscating creditor is involved. The process

necessitates that the third party withhold the confiscated property under their control once it has been confiscated. When the party in possession is informed, they must settle the debt within the period specified by the Execution Law. Disregard of this obligation leads to the seizure of their personal assets.

When notified, the individual or entity in possession of the debt is obligated to fulfill their duties and transfer the debt to the Execution Department. The following guidelines are specified in Article 34 of the Execution Law:

- Fulfillment of obligations is allowed upon notification by depositing the debt with the Department, to the party in possession.
- Subject to confiscation is the amount deposited, and the officer must communicate the deposit to both creditor and debtor using established procedures.
- Upon deposit, all confiscations on the person previously in possession are lifted, and there shall be no seizing of additional funds.

It should be noted that once a confiscation decision is received, the third party holding the property must make the deposit within seven days. This obligation is stated in Article 35 of the Execution Law, which dictates that if the deposit is not made following the guidelines in Article 34, the party in possession must provide a statement of their responsibilities to the Department within the same timeframe. In the event that the deposit is not made, the party in possession will be held responsible for the confiscated amount and the confiscating creditor has the right to execute on any assets that the party owns.

Should the party in possession fail to make the deposit, they are held accountable by law [14], unless they are able to provide valid reasons for their inability to do so. These reasons are required to be legitimate and must be presented in a memorandum to the head of the Execution Department, along with a declaration from a third party indicating the present condition of the assets under their possession [15].

## 4 Conclusion

The Jordanian Execution Law tackles a crucial matter regarding the debtor's assets, that is, the confiscation of these assets with third parties. Specifically, this confiscation pertains to funds held by an unrelated third party with the goal of protecting them from seizure, hindrance, or any actions that may decrease their financial value. The main objective of this confiscation is to grant the head of the Execution Department control over the debtor's confiscated funds for the purpose of fulfilling the confiscated creditor's rights and preventing any illicit transfer of funds through execution confiscation, which ultimately leads to their public auction. Having conducted this study, the following results and suggestions are drawn:

## 5 Results

1. Confiscation plays a significant role in safeguarding confiscated funds and blocking third-party access to them, thus maintaining the debtor's accountability and creditor's assurance of receiving owed funds. It serves as an instrumental measure in the safety and security of funds and upholding the creditor's rights.
2. The confiscation of assets from a debtor requires the presence of dual debtor-creditor relationships. The first is between the creditor seizing the assets and the debtor whose assets are being seized. The second is between the debtor whose assets are being seized and their own debtor.
3. Under confiscation, three parties must participate: the confiscating debtor, the debtor in question, and a third party acting as the debtor to the confiscated debtor.
4. Distinct procedures are outlined in Articles 31 to 41 of the Jordanian Execution Law for the confiscation of funds, which differs from the confiscation of a debtor's property. Not only are the interests of the creditor taken into consideration, but also those of a third party who holds the funds.

## 6 Recommendations

- The third party who has illicitly dispersed or smuggled the funds should be pursued by the creditor who has confiscated the debtor's funds, and a clause should be included by the Jordanian lawmaker to explicitly permit this. The pursuit should extend to civil and criminal action, and the seizure of legally seizable movable or immovable assets should be allowed.
- Consideration has been given to recommending Jordanian lawmakers to introduce a clause into the Execution Law which empowers the head of the Execution Department to hold an executive session, specifically for the purpose of dealing with any execution-related challenges that may crop up when leveraging third-party resources to obtain the debtor's property. This new provision will enable the department to effectively tackle any difficulties that may arise during the execution process.

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# Factors Affecting Consumers When Making the Purchasing Decision of Hybrid Cars: An Empirical Study in the City of Amman/Jordan



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**Abstract** The purpose of this paper is to determine the factors that influence a Jordanian buyer's decision to purchase a hybrid car within Amman's city boundaries using seven different factors, including tax exemptions, environmental protection, maintenance, after-sales services, hybrid car specifications, and reference groups. A descriptive analysis approach was utilized for this study due to its compatibility with the nature of the research, and both primary and secondary sources were used for data gathering. In order to achieve this aim, 420 questionnaires were distributed to identify hybrid car purchasers in Amman. Out of the 400 questionnaires retrieved, 11 were deemed invalid for statistical analysis, leaving 389 valid questionnaires. The most significant discovery of this study is that the factors that influence a Jordanian consumer's hybrid car purchase are indeed impactful. The research recommends that the government concentrate on expanding tax exemptions to encourage hybrid car purchases, as it has a beneficial impact on reducing fuel consumption and lowering the oil bill for the kingdom.

**Keywords** Purchase decision · Hybrid cars · Customs and tax exemptions · Jordan

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## **1 Introduction**

As the world becomes more attuned to environmental and consumer protection, companies have increasingly emphasized green marketing and production of eco-friendly products. Scarce and costly raw materials, coupled with the escalating prices of petroleum derivatives, have made it even more important for businesses to adopt environmentally friendly practices [1–3]. This has resulted in the creation of energy-saving products, like hybrid cars, that have many benefits. For instance, these cars contribute less to environmental pollution than regular cars and tend to consume less fuel, which can lead to significant savings on oil expenses [4–7].

### ***1.1 Problem Statement and Research Questions***

The primary objective of car dealers in Amman city is to assess the factors that affect consumer purchasing behavior and comprehend the rationale behind the marked disparities in consumer choices, particularly with respect to the hybrid automobile market. Nevertheless, there is no consensus on hybrid cars and their appeal to prospective buyers. In order to alter the factors that sway consumer decisions, it is imperative to study and comprehend the impact of these factors on the purchasing choices of Jordanian consumers. The research question that encapsulates this problem is: To what extent do tax exemptions, environmental protection, maintenance, after-sales services, hybrid car specifications, and reference groups influence the decision of consumers to buy hybrid cars?

### ***1.2 Significance of the Study***

The significance of this research is centered on the factors that impact the consumer's decision to purchase hybrid cars, and the exploration of the motivations that encourage rational buying behavior. This study contributes to the enrichment of Arabic databases, as there is a lack of research that utilizes the variables examined in this study. The practical importance of this research lies in the identification of the positive attributes and benefits of hybrid cars, such as mitigating pollution and the damage caused by gasoline cars, as well as decreasing fuel consumption in the midst of increasing prices.



### 1.3 Study Objectives

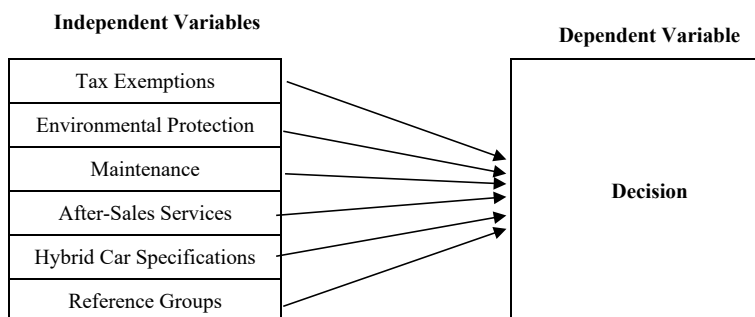
The aim of the study is to determine the various factors that impact a consumer's decision to purchase a hybrid vehicle.

### 1.4 Study Hypotheses

- H0: No statistically significant effect is there at the  $(0.05 \alpha \leq)$  level of the factors influencing the consumer's decision to purchase hybrid cars. From the main hypothesis, we derive the following sub-hypotheses:
- H01: No statistically significant effect is there at the  $(0.05 \alpha \leq)$  level of tax exemptions on the consumer's decision to purchase a hybrid car.
- H02: No statistically significant effect is there at the  $(0.05 \alpha \leq)$  level of environmental protection on the consumer's decision to purchase a hybrid car.
- H03: No statistically significant effect is there at the  $(0.05 \alpha \leq)$  level of maintenance on the consumer's decision to purchase hybrid cars.
- H04: No statistically significant effect is there at the  $(0.05 \alpha \leq)$  level of after-sales services on the consumer's decision to purchase hybrid cars.
- H05: No statistically significant effect is there at the  $(0.05 \alpha \leq)$  level of hybrid car specifications on the consumer's decision to purchase a hybrid car.
- H06: No statistically significant effect is there at the  $(0.05 \alpha \leq)$  level of reference groups on the consumer's decision to purchase a hybrid car.

## 2 Study Model

Based on studies [4, 8–10], the following model was constructed (Fig. 1).



**Fig. 1** Study model

### 3 Theoretical Framework

#### 3.1 *The Purchase Decision*

The decision-making process involved in purchasing a product or service is a complex series of steps that consumers go through to solve a problem, either to fulfill a need or desire within a specific time frame [11, 12]. Organizations aim to influence the consumer's decision-making process to guide marketing activities towards this group of individuals to achieve the organization's objectives and to comprehend the various roles of decision-makers. Moreover, the motivations behind the process of making a purchase decision require practice and expertise gained through time and experience [13]. Researchers have identified that a lack of experience and knowledge from various life experiences may cause some individuals to struggle when making decisions.

##### **Hybrid Cars**

The concept of hybrid cars has been in existence for quite some time. These cars are unique in that they employ a mixture of both gasoline and electricity to operate. Over the years, the idea has undergone numerous transformations, eventually taking on its current form. Nowadays, hybrid cars are available in large quantities and can be found on the market for purchase.

##### **Previous Studies**

In the realm of purchase decision-making processes, a study [1] has indicated a statistically significant negative influence on the pre-purchase stage. Additionally, another study [5] has shown that statistically significant differences in purchase decision-making are linked to gender, age, income, and social status. Yet another study [14] discovered that the country of origin for a car plays a significant role in the decision to purchase. Furthermore, a study [15] has identified a statistically significant difference in the impact of factors that affect the purchasing decisions of Algerian consumers for durable goods, with the price variable being a key factor. Lastly, a study [16] found that Samsung mobile phone advertisements have a moderate effect on the purchasing decision of Libyan consumers.

According to a research study [17], the automotive industry is subject to three primary influences that shape consumer behavior: technical features of the cars, competitive advantage, and social factors. Another research study [18] discovered that reference groups, particularly family and friends, have a significant impact on consumer purchasing choices in the automotive sector. Furthermore, data from another studies [19] indicated that commercial factors were ranked as the most critical considerations for purchasing Toyota cars, followed by economic motivations, social factors, and human factors.

Upon examination, it was determined by Study [20] that the factors which hold the most sway in the decision to purchase a used or new car are individual financial means, as well as the opinions of one's family members. Study [21] focused on the

adoption of hybrid cars, which have been available since the late 1990s and are eco-friendly. The study revealed that one of the primary motivators for individuals who purchase such vehicles is the financial benefits they offer, as well as their contribution to reducing environmental pollution. Study [22] discovered that the desire for knowledge regarding green products, environmental conservation, and social factors were the driving forces behind purchases in both American and Korean societies.

## 4 Methodology

To accomplish the aims of the research, a descriptive analysis approach was employed to manage and evaluate the data, as well as to put the study's hypotheses to the test. To identify the factors that impact the purchasing choices of Amman's hybrid vehicle purchasers, a survey was designed by the researchers. Before being utilized to accomplish the study's objectives, the survey was examined after a thorough review of prior studies and literature.

### 4.1 Study Population and Sample

The group of individuals under scrutiny in this study are those who purchased hybrid cars in Amman. After careful consideration, the sample was deemed appropriate, and we discovered through Jordan Custom's statistics that a total of 50,000 hybrid cars were cleared and utilized in Jordan from 2008 to 2014. According to the sample size table [2], in order to have a minimum of 381 respondents, the study population should be 50,000. We distributed 420 questionnaires in maintenance centers, malls, licensing areas, and spare parts shops to car buyers. Out of the 400 questionnaires retrieved, 11 were excluded, resulting in 389 valid questionnaires that were appropriate for analysis, and a retrieval rate of 95%.

### 4.2 Hypothesis Testing

**The main hypothesis HO states that no statistically significant effect is there at the (0.05  $\alpha \leq$ ) level of the factors influencing the consumer's decision to purchase hybrid cars, as per Table 1.**

The multiple regression test is used, and from our examination of the test results, we find that the calculated F value (82.373) is greater than the tabulated value (2.10). According to the decision criterion: the null hypothesis (Ho) is accepted if the calculated value is less than the tabulated value, and the significance value (Sig) is greater than 0.05. We reject the null hypothesis (HO) if the calculated value is greater than the tabulated value. Since the significance value (Sig) is less than 0.05, we reject the

**Table 1** Main hypothesis testing

Calculated F	Tabulated F	Significance value Sig.	Null significance result	R	R <sup>2</sup>
82.373	2.10	0.000	False negative	0.751	0.564

null hypothesis (Ho) and accept the alternative hypothesis (Ha). This means that there are factors influencing the purchase decision of hybrid car buyers. The relationship is strong as  $R = 0.751$ , and the independent variable explains 56.4% of the variance due to the effect of the independent variable on the dependent variable. Table 2 shows the regression coefficients for the study variables.

From the table, we observe that the t-value is statistically significant for each variable in the study except for the maintenance variable, where the calculated t-value is not statistically significant at the 0.05 level.

### Hypothesis H01

There is no statistically significant effect at the ( $0.05 \alpha \leq$ ) level for tax exemptions on the consumer's purchase decision to buy a hybrid car, as per Table 3.

The simple regression test was used, and from our examination of the test results, we find that the calculated t value (9.72) is higher than the tabulated value, and the significance value (Sig) is less than 0.05. Therefore, we reject the null hypothesis (Ho) and accept the alternative hypothesis (Ha). This means that there is an effect of tax exemptions on the purchase decision of hybrid cars.

### Hypothesis H02

There is no statistically significant effect at the ( $0.05 \alpha \leq$ ) level for environmental protection on the consumer's purchase decision to buy a hybrid car, as per Table 4.

**Table 2** Multiple regression coefficients for study variables

Variable	B	Std. Error	Tabulated T	Significance value (Sig.)
Tax exemptions	0.79	0.033	2.438	0.015
Environment protection	0.179	0.031	5.744	0.000
Maintenance	0.019	0.04	0.482	0.63
After-sale service	0.103	0.038	2.707	0.007
Car specification	0.254	0.053	4.839	0.000
Reference group	0.033	0.035	8.854	0.000

**Table 3** Hypothesis testing

Calculated T	Tabulated T	Significance value Sig.	Null significance result	R	R <sup>2</sup>
9.72	1.96	0.000	False negative	0.443	0.196

**Table 4** Hypothesis testing

Calculated T	Tabulated T	Significance value Sig.	Null significance result	R	R <sup>2</sup>
14.194	1.96	0.000	False negative	0.585	0.342

The simple regression test was used, and from our examination of the test results, we find that the calculated t value (14.194) is higher than the tabulated value, and the significance value (Sig) is less than 0.05. Therefore, we reject the null hypothesis (Ho) and accept the alternative hypothesis (Ha). This means that there is an effect of environmental protection on the purchase decision of hybrid cars.

### Hypothesis H03

There is no statistically significant effect at the (0.05  $\alpha \leq$ ) level for maintenance on the consumer's purchase decision to buy a hybrid car, as per Table 5.

The simple regression test was used, and from our examination of the test results, we find that the calculated t value (6.113) is higher than the tabulated value, and the significance value (Sig) is less than 0.05. Therefore, we reject the null hypothesis (Ho) and accept the alternative hypothesis (Ha). This means that there is an effect of maintenance on the purchase decision of hybrid cars.

### Hypothesis H04

There is no statistically significant effect at the (0.05  $\alpha \leq$ ) level for after-sales services on the consumer's purchase decision to buy a hybrid car, as per Table 6.

The simple regression test was used, and from our examination of the test results, we find that the calculated t value (5.724) is higher than the tabulated value, and the significance value (Sig) is less than 0.05. Therefore, we reject the null hypothesis (Ho) and accept the alternative hypothesis (Ha). This means that there is an effect of after-sales services on the purchase decision of hybrid cars.

**Table 5** Hypothesis testing

Calculated T	Tabulated T	Significance value Sig.	Null significance result	R	R <sup>2</sup>
6.113	1.96	0.000	False negative	0.297	0.088

**Table 6** Hypothesis testing

Calculated T	Tabulated T	Significance value Sig.	Null significance result	R	R <sup>2</sup>
5.724	1.96	0.000	False negative	0.279	0.078

**Table 7** Hypothesis testing

Calculated T	Tabulated T	Significance value Sig.	Null significance result	R	R <sup>2</sup>
13.46	1.96	0.000	False negative	0.565	0.319

**Table 8** Hypothesis testing

Calculated T	Tabulated T	Significance value Sig.	Null significance result	R	R <sup>2</sup>
15.571	1.96	0.000	False negative	0.621	0.385

### Hypothesis H05

There is no statistically significant effect at the ( $0.05 \alpha \leq$ ) level for car specifications on the consumer's purchase decision to buy a hybrid car, as per Table 7.

The simple regression test was used, and from our examination of the test results, we find that the calculated t value (13.46) is higher than the tabulated value, and the significance value (Sig) is less than 0.05. Therefore, we reject the null hypothesis (Ho) and accept the alternative hypothesis (Ha). This means that there is an effect of car specifications on the purchase decision of hybrid cars.

### Hypothesis H06

There is no statistically significant effect at the ( $0.05 \alpha \leq$ ) level for reference groups on the consumer's purchase decision to buy a hybrid car, as per Table 8.

The simple regression test was used, and from our examination of the test results, we find that the calculated t value (15.571) is higher than the tabulated value, and the significance value (Sig) is less than 0.05. Therefore, we reject the null hypothesis (Ho) and accept the alternative hypothesis (Ha). This means that there is an effect of reference groups on the purchase decision of hybrid cars.

## 5 Results

Through the testing of various hypotheses, a multitude of conclusions and results were reached, which could be of significant value to automotive companies, dealerships, and government institutions that are interested in understanding the legal and regulatory aspects that impact the choices made by consumers. Additionally, it can assist maintenance centers in identifying their strengths and weaknesses, along with areas that require improvement in their services, as well as provide insight into the key factors that influence consumers' decision to purchase hybrid vehicles, among other considerations, for after-sales service providers, such as insurance and spare parts providers. The findings that were gathered from these hypotheses are as follows:

- The findings of the study demonstrate a significant statistical impact of tax exemptions on the purchasing choices of hybrid automobile consumers within Amman. The study also discovered a correlation between the respondents' responses, with a fair relationship ( $R = 0.443$ ). The independent variable accounts for 19.6% of the dependent variable's variability. This conclusion is rational since tax exemptions serve as an incentive for making purchases.
- Based on the study's findings, there is an observable and significant correlation between environmental conservation efforts and societal factors, and the decision of consumers to purchase hybrid vehicles.
- Upon conducting a study, it was discovered that maintenance has a significant impact on the decisions made by consumers when purchasing products. The calculated t-value is 6.113, which surpasses the tabulated value. Additionally, the significance value (SIG) of less than 0.05 resulted in the null hypothesis ( $H_0$ ) being dismissed and the alternative hypothesis ( $H_a$ ) being recognized.
- According to the study, the impact of after-sales services on consumer decisions when purchasing hybrid cars is statistically significant. Additionally, the research has shown a significant influence of car specifications on the purchasing choices of consumers when buying hybrid cars.
- Based on the study, it appears that the sample population has a positive inclination towards the impact of reference groups on their decision to purchase hybrid cars. The study's respondents consider this factor to be of utmost importance. This finding is consistent with a previous study [18] which suggested that marketers should be cognizant of the most influential reference groups that affect consumers' decisions regarding car purchases. This awareness can help to mitigate the risk of misunderstanding the target market.

## 6 Recommendations

By utilizing statistical data analysis, numerous suggestions can be formulated for both public and private industries based on the findings of the study:

- The government has a crucial role to play in promoting the widespread adoption of hybrid cars. One effective strategy would be to increase tax exemptions, which would serve as a positive incentive for consumers to purchase these vehicles. This, in turn, would contribute to a significant reduction in fuel consumption, resulting in a lower national oil bill.
- The role of media outlets in environmental protection and conservation cannot be overstated. One way in which they can fulfill this responsibility is by generating public awareness programs that highlight the significance of environmental preservation.
- Promotional efforts for environmentally friendly products, such as hybrid cars, should highlight the advantages and benefits they provide. This can be achieved through a variety of marketing techniques.

- In order to promote the sale of hybrid cars, it is imperative to establish contemporary service centers that cater specifically to their maintenance needs. The availability and distribution of these centers across different regions is paramount. Additionally, having skilled and proficient engineers trained specifically in the maintenance of hybrid cars can serve as a further incentive for individuals to purchase them.
- One area that could benefit from revision is the taxation rates on spare parts for hybrid cars. This is especially important considering the high prices of these parts in their countries of origin, which can significantly impact their ongoing availability.
- To encourage the purchase of hybrid vehicles, dealerships should shift their focus to offering comprehensive warranties for vehicle upkeep and replacement parts.
- Consumer purchasing behavior is heavily influenced by reference groups. Therefore, it is important to seek guidance from experts in the hybrid car industry.
- To improve consumers' comprehension of hybrid cars, particularly among those who are hesitant to purchase them, dealerships and specialized maintenance centers should create brochures that accentuate the pros and cons of these vehicles.

## 7 Future Studies

Upon analyzing the study's findings and suggestions, it becomes apparent that there is a call for further inquiry and examination into additional aspects that impact a consumer's decision to purchase hybrid vehicles. These factors could encompass model variants, aesthetic design, and pricing.

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# The Impact of the Application of Corporate Governance on the Control Environment of Industrial Public Shareholding Companies in the Kingdom of Saudi Arabia



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**Abstract** The aim of this study is to investigate the extent of compliance of public industrial companies in Saudi Arabia with the application of corporate governance principles and to determine the impact of corporate governance on the control environment of these companies. To achieve the study's objective, the statistical package for social sciences (SPSS) was used to analyze the data collected from the study population, which consisted of 27 public industrial companies in Saudi Arabia. A total of 345 participants from various educational and organizational levels participated in this study. The study found a statistically significant impact of implementing corporate governance principles and concepts on the control environment of public industrial companies in Saudi Arabia. Furthermore, the study revealed a consensus among most of the study participants regarding the positive impact and significant correlation between corporate governance and the control environment of public industrial companies in Saudi Arabia. The study recommended that senior management in these companies increase their focus on internal control processes and enhance the qualifications and competencies of employees involved in various control activities and related processes.

**Keywords** Corporate governance • Control environment • Public industrial companies • Saudi Arabia

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# 1 Introduction

After the collapse of several major global companies due to unethical practices and corruption, the need to activate control measures in companies, especially public ones, to mitigate these practices has become crucial [1]. The focus on corporate governance has increased, leading governments to adopt it as a key issue [36].

In our current era, governance is considered a fundamental topic. The financial crises that the global economy has witnessed have placed the concept of governance at the forefront to improve the overall performance of companies [7, 41, 42]. Governance systems and laws worldwide aim to reduce the misuse of managerial power for the benefit of non-shareholders, enhance the performance of boards of directors, strengthen internal auditing, and define roles and authorities for shareholders, boards of directors, executive management, and stakeholders [35, 37]. The importance of transparency and disclosure is emphasized as part of governance practices [14]. Additionally, corporate governance has tools for measurement, such as financial performance, while IT governance plays a crucial role in the control environment [12, 38]. The COBIT framework is considered a tool for measuring IT governance [8, 19, 39].

The study recognizes that the application of corporate governance is carried out in diverse control environments. Therefore, the aim of this study is to determine the impact of implementing corporate governance on the control environment of public industrial companies in the Kingdom of Saudi Arabia.

## 1.1 Study Problem

The economic sector is characterized by its significant importance in the national economy and its substantial contribution to economic growth [35, 36]. Therefore, compliance with corporate governance rules is considered one of the indicators that can be studied to assess the efficiency of company management and its effectiveness in implementing adopted procedures and laws, as well as combating financial and accounting corruption. By achieving this, public industrial companies in the Kingdom of Saudi Arabia have been able to attract local and foreign investments, enhance shareholder confidence, and promote transparency in all financial and administrative processes and transactions.

Within the control environment, which may vary in strength or weakness among these public industrial companies in Saudi Arabia, the problem of the study lies in attempting to answer the following main question:

Does the implementation of corporate governance have an impact on the control environment of public industrial companies in Saudi Arabia?

## ***1.2 Importance of the Study***

The importance of the study lies in analyzing the impact of corporate governance on the control environment of public industrial companies in the Kingdom of Saudi Arabia. It aims to direct the attention of company management towards the necessity of focusing on corporate governance and the control environment through the findings and recommendations that will be derived from the study.

## **2 Literature Review**

### ***2.1 Corporate Governance***

Corporate governance is an essential requirement for achieving growth and sustainability. The values and principles of governance help enhance the efficiency of non-profit companies, and companies that prioritize governance are expected to experience sustainable growth, leading to a positive impact on their beneficiaries [29, 34].

#### **2.1.1 The Concept of Corporate Governance**

The definition of corporate governance is the preservation and improvement of organizational performance through specific standards. It involves separating administrative processes from capital ownership, ensuring control and supervision over performance, and preventing individual dominance in decision-making within the organization [33]. It is crucial for ensuring organizational continuity.

Corporate governance is also defined as “the relationship between owners and management within the organization, aimed at achieving shared goals, protecting the rights of owners and shareholders, and ensuring the organization’s long-term continuity. It includes a set of practices and policies aimed at ensuring proper, transparent, and responsible operation of the organization” [4, 5].

#### **2.1.2 The Importance of Corporate Governance and Its Relationship to the Accounting Information System**

Automated accounting information systems assist in decision-making [10], especially when the outputs of the accounting system function as a unified package, including appropriateness, reliability, understandability, and comparability. This enhances their interpretive power and helps streamline decision-making for all parties involved in economic entities [15], particularly in the presence of an effective control system.

The importance of adhering to corporate governance lies in the need to activate the role of control and achieve organizational objectives while safeguarding the rights of relevant parties [6]. This leads to increased confidence in financial information and reports, as well as the provision of a competent and effective risk management system for nonprofit organizations [13, 29].

### 2.1.3 Dimensions of Corporate Governance

1. **Board of Directors Responsibilities:** This includes the responsibilities of the board of directors of public industrial companies in Saudi Arabia, such as establishing the structure of the board, its legal duties, the selection process of board members, their core tasks, and their role in overseeing the executive management [7, 25].
2. **Existence of an Effective Corporate Governance Framework:** There should be an effective legal, legislative, and financial market framework in public industrial companies in Saudi Arabia to ensure the effective implementation of corporate governance rules. Additionally, removing restrictions on capital transfer and implementing an effective institutional system are essential to achieve the necessary infrastructure.
3. **Transparency:** Transparency and clarity in financial statements and transparent democracy are at the core of corporate governance in public industrial companies in Saudi Arabia.
4. **Disclosure:** Following a policy of full transparency and revealing all important financial facts that stakeholders rely on in public industrial companies in Saudi Arabia.
5. **Stakeholders' Role:** Various stakeholders have interests within public industrial companies in Saudi Arabia, such as creditors, suppliers, employees, and customers, which may sometimes conflict with the company's management.
6. **Shareholders' Rights:** Secure methods should be provided for registering and transferring share ownership and providing necessary information to shareholders in public industrial companies in Saudi Arabia. Additionally, shareholders should have the opportunity to participate and vote in general assemblies and receive sufficient information about any significant changes in the company.
7. **Equal Treatment of Shareholders:** Ensuring equal treatment of all shareholders, equal rights for each share in the same class, compensating shareholders in case of rights violations, and protecting minority shareholders from exploitation.

## 2.2 The Control Environment

The concept of the control environment refers to a set of measures taken by management to determine how employees engage in their daily activities. It includes policies,

procedures, and values adopted by the organization, reflecting the extent of management support for an internal control system. Its purpose is to minimize control failures within the organization and successfully achieve its objectives. The control environment is considered an important component within the framework of COSO.

### 2.2.1 Components of the Control Environment

**Internal control:** It refers to a set of dynamic and continuous policies, procedures, and measures adopted by the economic entity through top management, the board of directors, and individuals at all functional levels. Its objective is to comply with laws and regulations, protect assets and cash, improve operational efficiency, and prevent errors and fraudulent activities [16].

**Internal audit:** it is an independent and critical examination of the accounting system and financial information provided by the organization. It is conducted by an independent professional to ensure its accuracy and credibility. The auditor expresses a neutral and objective professional opinion supported by necessary evidence and indicators [24].

**External audit:** It involves the examination of financial accounts by a third party other than the party that prepares them to confirm the fairness of financial statements and present them to the financial community [12].

## 2.3 Risk Management

Corporate governance is the process of assessing and managing risks related to organizations and businesses. It sets rules and standards for organizational performance, stakeholders' relationships, monitoring activities, and compliance with applicable regulations. Corporate governance has become increasingly important as technology has changed organization dynamics and created new business opportunities [33]. 2. Risk management is defined as the systematic selection of cost-effective methods to mitigate the impact of threats on an organization. It involves measuring and evaluating risks and developing strategies to manage them. These strategies include risk transfer, risk reduction, risk acceptance, risk analysis, and identifying the most cost-effective means of addressing them. The aim of financial risk management is to reduce the likelihood of unexpected losses or fluctuations in the expected return on a specific investment.

## **2.4 Literature**

The study showed that institutional governance standards have a positive impact on the financial performance of companies.

The study [28] concluded that external auditing, as a mechanism for corporate governance, plays a role in improving the quality and reliability of financial statements by enhancing their suitability and reliability for decision-making by users.

The study affirmed that external auditing helps increase the reliability of financial statement information and improves its suitability and quality.

The study showed a statistically significant positive relationship between the dimensions of internal auditing and risk management, as well as between individual and aggregate performance standards.

The results indicated no statistically significant impact of dividend distributions or individual dimensions of the independent variable on share value in Jordanian industrial companies.

The study found evidence of the impact of institutional governance application on the quality of internal auditing [3].

## **3 Methodology**

The researchers used the descriptive analytical method to study the phenomenon in reality and describe its dimensions and manifestations. Then, the relationships and effects between the independent variable and the dependent variable were analyzed to understand the impact of the independent variable on the dependent variable and the magnitude of this impact. The aim was to derive conclusions that contribute to improving the current situation.

### **3.1 Study Population and Sample**

The current study includes the entire population of industrial joint-stock companies listed in the Saudi Stock Exchange, totaling 27 companies according to the statistics announced by the Saudi Tadawul website. The researcher distributed the research tool (questionnaire) to the study sample individuals from various levels, administrative units, and organizational units.

### 3.2 *Reliability and Validity of the Questionnaire*

**Content Validity:** The content validity of the study tool was verified in terms of its content, structure, and reliability for data collection. The questionnaire items were presented to a group of experts to provide their opinion on the content of the questionnaire. Some modifications were made to ensure its suitability for the purposes of the current study and its ability to measure the variables being studied clearly. Additionally, the internal consistency coefficient was extracted using Cronbach's alpha test to assess reliability [5, 6, 9].

### 3.3 *Data Collection*

The research utilized two categories of sources:

**Secondary Sources:** In this phase, data was gathered from various existing sources pertinent to the subject matter of the current study. These sources included books, published research papers, and university theses. Furthermore, electronic references accessible through the university's website or the internet were consulted to enhance the available information.

**Primary Sources:** To gauge the concepts and variables specific to this study, a questionnaire was devised based on prior research. The required data was then collected directly from the selected sample of the study.

### 3.4 *Study Hypotheses Testing*

In this section, the study showcases the outcomes obtained from testing the primary and secondary hypotheses of the present research, utilizing the statistical methods outlined in the preceding chapter. The objective is to assess the degree of influence exerted by independent variables on the dependent variable, as outlined below:

**The Main Hypothesis Testing:** The null hypothesis ( $H_0$ ) posits that "There is no statistically significant impact of applying corporate governance principles and concepts on the control environment within public joint-stock industrial companies in Saudi Arabia, at a significance level of  $\alpha \leq 0.05$ ." (Table 1).

The study findings demonstrated a substantial and statistically significant influence of implementing the seven dimensions of corporate governance on the control environment within publicly listed industrial companies in Saudi Arabia. The regression coefficient was calculated to be 0.910, indicating a strong positive relationship. Furthermore, the significance level associated with this coefficient was determined to be 0.000, suggesting a highly significant impact. It is important to note that the significance level of this study is 0.05. The determination coefficient ( $R^2$ ) was calculated to



**Table 1** Regression analysis results of corporate governance on control environment

Track	Significance level	Calculated (T) value	Beta value	Standard deviation	Mean
	(Sig.) $\alpha \leq 0.05$				
Corporate governance → internal control environment	0	21.759	0.91	0.44	3.65
R correlation coefficient		0.774			
Determination coefficient ( $R^2$ )		0.599			
Rate determination coefficient ( $R^2$ Adj)		0.598			
Hypothesis result		Accepted			

be 0.599, indicating that approximately 59.9% of the variation in the control environment is attributed to changes in the dimensions of corporate governance. The study rejected the null hypothesis suggesting no significant impact of implementing corporate governance principles on the control environment, while accepting the alternative hypothesis that confirms the statistically significant impact of implementing corporate governance principles on the control environment.

The study concluded that there is a statistically significant impact of the overall dimensions of corporate governance on the control environment of publicly listed industrial companies in Saudi Arabia, based on the results of testing the main and sub-hypotheses. The multiple regression analysis revealed a statistically significant impact of each individual dimension of corporate governance on the control environment of publicly listed industrial companies in Saudi Arabia, at a significance level of  $\alpha \leq 0.05$ .

## 4 Results

The study revealed a strong consensus on the significant importance of corporate governance with its various dimensions on the control environment of publicly listed industrial companies in Saudi Arabia. These findings support the proposed theoretical framework and reinforce the positive impact of corporate governance. Moreover, these results are expected to encourage companies to adopt more corporate governance practices and improve their overall performance, while achieving objectives such as shareholder satisfaction and profitability. The study also aligned with previous research, which confirmed the relationship between corporate governance and internal control.

Based on the study results, the researcher reached several conclusions, as follows:

1. The results indicated a significant and positive impact of corporate governance on the regulatory environment of publicly listed industrial companies in Saudi Arabia. The findings emphasized the pivotal and significant role of various principles and practices of corporate governance, which assist top management in realizing this role in the control process overall.
2. Defining and appropriately determining the responsibilities of the board of directors, reflecting the company's objectives, is one of the key pillars in implementing corporate governance. This factor holds significance for top management when implementing governance practices in companies.
3. The study also concluded, based on the results, that disclosure and transparency regarding company information portray a positive image of the company. They encourage investment in the company and foster trust-building with shareholders by presenting important financial and accounting information to current and potential shareholders.

## 5 Recommendations

Based on the study's results obtained through various statistical methods applied, the study provides several general recommendations for similar companies in the industry, as well as others, considering that corporate governance is important for all sectors and companies. It can help decision-makers in industrial companies in Saudi Arabia to enhance the internal control environment. The study also suggests future research directions, as follows:

1. Increase the focus of top management in companies on all internal control processes and develop the qualifications and competencies of employees involved in various control processes and related activities, recognizing their role in developing core assets in companies, such as the human element.
2. Expand training and qualification processes for all employees involved in internal control, especially at the top and middle management levels. This aims to foster a genuine understanding of the internal control process and provide real opportunities for individuals at different educational and professional levels to participate in developing this process.
3. Support and allocate an independent specialized administrative unit for corporate governance practices and applications that aims to enhance performance among employees engaged in internal control. This unit should study the factors influencing this process.
4. Embed the concept of corporate governance practices and applications within different administrative units in publicly listed industrial companies in Saudi Arabia. This should encompass various age groups, educational backgrounds, and job functions, especially considering the diverse participant profiles in this study in terms of educational qualifications and age groups.

## Recommendations for Future Studies

- Conduct future studies and research in the field of corporate governance, with a focus on contemporary topics such as the impact of corporate culture on corporate governance and internal auditing in other important and vital sectors such as banking.
- Include new dimensions of corporate governance such as financial disclosure quality, conflict of interest management, and minority rights protection, which have not been previously studied as variables of corporate governance and their relationship to company performance, along with other related concepts.
- Use other new research and analysis methodologies such as structural equation modeling, using advanced analysis software such as AMOS or SmartPLS, and introduce mediating or moderating variables to enhance the theoretical model's strength in the study.
- Benefit from the results of the current study by conducting future comparative studies and making comparisons of the extent of improvement in the components and elements of corporate governance in different time periods.

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# Relationship Between Mood and Decision-Making Among Administrators in Universities



Nisreen AlNawrasi and Mohammed Angawi

**Abstract** Focusing on the Al-Zarqa Governorate, our investigation targets the administrative sphere of its universities. Our aim is to explore the intricate connection between mood traits and decision-making. The thorough examination of presently existing mood traits and decision-making abilities amongst university administrators is integral to our analysis. Additionally, our study seeks to uncover the subtle effects of mood traits on academic decision-making within university administrations. Our team selected 240 administrators with diverse backgrounds to undergo examination. Two distinctive tests were administered; one meant to test decision-making skills while the other was designed to evaluate mood characteristics. Careful construction of the metrics accurately measured the specified variables. The study revealed that university administrators possessed a moderate level of decision-making proficiency and mood disposition, as meticulously analyzed data indicated. The results highlighted a positive and statistically significant correlation between mood traits and decision-making in university administrators. By providing insightful comprehension into the relationships between these variables, these findings unveil the inner workings of academic environments while imparting valuable information on the present state of decision-making abilities and mood traits among university administrators.

**Keywords** Mood · Administrators in universities · Decision-making

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# 1 Introduction

Throughout the past few years, there has been a heightened interest in exploring changes in human behavior that have resulted in a surge of problems, particularly in the realm of social interactions. A specific focal point for numerous academics has been the impact of mood alterations on rising levels of stress and the likelihood of making flawed choices. As a career group that is juggling work responsibilities, familial obligations, and other assigned duties, administrative professionals rank high on the list of those most susceptible to an assortment of pressures.

In today's world, administrators are facing a variety of ups and downs in their lives that are affecting every aspect of their existence in unexpected ways. As a result, they are encountering numerous psychological challenges and behaviors as a consequence of the many pressures they are facing. With the constant and unending change that is taking place, administrators are encountering various challenges and dilemmas that inhibit their progress in their workplace or life. This burden is causing them to feel more stressed out and is affecting their ability to make sound judgments and decisions. Because of this, their interactions with others are being impacted negatively and they are making incorrect choices. What they foresee happening in the future could be even more demanding and difficult to handle. Being moody is predisposing them to additional problems, which can be seen in their observable behaviors and judgments.

Most of the time, irrational and incorrect decisions are made by moody individuals, which is considered unhealthy. Imbalance is created by this state, resulting in interpersonal problems and often requiring others to review their decisions. Attributed to moodiness, this phenomena is characterized by the need for external input in order to minimize the release of incorrect decision-making.

Previous experiences and knowledge are considered by some researchers to not be the only determining factors for an individual's success in overcoming life challenges, particularly when it comes to administrators. Certain researchers point to the importance of emotional intelligence, as established in [1] research.

## 1.1 Research Problem

The pressing issues plaguing our world necessitate immediate intervention in diverse areas. While some crises may be ameliorated through concerted effort, others demand a more thoughtful and systematic strategy. Amidst our current situation, various factors contribute to the complexity of society's different components. Education, which covers a diverse group of individuals, faces many challenges. Academia officials cope with mounting pressure and high demands. The landscape of education has been transformed by the pandemic, creating unprecedented hurdles for administrators to overcome. These changes have put a significant amount of stress on education leaders [2]. Academic adaptations in response to the pandemic have showcased the

resilience of administrators and educators, making innovative and cautious leadership essential for addressing accelerated emerging issues. It's clear that the lasting impression of the pandemic demands these qualities from those in leadership positions. In this new world, administrators must be under constant scrutiny, as they produce plans that promise to move the educational world forward effectively. Nevertheless, effective strategies are essential to survive and continue learning despite these trying times. In universities, continuing effects of the pandemic have presented new challenges for administrators to navigate in the educational sector. With a multitude of challenges and transformative events shaping the current world, the intricacies of this interplay have significantly impacted this field [3]. As a result, these administrators must be adaptable and resilient in order to effectively establish systems that will endure in the face of ongoing challenges. This is necessary to ensure that educational institutions continue to be effective [4].

Society reaches excellence and prosperity with the guidance of universities. Effects on universities generate noticeable changes for the rest of the society. Ergo, administrators bear influence on three key aspects: university environment, university community habits and skills, and their own personal traits, all of which enhance performance [5].

Contributing to differences among administrators in decision-making, mood has an important relationship with academic resilience and achievements [6]. Coping behaviors prove essential for dealing with life's pressures, requiring individuals to pay attention, differentiate emotions, and regulate them. According to Extremera et al. [7], mood is believed to serve as a factor in these individual differences as people make decisions. Individuals with higher levels of moodiness [8, 9] tend to make decisions and judgments after an emotional situation which they later regret.

## ***1.2 Research Objectives***

1. Among administrators in universities, the objective was to gauge their decision-making abilities and mood levels.
2. Among university administrators, the connection between decision-making and mood is an intriguing topic to explore.
3. The mood scale scores of the study participants were used to predict their scores on the decision-making scale.

## ***1.3 Significance of the Research***

The importance of the current research lies in two aspects:

1. **Theoretical Importance.** This study offers a distinctive scientific contribution to the Arabic library, emphasizing its significance in theory. Pertaining to the subject of administrators' moodiness rates, it serves as a time-sensitive issue



while enhancing current knowledge. Furthermore, the study's underpinning theories amplify the comprehension of emotional wellness in professional settings, making it a treasured source for future research within the academic sphere. It not only sheds light on the outcomes affecting organizational dynamics and working environment culture, but also provides crucial references for sustained academic progress.

2. **Practical Importance.** In the realm of predicting outcomes, the exploratory analysis could be highly useful when it comes to uncovering how moods dictate one's choices. In doing so, organizations can empower themselves to tackle stress and exhaustion in advance, decreasing the chances of making faulty decisions. In essence, the outcomes of the research reveal pragmatic takeaways for administrators to help optimize their decision-making abilities by establishing an atmosphere that is emotionally balanced and managed. This regulation can be obtained by utilizing the insights acquired from this study.

#### ***1.4 Conceptual and Procedural Definitions:***

- A person's temperament is revealed through how they express their emotions and feelings. This collection of character traits is referred to as moodiness.
- The decision-making process of individuals is defined as moodiness. This approach involves making choices without taking into account their potential impact on others [5, 10].
- Among several alternatives, reaching a logical course of action is the conceptual definition of decision-making. The ultimate goal of any decision is to achieve specific outcomes while avoiding those that are undesirable.
- Decision-making is a skill that involves recognizing optimal problem-solving options from a set of given choices. Success in this skill is dependent on the individual's capacity to perceive the issue, assess solutions, and review alternatives using the information at hand. The extent of administrators' decision-making capabilities is measured by their score on the decision-making scale. Therefore, procedural definition of decision-making is critical to properly identify the most favorable alternatives that can be utilized to resolve an issue.

## **2 Previous Studies**

[1] exploring the importance of emotional competencies in effective leadership. Their research involved a sample of 873 managers, divided into three groups: a group of 713, a group of 90, and a group of 70. To measure personal competence, a scale consisting of 38 items was utilized, with 10 items focused specifically on emotional competencies. These findings emphasize the significance of emotional intelligence in leadership roles. Among session leaders, statistically significant differences were found in the second group, whilst differences in emotional competencies, favoring

managers, were noted in the third group between managers and administrators. The study ultimately determined that emotional competencies held great importance for the success of managers in carrying out their responsibilities.

80 managers and 388 of their employees served as the study sample for the 2016 research by Bartuto and Burbacho. This research aimed to examine the connection linking emotional intelligence and transformational leadership. The Caruso et al. emotional intelligence scale and a multi-factor leadership scale were utilized by researchers in this study. After analyzing the data, a notable and statistically significant correlation became apparent between transformational leadership and emotional intelligence.

In a sample of 88 individuals ranging from 18 to 50 years old, 49 females and 39 males, [11] pursued discovering the psychological trait associated with negative moodiness. Through their study, it was revealed that there is a significant correlation between depression and an external perception of one's control over their surroundings.

Emotional intelligence, educational leadership, and emotional awareness were the main points of the study conducted by [8]. A group of 144 students who were 17–42 years old made up the test subjects. According to the researchers, there is a strong correlation between emotional intelligence scores and future performance on the educational leadership scale. This positive relationship was statistically significant.

In a recent investigation by [2], the central tenets of Carl Jung's personality theory were explored and critiqued through a psychological lens. Employing an extensive literature review approach, the researchers were able to identify patterns in Jung's work and analyze criticisms of his theories. While examining the themes of personality present in Jung's work, several interesting findings were uncovered, such as his utilization of concepts like consciousness and unconsciousness, as well as the ego and animus/anima, in order to describe personality. Additionally, both individual and collective unconsciousness played a significant role in his theories. Personality, as per Jung's theory, is the result of a complex interplay between introversion/extraversion and four personality functions: thinking, feeling, sensation, and intuition. While eight distinct personality types were identified, Jung's theory and findings have not escaped scrutiny, with critiques focusing on the methodology employed.

## **2.1 Study Hypotheses**

In light of the theoretical framework and previous studies presented, the study hypotheses can be formulated as follows:

1. The hypothetical average of the scale and the actual mood scale scores of the study sample show variances.
2. On the decision-making scale, there are observable disparities between the hypothetical mean and the sample's mean scores.

3. On the mood scale, the scores of the study sample can determine their scores on the decision-making scale, as per research.

## **2.2 Study Questions**

1. What is the level of mood trait among administrators in universities?
2. Is there a correlational relationship between mood and decision-making among administrators in universities?
3. Can the scores of the study sample on the decision-making scale be predicted based on their scores on the mood scale?

## **3 Research Procedures**

### **3.1 Study Design**

Based on the research problem and to achieve its objectives, a descriptive correlational design and a comparative design were used.

### **3.2 Research Population**

The research population consists of administrators in universities in the Al-Zarqa Governorate.

### **3.3 Research Sample**

The research sample included two points:

1. With a sample of 240 university administrators from Al-Zarqa Governorate, the psychometric validity of the tools employed was put to the test.
2. Universities in the Al-Zarqa Governorate were home to 287 administrators, who made up the main research sample.

In scrutinizing different aspects of the research in question, the scholar utilized a wide range of statistical investigative techniques. The Pearson correlation coefficient was leveraged to scrutinize the connections between variables under inquiry as well as the overall consistency of the research instruments used. For ensuring internal consistency within the research devices, the researcher resorted to the widely accepted and reliable Cronbach's alpha coefficient. By utilizing the independent samples t-test, the

researcher dove into how distinctive groups might vary from each other. By critically examining statistical differences amid a range of sample groups, the utilization of factor analysis demonstrated its effectiveness in determining the psychometric capability of the research tools. Through leveraging the analysis of variance (ANOVA), a weighted mean, and t-test, a comprehensive analysis of central tendencies and potential differences among sample groups was conducted, playing a pivotal function in uncovering the concealed constructs within the data. Consequently, this analytical method led to a more distinct comprehension of the fundamental structures. Lastly, to rigorously test the study hypotheses, multiple linear regression analysis was applied. To analyze and interpret the research findings, a meticulous and comprehensive approach was taken using a diverse range of statistical methods to explore the relationships among multiple independent variables and their collective impact on the dependent variable. This ensured that the study's objectives and hypotheses were robustly examined. The use of a variety of statistical techniques underscores the thoroughness of the analysis.

## 4 Research Results

### *4.1 Firstly: What is the Level of the Mood Trait Among Administrators in Universities?*

Using the Stepwise method to analyze the data, a comprehensive multiple linear regression analysis was conducted to rigorously test the hypothesis. The necessary conditions for data analysis were taken into account. Results indicated a significant and noteworthy prediction of decision-making when taking into account both mood and attention to feelings as a whole ( $F = 79.74$ ;  $p\text{-value} = 0.000$ ). What's interesting is that this effective model accounted for a considerable portion, explaining 39% of the total variance in academic well-being ( $R^2 = 0.39$ ). Interestingly enough, a noteworthy discovery was made when analyzing the various factors that influence academic success. Specifically, it was found that mood trait played a more significant role as a predictor ( $\text{Beta} = 0.74$ ), whereas attention to feelings made a comparably smaller contribution ( $\text{Beta} = -0.17$ ). These intriguing results suggest that a complex interplay exists between mood trait, attention to feelings, and their collective impact on academic well-being and decision-making within our scope of study.

#### **4.2 *Secondly: Is There a Correlational Relationship Between Mood and Decision-Making Among Administrators in Universities?***

By conducting a one-sample t-test and comparing the mood scale's mean scores of the study sample against a hypothetical average, the researcher has confirmed their hypothesis. Statistically significant distinctions were observed between the actual mean scores and its dimensions when juxtaposed against the hypothetical averages. Remarkably, these differences aligned with the study sample's average on the mood scale. The direction of the hypothetical average revealed a notable difference in the domain of attention to feelings, which signified statistical significance with a p-value of 0.01. Notably, the clarity of feelings and mood adjustment levels demonstrated high scores among the study sample, though overall mood traits were moderate when considering attention to feelings. These findings were backed by a one-sample t-test, which identified significant differences between the observed mood scale scores and hypothetical averages for the study sample. By delving into the subtleties of mood traits among the study participants, valuable insights were gleaned, particularly with regards to attentiveness, comprehension, and emotional regulation. The researcher inferred that the moderate level of mood traits noted in the sample could be a result of a lack of emphasis on heightened emotional awareness. It was suggested that recognizing and understanding one's emotions is the starting point, followed by developing strategies to articulate and regulate them. Ultimately, insufficient attention to cultivating these skills may have contributed to the moderate level of mood traits among the study participants, according to the researcher's perspective.

#### **4.3 *Thirdly: Can the Scores of the Study Sample on the Decision-Making Scale Be Predicted Based on Their Scores on the Mood Scale?***

Through implementation of a t-test for a single sample, the validity of the hypothesis was authenticated by comparing the decision-making scale's sub-dimensions and average scores of the trial sample to the hypothetical scale average. The conclusions drawn revealed noticeable and statistical differences between the actual average scores of the study sample and its dimensions compared to the hypothetical standards ( $p\text{-value} = 0.01$ ). An emphasis was placed on the study's first hypothesis, which was substantiated based on the observation of the actual decision-making scale's sample average direction. As a whole, the mood trait of the examined group was moderate. This may be due to academic pressures placed on administrators in universities, which have been known to trigger feelings of hopelessness and inadequacy. These negative emotions can often result in poor judgment, hindering decision-making abilities [1].

Within the scope of the study, decision-making outcomes were predicted by the trait of mood and closely followed by attention to feelings. These two factors were

statistically significant and explained a noteworthy 38% of the variance. Interestingly, mood trait was shown to hold the highest correlation with decision-making ( $r = 0.62$ ) whereas clarity of feelings followed behind at 0.55. Additionally, mood adjustment was determined to correlate at 0.5 while attention to feelings exhibited a correlation coefficient of 0.37. These findings support the notion that individual emotional experiences can affect decision-making processes. In extracting deeper insights from the regression analysis, one can observe that the most powerful predictor of decision-making in the subject pool is the mood trait. Additionally, attention to feelings appears to have a notable impact in forecasting decisions. These findings highlight the interconnectivity between attention to feelings, mood traits, and decision-making, providing valuable perspectives into the complex dynamics of the studied situation. Ultimately, these conclusions shed light on key aspects of this topic.

In addition, the findings indicated that a combination of feelings' clarity, mood adjustment, and academic satisfaction possess the statistical competence to anticipate almost one-third (27%) of the variations in academic satisfaction had by the study participants. Notably, these conclusions demonstrate slight similarities with correlation coefficients. Most notably, clarity of feelings ( $r = 0.48$ ) appears as the most strongly correlated factor, followed by mood trait ( $r = 0.47$ ), and lastly, mood adjustment ( $r = 0.3$ ). Looking deeper into the regression analysis, it becomes clear that feelings' clarity is the most potent indicator of academic satisfaction in the study population. The complex construct of academic satisfaction is influenced by the multifaceted dynamics that underpin the relationship between emotional factors, specifically mood adjustment and clarity of feelings. It is interesting to note that academic satisfaction cannot be predicted solely through mood trait. These insights introduce a new dimension to the predictive model.

The capacity to adapt to diverse environmental conditions, navigate pressures inherent in university settings, and efficiently execute tasks is believed to be possessed by administrators with elevated levels of mood trait. Such trait emerged as a noteworthy predictor of academic integration, academic competence, and positive social relationships, providing statistical predictions that accounted for 25%, 28%, and 24% of the variance in academic competence, academic integration, and positive social relationships, respectively, within the study sample. These findings suggest that mood trait is a crucial factor in achieving success in academic endeavors. The connection between the satisfaction of administrators with their academic and administrative roles, and their maintenance of high levels of academic integration and positive social relationships, is closely intertwined with their ability to recognize and regulate emotions. Highlighting the interdependence of mood trait and different aspects of academic life, the study suggests that administrators with heightened mood traits may show increased adaptability, coping skills, and academic proficiency. Consequently, their contributions can foster a more connected and positive university experience. Overall, this research underscores the intricate relationship between emotions and academic success.

## 5 Recommendations


1. Undoubtedly, decision-making processes of administrators are shaped by their physical environment, which is why it is essential to focus on it.
2. Administrative officials could greatly benefit from a deeper understanding of decision-making, with authority figures actively promoting this idea. Encouraging social emotions within the university setting could be one way to achieve this goal.
3. Across diverse situations, equipping administrators with crucial emotional management skills is essential through the implementation of training courses and educational programs within university settings.
4. Undertake further ventures into the intricate relationship between decision-making and mood by conducting additional research.

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# The Impact of Supply Chain Management Practices on Total Quality Management in Industrial Companies



Hazem Shehadeh, Afnan Bassam Jameel Al-Manshawi, Mousa Ajouz , and Mohammad Kanan

**Abstract** In Marka region of Jordan, employees in quality, operations, and production departments in industrial companies were surveyed to investigate how supply chain management practices in suppliers, customers, and operations impacted various dimensions of total quality management, including empowerment, top management support, continuous improvement, research, and development. To achieve this objective, researchers used a descriptive-analytical approach with a 37-item questionnaire designed to measure the variables. 119 questionnaires were distributed to 17 targeted factories using a carefully selected sampling method in a study that employed SPSS program statistical tests. The research reveals numerous critical discoveries, such as the strong and positive correlation of supply chain management practices—encompassing suppliers, customers, and operations—with total quality management’s comprehensive aspects consisting of top management support, empowerment, continuous improvement, research, and development. Supply chain management accounts for 85.5% of total quality management, with the operations dimension playing a significant statistical role in achieving total quality management. The study determined that industrial companies’ supply chain management practices and total quality management were both moderately ranked. To improve this, a comprehensive evaluation should be conducted on all supply chain stages and components, with adequate resources allocated to such an undertaking. The study also suggests that quality management employees’ capabilities be enhanced to better apply quality principles in companies and promote the concept of total quality management throughout the organization, thereby disseminating its culture among all employees.

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**Keywords** Supply chain management practices · Total quality management · Industrial companies · Marka region · Jordan

## 1 Introduction

Enhancing business performance is a significant contribution of Total Quality Management (TQM), thus making it a crucial topic for improvement and development in advanced and developing countries. This modern management approach has gained interest from professionals looking for effective organizational solutions. To confront modern global challenges such as information technology and stakeholder satisfaction competition, organizations must adopt a scientific approach and utilize human resources more efficiently [1].

Maximizing asset value is a top priority for businesses, and an important means to achieve this is through effective supply chain management. Through this process, operational costs can be reduced and profitability can be increased, ultimately leading to improved organizational efficiency [2, 3]. Enhancing supply chain performance is therefore vital, and it requires attention to the integrated network of relationships and operations that exist among production and sales elements [4]. Providing decision makers with the necessary information to plan and manage supply chains is an essential task for businesses seeking success in this area [5], having an efficient supply chain system is crucial to enabling production [6–9].

In its most basic structure, managing the chain of supplies can be described as a web of connections linking suppliers to customers. Every step of the way, the parties involved are working to add further value to create a finished product or service that satisfies the customer. This whole process hinges on trust and effectiveness. The end goal is to provide a final product or service with a sharp focus on speed of delivery, expenses, and excellence. Looking at it from the angle of supply chain management means that the service or product must not only meet the client's criteria but also be tailored to their specific needs [10, 11].

In today's world of economic, political, and technological advances, the quest for markets and resources, be it human or material, has become more competitive, making adaptability and self-sufficiency essential to success. As a result, quality management has become a vital concept. The need for new work methods has been catalyzed by the emergence of new technologies, the functional and personal data structure of human resources, as well as the increasing importance of quality and flexibility in service delivery and production [12].

Industrial companies in the Marka region of Jordan are the focus of a study aiming to uncover how supply chain management techniques affect total quality management.

## ***1.1 Problem Statement and Research Questions***

In the capital of Jordan, the Marka region, we aim to evaluate the influence Total Quality Management (TQM) has had on industrial corporations and the resulting alterations. Our examination also concentrates on TQM's evolution in terms of meeting the demands of customers, heightening product and service quality, amplifying organizational earnings, and diminishing expenses. Furthermore, we have discovered an insufficiency in Supply Chain Management (SCM) practices among industrial companies with insufficient effort put into SCM activities. Since SCM governs most organizational processes and influences numerous managerial decisions, it necessitates more investigation.

By bringing together the independent and dependent variables, the current study fulfills a gap in research that was previously unexplored. This particular lacuna was highlighted by scholars like [13], who put forth relevant suggestions for research in this area. [14] and [15], emphasizing the importance of focusing on both TQM and SCM practices. The efficiency of SCM is considered a key factor for long-term organizational success.

In the Marka region of Jordan, a research inquiry was prompted by the necessity to scrutinize SCM routines of industrial companies. Subsequently, a statistical analysis and survey were executed by researchers to assess the influence of SCM practices pertaining to suppliers, operations, and customers on TQM. The emphasis was on TQM components such as R&D, continuous improvement, top management support, and empowerment which potentially could impact the employees in those businesses.

## ***1.2 Research Questions***

1. What is the impact of SCM practices (suppliers, customers, and operations) on TQM (empowerment, top management support, continuous improvement, research and development) in Jordanian industrial companies in the Marka region?
2. What is the level of attention given to SCM activities within these industrial companies?
3. What are the recommendations for improving the utilization of SCM practices to enhance TQM and overall organizational effectiveness?

## ***1.3 Significance of the Study***

- In the Marka region, the study offers industrial company managers a glimpse into how various SCM practices affect different TQM aspects.

- In order to increase the efficiency and sustainability of organizations, it is crucial that the management receive guidance on the optimal use of SCM practices to elevate TQM. The study's practical importance lies in supplying such recommendations to these companies.

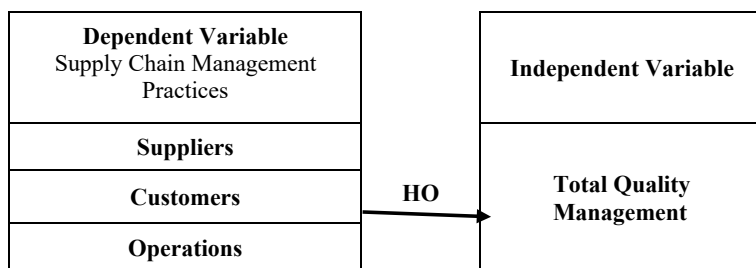
### 1.4 Hypothesis

The following hypothesis is formulated based on the problem statement:

- In Jordanian industrial companies based in the Marka region, the impact of SCM practices (suppliers, customers, and operations) on TQM was scrutinized at the 0.05 significance level ( $\alpha \leq 0.05$ )—coming to the conclusion that there is no significant statistical sway, supporting the Main Hypothesis (H0).

### 1.5 Study Model (Study Variables)

In the Marka region of Jordanian industrial companies, employees' TQM dimensions and SCM practices are the main focus of the study. The former includes aspects such as research, top management support, empowerment, continuous improvement, and development, while the latter includes suppliers, customers, and operations (Fig. 1).



**Fig. 1** Study model

## **2 Theoretical Framework**

### ***2.1 Supply Chain Management Practices***

Change and competition are defining the scientific, technological, and civilizational revolution that is being witnessed across the globe. Supply chain processes are an integral component of various organizations, impacting their efficiency and effectiveness in a significant way. The importance of these processes cannot be understated, as they are crucial for the performance of organizations of varied natures, sizes, and objectives. Achieving high levels of efficiency in these processes is essential for optimal performance of an organization. Supply chain management stands as a critical success factor, especially for profitability [8]. Integration and effectiveness of these processes directly influence economic performance [16, 17].

Organizations now realize that effective supply chain management is imperative. Integral to the organization's marketing strategy is knowledge about the stakeholders it engages, including the suppliers involved in supply chain management. With this information, the organization can create a seamless process for obtaining materials required for production, ensuring that the supplier can provide timely and affordable products without compromising quality. Economic success depends heavily on the management of a productive organization's supply chain. All areas of the economy benefit from this process, making it a crucial and highly competitive factor[18].

#### **Dimensions of Supply Chain Management**

Management of the supply chain can be represented through various dimensions. In the current study, three specific dimensions were the main focus, namely:

##### **Suppliers**

Intermediaries who furnish products or services to another group make up suppliers. Suppliers' function in enterprises is to offer a retailer top-notch goods at a fair cost, derived from the manufacturer, that will be sold to consumers. A supplier is a being or corporation that works as a go-between linking manufacturers with retailers, guaranteeing remarkable quality inventory. To initiate a supply chain strategy, an organization must locate their chief providers, appraise their competencies, and establish an enduring, unmediated partnership. To ensure a smooth supply process that benefits both the organization and the supplier, it's important to classify suppliers based on their significance. Maintaining exceptional relationships with them is key in achieving the ultimate goal of supply chain management. These strong partnerships come in handy in dealing with unforeseen situations, like when additional raw materials are required to keep up with sudden production spikes. Coordination is critical in achieving this continuous flow of supply [9, 16].

##### **Customers**

Maximizing customer satisfaction relies on the establishment of relationships through CRM, where understanding the customer leads to efficient sales and tailored

services. By gathering knowledge of the customer's needs and requirements, businesses can align their products with expectations, ultimately elevating customer perception of value. Focusing on particular principles and segmenting customer groups into market segments are some of the ways to manage customer relationships to attain greater revenues and satisfaction. The end goal of this corporate plan is to intensify communication among various company elements and its customers, both directly and indirectly, as well as interactions between suppliers, wholesalers, manufacturers, and retailers within the internal operations. Though some might classify CRM as a purely customer service strategy, it is more inclusive and deals with relationship management on a deeper level [15].

Containing costs, improving performance, and ensuring reliability in customer relations require a strategic and quick system for customer requests. This system is referred to as customer relationship management, which revolves around providing high-quality service to the customer to make them the primary focus of the company. With such relationships, transaction uncertainty is reduced, and customer loyalty is enhanced, thereby promoting productivity. The practice involves managing customer complaints, prioritizing customer service, and building long-term relationships to improve their satisfaction [19].

### **Customer Negotiation Power**

Negotiations between customers and sellers and the actions of competitors in the industry can be profoundly influenced by the concentration or volume of customers present. The business environment can shift significantly based on this factor. Competitors may try to outdo each other by offering additional services, while customers may have more leverage in negotiations when there are fewer of them. Customers' loyalty is paramount to many companies who strive to provide unique support services, special guarantees, and large product quantities, although the products themselves are not easily distinguishable [18].

### **Operations**

By continuously updating current demand information, operations ensure the management and control of supply and demand balance. This is just one aspect of operations, which also serve to create a long-lasting relationship between customers and suppliers, through partnership. Such partnerships are founded on a base of coordination, information sharing, collaboration, commitment, and constant feedback [18].

[20] highlighted how organizations are prioritizing the implementation of supply chain management as a means to boost their performance. This decision stems from a variety of reasons: the need to improve operations, the desire to increase external procurement, the aim to minimize transportation costs, the recognition of e-commerce's significance, and ever-growing competitive pressures and globalization. Supply chain management is crucial in every aspect of achieving a smooth and uninterrupted production process that keeps up with the demand without any errors or delays. Therefore, it's vital to have a strategic system in place that caters to customer

requests, that effectively controls costs, enhances overall performance and ensures impeccable customer relations [21].

Managing a company's internal operations is vital to the success of its entire supply chain. [19] pointed out that internal operations encompass the processes within a company that oversee business functions and guarantee their reliable and correct implementation. The objectives of these processes are to verify the quality of goods and services, meet delivery deadlines, maintain adequate quality standards, and handle material and production needs with efficiency and precision. In short, keeping internal operations under control is crucial to ensuring a corporation's supply chain thrives.

## ***2.2 Total Quality Management***

Enhancement of the quality of products and services is a vital concern for organizations today, particularly as they face issues like heightened competition and product differentiation. Total Quality Management (TQM) provides the basis for this continuous improvement. Keeping pace with customer requirements, companies are increasingly concentrating on delivering products or services with the right quality, at a suitable cost, and within the timeframe [22].

The pursuit of quality is an ongoing and essential activity that impacts the behaviors and performance of individuals and groups. Its evolution is due to changing conditions and needs, and it remains relevant today as a significant competitive tool that no modern organization can ignore. Irrespective of whether the entity is manufacturing-oriented, a service provider, or a non-profit organization, prioritizing quality is crucial to stay afloat amid growing multinational companies' power and the increasing surge of global trade liberalization challenges. The importance of striving for quality cannot be tied down to a specific time or period [23].

Modern management techniques, like Total Quality Management, have captured the attention of organizations seeking to improve their development and enhance their performance in advanced and developing countries. With demanding global challenges, including revolutionizing information and communication technologies and competition to appease supporters, businesses must adopt a scientific method in addressing these obstacles and capitalize on their human resources to achieve flexibility and effectiveness for better performance [18].

### ***2.3 The Relationship Between Supply Chain Management Practices and Total Quality Management***

Procurement and distribution processes at the organizational level are tackled by supply chain management, as revealed by theoretical foundations. From the acceptance of raw materials from suppliers to the dissemination of products to customers, it tracks the whole procedure. The interconnection between total quality management and supply chain management is noticeable when reviewing relevant concepts. Supply chain management at the total quality management level has been extensively researched by scholars. Quality remains a top priority for organizations these days, especially when facing the challenges brought on by globalization. It doesn't matter whether the organization is rendering service, manufacturing goods, or a non-profit, an emphasis on quality is essential to compete with multinational companies and the ease of global trade. Such competition has been noted to grow exponentially (Jazm, 2020).

Deepening relationships with customers and creating value for them are integral aspects of Total Quality Management, which can improve the quality of an organization's supply chain management. The value that supply chain management provides can be considered in the context of enhancing Total Quality Management, resulting in increased efficiency, an enhanced reputation and brand, and a competitive edge over rival organizations. Achieving Total Quality Management is key in reaping these benefits.

In the realm of going green within the supply chain management, a study completed by Al-Shura in [24] unveiled a noteworthy finding about the connection between environmental orientation and green information technology. Their research showed that these factors, taken as indicators of the strategic orientation dimension, can contribute substantially to the adoption of green supply chain management. Another study, done by Al-Khursha in 2019, found that supply chain practices play a vital mediating role in the correlation between a lean strategy and supply chain performance.

#### **Methodology**

##### **Sample and Study Population**

Using data provided in the Chamber of Industry's report for 2021, 17 factories were selected to participate in the study. As the study's population, each of these factories received seven questionnaires which amounted to a total of 119 surveys distributed electronically via Google Forms. The distribution of the questionnaires was done without bias as the researchers were unable to deduce the exact population size. Out of the total number of questionnaires distributed, 82 were retrieved thereby indicating a 69% response rate. Due to variations in responses from different factories, as well as an increase in factories, the response rate has decreased. While some factories were cooperative, others were not cooperative enough.

**Table 1** Internal consistency validity

#	Variables	Number of paragraphs	Cronbach's alpha coefficients
<i>Total quality management dimensions (dependent variable)</i>			
1	Suppliers	5	0.899
2	Customers	5	0.907
3	Operations	7	0.928
4	Empowerment	5	0.926
	Supply chain management practices	12	0.956

The researchers relied on an appropriate sampling method in selecting and distributing the questionnaires. Table 1 provides a summary of the number of distributed and retrieved questionnaires.

## 2.4 Validity and Reliability of the Study Instrument:

### Internal Consistency Validity

With a quick glance at Table 1, it jumps out that the variable items' Cronbach's Alpha coefficients fall between (0.804–0.931), and they all pass the value of (0.7) that's deemed stable. As a result, every item on the questionnaire displays reliability.

## 2.5 Data Validity Test

Multicollinearity in the independent variable dimensions can be avoided by keeping the VIF (Variance Inflation Factor) under (5) and the Tolerance above (0.1) [9]. As shown in Table 2, the VIF values for all dimensions of the independent variable are below (10) and the Tolerance values are above (0.1), proving that there is no presence of multicollinearity in the data (Table 3).

The significance of the regression model is confirmed by comparing the computed F-value to the tabulated F-value, as shown in the table. This is demonstrated by the computed F-value being 147.049, surpassing the tabulated value of 2.70.

**Table 2** Multi-collinearity test

Variable	Variance inflation factors (VIF)	Tolerance
Suppliers	6.170	0.162
Customers	5.982	0.234
Operations	5.694	0.206



**Table 3** Results of stepwise linear regression for the hypothesis

Dependent variable	Model summary			ANOVA		Independent variable	Regression coefficients		
	Correlation coefficient (R)	Determination coefficient (R <sup>2</sup> )	Adjusted (R <sup>2</sup> )	Computed F	Degrees of freedom		B-value	t-Value	Significance level (sig)
Total quality management	0.922	0.850	0.844	147.049	3	Suppliers	0.2590	2.391	0.0190
					78	Customers	0.0380	0.305	0.7610
					81	Suppliers	0.2590	2.391	0.0190

In Jordanian industrial companies located in the Marka region, a study was conducted to examine the effects of Supply Chain Management (SCM) dimensions (Suppliers, Customers, Operations) on Total Quality Management (TQM) dimensions (Empowerment, Top Management Support, Continuous Improvement, Research & Development). An F-test was administered to determine the significance level, which was compared to the study's own significance level of  $\alpha \leq 0.05$ . According to Table 4, the resulting significance level for F was 0.000, proving to be lower than the predetermined level of 0.05. Thus, the main hypothesis was dismissed and the alternative hypothesis was favored, indicating a statistically significant impact.

A table labeled 4 displays an R value of 0.922, indicating a strong positive correlation between the dependent variable and the independent variables: Operations, Customers, and Suppliers. Essentially, R measures the strength of this correlation, and in this instance, it surpasses 0.5 [25].

With a determination coefficient (R<sup>2</sup>) of 0.850, we can see that the combination of independent variables (Suppliers, Customers, Operations) hold significant explanatory power over the dependent variable, telling us that they explain 85% of Total Quality Management (TQM). However, after standard errors were eliminated from the study model, the adjusted determination coefficient (R<sup>2</sup> Adjusted) sits at 0.844, giving us a better understanding of the true net explanatory power in play. Looking closer at the table, it's worth noting that the independent variables (Suppliers, Operations) have statistically significant impact on Total Quality Management (TQM), achieving significance levels below the study's 0.05 level at 0.019 and 0.000, respectively.

The measure of significance for the study's variable (Customers) fell short of expectations at 0.761. Yet, it would be unwise to dismiss their impact on Total Quality Management (TQM), as other factors may still play a bigger role in achieving TQM. In order to assess which independent variables weigh the most in predicting the dependent variable, Stepwise Regression analysis was conducted. The results of this analysis can be seen in Table 4.

In Table 4, the data from the stepwise linear regression analysis indicates that the dependent variable is affected by two unique sets of independent variable dimensions. The explanatory power of each set varies significantly. Total Quality Management

**Table 4** Results of stepwise linear regression for the hypothesis

Model	Model sequence of entry of independent variables in the prediction equation	R	Determination coefficient	t-Value	B-value	Significance level (sig)
1	Operations	0.909	0.827	19.536	0.850	0.000
2	Operations · suppliers	0.922	0.850	8.223	0.627	0.000
				3.465	0.281	0.001

(TQM) is mainly explained by the Operations variable, which alone contributes about 82.7% in explaining the dependent variable. This dimension significantly exceeds the Supply Chain Management variable's explanatory power in explaining TQM. Adding the Suppliers variable to the first set boosted the explanatory power of the second set significantly, resulting in an impressive 85% explanatory power. This suggests that Suppliers have a complementary explanatory power for the Total Quality Management variable. The Customer factor did not have a significant impact on Total Quality Management and so was excluded from the test.

## **Results Discussion and Recommendations**

### **Results Discussion**

In the Marka region of Jordanian industrial companies, a study was conducted to evaluate the influence of Supply Chain Management (SCM) practices on Total Quality Management (TQM). The study viewed the perspective of the participants and focused on the Suppliers, Customers, and Operations dimensions. Results demonstrated a significant positive impact of SCM dimensions on TQM. SCM practices were seen to have a strong correlation with TQM, providing positive outcomes and potential improvements. Furthermore, the study revealed a remarkable contribution of 85% to achieving TQM.

Approximately 83% of the impact on TQM can be attributed to the Operations dimension, according to the highlighted results. This aligns with the findings of Al-Mahasneh's 2016 study, which discovered a statistically significant effect from innovative SCM on TQM in the Aqaba Special Economic Zone Authority.

## **3 Recommendations**

### **Supply Chain Management-Related Recommendations**

1. By allocating ample budgets for thorough evaluations of all stages and components of SCM, industrial corporations can enhance their SCM practices in development.
2. Enhance and build strategic relationships that ensure the continuity of supplies by reevaluating the nature of the relationship between industrial companies and their suppliers.
3. Incorporate service level assessments and product development participation by suppliers to enable them to contribute to post-delivery support services.
4. Building strategic relationships with customers is crucial, therefore it is recommended to establish a Customer Relations Department. This department's responsibility would be to monitor customer complaints and suggestions, as well as implement them.
5. Enhance SCM practices by administering training to employees on the most effective approaches.

### Total Quality Management-Related Recommendations

1. Principles of quality management should be applied by employees in the Quality Department to improve company capabilities.
2. Total Quality Management should be promoted by general management as a concept and its culture should be spread among employees.
3. Companies must allocate a sufficient budget to cover their research needs and increase their focus on research and development, responding to changes in the market.
4. Technological means and equipment must always be under constant development.

### 4 Future Studies-Related Recommendations

- Achieving a competitive advantage in the food manufacturing industry can be enhanced by applying Total Quality Management. It's important to investigate this further in the context of citizen's food to ensure its specificity. Future studies should focus on this.
- To gauge the level of SCM appeal among industrial companies, it is proposed that studies be carried out on SCM practices in different industrial sectors.

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# The Impact of Technological Advancements on Insurance Industry



Zahra Makki Abdulla, Naba Hamza Isa, and Abdalmuttaleb Al-Sartawi 

**Abstract** This paper examines the influence of technological advancements on the insurance industry. Given the economic expansion, regulatory reforms, and increased public awareness, it has been found that innovations such as InsurTech have the potential to reshape industry dynamics in a transformative manner. These innovations, however, are not without challenges, as insurance companies must constantly cope with fierce competitions, interest rates, and customer expectations. The paper recommends using a mix between traditional and technological services in the short run to support the smooth transition toward full adoption of the technology soon.

**Keywords** Insurance · Technology advancement · Transformation · Insurance technology · InsurTech

## 1 Introduction

Bahrain's insurance industry has expanded steadily over the past two decades because of factors including economic expansion, regulatory reforms, and greater public awareness [1]. In the latest phase, insurance companies have focused on increasing their Gross Written Premiums (GWP), which is the entire amount of direct and assumed premiums written by an insurer before reinsurance and ceding commissions are subtracted [2]. However, this expansion has not been without challenges

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since insurance companies must contend with fierce competition, a low-interest rate environment, elevated client expectations, and greater regulatory scrutiny [3].

Lately, it has become clear that insurance serves the purpose of reducing the risks associated with economic and unpredictable events [4]. As per [5], insurance plays a crucial part in managing and transferring risk in a world where uncertainty is on the rise. This was eloquently demonstrated during the COVID-19 pandemic for instance, an incident that was not included in the 20 most probable risks that require insurance before 2020, where insurance protected individuals and companies from the financial consequences of this unforeseen epidemic [6]. Parallel to the wider financial sector, the insurance sector is undergoing technological advancements and transformations [7]. Assuredly, the emergence of Insurance Technology (InsurTech) is reforming the landscape [8]. A subcategory of FinTech, or Financial Technology, InsurTech refers to the creative application of technology in the insurance industry [9]. Truly, InsurTech is seen as a major force behind innovation given that it offers improved efficiency, novel approaches to service delivery, and more options for data gathering and fraud detection [10].

In the world of insurance, comprehending the Insurance Protection Gap (IPG) is fundamental [11]. The IPG measures the gap between recommended insurance coverage and actual coverage, which is influenced by a number of variables including the state of the economy, GDP shifts, population dynamics, and emerging potential risks such as pandemics, cyber threats, and technological improvements [6]. Hannover Re [12] mentions that IPG extends to the reinsurance industry as well, therefore, this gap is further compounded by the centralized nature of the reinsurance industry, which consists of a handful of large companies; as a result, trillions of dollars in consumer liabilities remain unfunded [13]. The reinsurance protection gap widens as insurance product innovation increases, which has an impact on a nation's capacity to establish financial stability and raise the standard of living for individuals [14]. The Central Bank of Bahrain (CBB) argues that Bahrain offers an ideal environment for the insurance industry, with its forward-looking and business-friendly regulatory regime that aims to sustain industry growth. Technology advancements have catalysed a transformational transition in Bahrain's insurance industry amid these dynamic shifts [15]. Thus, the purpose of this research is to provide an in-depth analysis of the scope, impact, and challenges associated with this evolving insurance landscape, as well as insight into the prospects of Bahraini insurance in the technological age [16]. To achieve this, the study will review the literature related to technology advancement and insurance.



## 2 Literature Review

### 2.1 *Historical Context of the Insurance Industry*

Chinese and Babylonian traders in ancient times kept records of the earliest types of insurance [17]. To minimize loss during treacherous waters, their approach entailed distributing goods across several ships [18]. A loss restriction mechanism was first described in the Code of Hammurabi, which was written around 1750 BC [19]. To illustrate, a merchant would pay a fee in exchange for a promise that a loan would be cancelled in case of shipments being stolen [20]. Among the first to provide insurance to their subjects were the Achaemenian monarchs, where insurance records were given to notary offices and insurance was further documented for presents of high value [21]. In sequence, the first life and health insurance were established by the Greeks and Romans around 600 BC [22]. BNH [23] highlight that this was achieved through nonprofit organizations that looked after the families of citizens who had passed suddenly, where such societies had rituals for burial that persisted for centuries. Following, in the twelfth century, a governmental insurance form emerged in Anatolia to compensate traders for their losses if they were stolen locally [20]. As the European Renaissance came to an end, insurance developed into a more complex form of protection with multiple types of coverage [21]. In the latter half of the seventeenth century, as London's prominence in international trade evolved, the demand for cargo insurance rose correspondingly [22]. During that time, London had become a hub for companies and individuals prepared to finance cargo ships and merchant traders [23]. In tandem, a renowned insurer called Lloyd's of London was founded [24]. Al-Sartawi [25] notes that the beginning of modern insurance can be dated to the Great Fire of London in 1666 as when Nicholas Barbon established the first fire insurance company in the city [26]. In the late nineteenth century, accident insurance, which is akin to contemporary disability coverage, came into existence [27].

### 2.2 *The Emergence of Technology in the Insurance Industry*

With the advent of the Fourth Industrial Revolution (Industry 4.0), which is the next phase in digitization of the manufacturing sector, the emergence of technology in the insurance industry has been closely linked [28, 29]. Disruptive trends include increased connectivity, analytics, human-machine interaction, and robotic advances [30]. CBB [31] assert that digital technologies are driving this transformation, making it of greater significance to have access to accurate data and decent analysis [32]. While navigating the changing industrial nature, insurance companies are faced with new risks imposed by these technologies along with unforeseen opportunities [33].

The insurance industry has been slow in adapting to new approaches despite the financial services transformation [34]. [35] claims that the enormous scale, bureaucratic nature, and strict regulation of the insurance industry are the prominent factors that contribute to the slowdown in technological adoption. Furthermore, progress has been slowed down by the immense complexity of insurance services [36]. For example, it took a while for insurance companies to acknowledge and start covering cyber threats [37]. Therefore, the industry's age and aversion to change emerged as obstacles to rapid technological transformation [5]. Objectively, the proliferation of InsurTech initiated the digitization of the insurance industry [5]. InsurTech platforms such as Vertafore Agency Platform, Insurity Sure Suite, and Adaptik Suite have grown in popularity, indicating a trend towards embracing digital technology, creative solutions, and an improved customer experience [38]. Al-Sartawi [39] declares that this transformation intended to radically revolutionize the insurance nature, having an impact on all facets of its chain of commerce, including product creation and claims handling, which headed the industry in the direction of a future that is proficient in technology [40]. Data management became increasingly important as technology became more interconnected with the insurance industry [41]. Huge data sets necessitated a tremendous amount of computer power, and the cloud emerged as the perfect solution [42]. [43], Pearson [44] communicate that cloud computing has made it possible to create a scalable and adaptable digital infrastructure in addition to making data storage and analysis easier. Thus, this transformation was a crucial step in being certain that the insurance industry could utilize technology suitably [45, 46].

### ***2.3 Technological Adoption in the Middle East's Insurance Industry***

Over the past few years, the Middle East insurance industry adopted Artificial Intelligence (AI) technologies swiftly, giving rise to InsurTech companies that combine cutting-edge technology with in-depth insurance experience [47, 48]. Statistically, a sizable \$26 million investment was made in the Middle East Insurtech startups in 2019 [49, 50]. Companies, governments, and central banks each contribute to the explosive development of the Insurance industry in the Middle East [51, 52]. Eling and Pankoke [53], Sampo Group [54] highlight that an increasing number of insurance companies in the region are currently using technology to improve their company's operations. To explain, a remarkable technological innovation in the region is the use of AI [55, 56]. Specifically, Natural Language Processing (NLP) is used by several insurance companies to obtain data from documents and issue auto policies in a matter of minutes [57, 58]. Moreover, InsurTech can revive the insurance industry in the Middle East by introducing new product types and advanced customer service approaches [59]. Despite the Middle East's rising GDP, [60, 61] argue that the region's insurance penetration rate has traditionally been low, which slowed the

industry's growth rate in the past few years. InsurTech addresses such issues and targets unexplored customer demographics [62–64].

## ***2.4 Technological Adoption in the Gulf Cooperation Council (GCC) Countries Insurance Industry***

With approximately 7% annual growth in GWP over the previous six years, the GCC countries have experienced tremendous growth in their insurance sector, surpassing the global average [65, 66]. However, during the past three years, this growth has dropped, which made the marketplace stricter and added pressure on insurers to modernize and differentiate their services [67, 68].

Some insurance companies in the GCC are already utilizing technology to take over the market [69, 70]. Go [71, 72] mentions that this is achieved through initiatives such as I-Insured's AI-based Safe Driver Pay-How-You-Drive (PHYD) app, which compensates policyholders depending on their driving behaviour, thus showcases the potentially transformative impacts of technology in the region. Along with adopting blockchain technologies, numerous regional insurance companies have also partnered with InsurTech companies to enhance their operations and performance [73, 74]. Insurance companies in the GCC are essential to risk management and the growth of each nation's economy [75, 76]. By enabling capital provision at a reduced cost, promoting more effective capital allocation, and contributing to asset protection, they help minimize the risk exposure of the financial system [77, 78]. The GCC countries' governments are intensively funding and luring foreign direct investment into a range of initiatives to diversify their economies [79, 80].

Specifically, the United Arab Emirates (UAE) Central Bank launched an “insurance regulatory sandbox” in 2021 to streamline the legal environment for insurance products and services and foster innovation in the industry [12, 81]. The UAE's conventional insurance companies are progressively employing InsurTech services, which have substantially altered the market [82]. About 200 insurers operate in the GCC market, with differing product offerings, foreign collaborations, stock market listings, and intense competition [83]. With 90 listed insurance companies controlling the majority of the total insurance premiums in the GCC, a few larger insurers dominate the premium collection [84]. The remaining smaller companies compete for the remaining market share [85]. According to a study of 39 insurance firms in the GCC, the insurance industry is moderately efficient but still needs to be improved [86, 87]. The results highlight the potential for increasing the efficiency of the GCC's insurance sector, which is aligned with the region's efforts to diversify its economy [86].

## 2.5 *Bahrain's Insurance Industry*

In 1993, the CBB authorized the legal incorporation of the Bahrain Insurance Association (BIA) [88]. The association's objectives have been to advance the insurance industry, set ethical and professional standards for the industry, and make it easier to share data and statistics [89]. In due course, the Gulf Insurance Institute (GII) was established in 2008 [90]. By teaching insurance professionals and providing incredibly skilled insurance employees, this institute aims to increase the sector's capacities [91].

Bahrain's insurance industry has undergone consistent development, with domestic gross premiums for the first half of 2022 totaling BD 146.86 million, up from BD 143.62 million in 2021 [92]. The CBB demonstrates that approximately 2.3% of the total premiums written during this period were in the general insurance operation, comprising medical insurance, which was principally responsible for this increased rate. CBB mentions that a growing public awareness of medical insurance's significance was the main factor behind its expansion.

Bahrain has established itself as a hub for insurance and reinsurance [93]. [94] reports that insurance companies throughout the country serve both domestic and international markets, including both traditional and Islamic insurers. Examples of traditional insurance companies are Arab Insurance Group, Royal & Sun Alliance, Zurich Insurance, AIG, Allianz Insurance, Al Ahlia Insurance Co., and Solidarity Takaful, whereas examples of Islamic insurance companies are Allianz Takaful, Takaful International Company, Bahrain Islamic Insurance Co., and Solidarity Takaful [93].

There have been significant changes in the way insurance companies report their financial results since the introduction of the International Financial Reporting Standards (IFRS) 17 and 9 changes in 2022. In Bahrain, the changes include a new measurement model, the expected credit loss model, and a shift in profit recognition [95]. As a result of the enhanced reporting requirements, adjustments need to be made to processes and systems, and advanced risk assessment and modelling may also be required [29, 80, 96]

The CBB recently required all independent financial institutions in Bahrain to hold credentials that are internationally recognized, which is the first of its kind in the Middle East [97]. The International Association of Insurance Supervisors (IAIS)'s fundamental principles and methodology serve as the foundation for Bahrain's legal, regulatory, and supervisory insurance frameworks [98]. These processes intend to ensure that the sector complies with recognized global standards [13, 99].

## ***2.6 Regulatory Frameworks and Challenges in Bahrain's Insurance Industry***

As part of the regulatory authorities' efforts to regulate and maintain financial stability and soundness, insurance regulations include requirements, restrictions, and guidelines [100]. Cappiello [24], John [101] convey that the key objective of insurance regulation is to protect policyholders, promote a fair and stable insurance market, and contribute to financial stability. The Insurance Regulatory and Supervisory Authorities (RSAs) are responsible for enforcing regulations governing how insurance operations are conducted [102].

There are two major types of insurance regulations: prudential regulation and conduct of business regulations [103]. Prudential regulation covers a wide range of topics such as capital requirements, risk management, corporate governance, and stress testing that ensure the safety and stability of institutions and the broader financial system [104]. Contrarily, the conduct of business regulation regulates how insurance companies interact with clients, while it covers topics including information disclosure, ethical business practices, and financial products marketing [105].

Bahrain was among the GCC countries that addressed the unique features of Takaful in their requirements [106]. According to these requirements, only licensed providers should use terms such as takaful and Islamic insurance [64, 107]. Typically, advertisement materials and novel takaful products should be evaluated and approved by Shari'ah Board members before their release [108]. [109] explain that this is to ensure that potential clients understand the differences between takaful and traditional insurance.

To achieve long-term goals, build stakeholder confidence, and attract positive investment flows, insurance firms must define and implement corporate governance mechanisms effectively [110]. There are variations in disclosures among insurance companies, some disclose only mandatory information and others disclose even non-mandatory information such as corporate social responsibility involvement [111]. There are various disclosure formats as well, and each insurance company's communication approach depends on their decision [112].

## ***2.7 Unexplored Areas with the Realm of Insurance Technology***

In the next evolution of the Internet, the metaverse is expected to bring together real-world and virtual elements, facilitated by technology and creativity [113]. With the advent of the metaverse, the insurance industry will witness the launch of improved products, experiences, and business models [114]. This shift will alter how insurance companies operate, connect with their clients, and develop new products [115]. Professionals across industries are increasingly recognizing the business value of AI, as more than 85% of customer interactions are expected to be handled without human

intervention by 2025 [116]. However, the insurance industry lags in AI adoption, with only 1.33% investing in AI, while 32% invest in software and internet technologies [117]. [118] states that several unanticipated events have impacted the global insurance market such as natural disasters, necessitating adaptations to coverage scope, risk assessment, and pricing. Thus, insurers need to be aware of emerging risks to survive and grow in a global market [6]. After all, while insurance companies' innovative use of technology has the potential to improve customer experiences and reduce costs, it also poses risks to consumers and challenges to regulators [119]. Using artificial intelligence to automate processes might raise questions about the speed considered in premium determination [44]. Data collection and use by insurance companies may also raise questions about accuracy, privacy, and ownership [46].

### 3 Conclusion

This paper examines the influence of technological advancements on the insurance industry. Given the economic expansion, regulatory reforms, and increased public awareness, it has been found that innovations such as InsurTech have the potential to reshape industry dynamics in a transformative manner. These innovations, however, are not without challenges, as insurance companies must constantly cope with fierce competitions, interest rates, and customer expectations. The paper also highlights the insurance companies' approach towards technological integration, and the customer interactions, where technology is viewed as a means of enabling digital channels such as websites and mobile apps. The industry is committed to using technology to meet changing customer needs, as evidenced by data-driven strategies including product recommendations and customized pricing. The paper recommends insurance companies to integrate technology in its current and future services along with the traditional methods. Because the traditional services remain relevant alongside technology, which emphasizes the importance of maintaining a balanced approach in the short term which will allow for a smooth transition to technological developments while also satisfying a wide range of customer demands.

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# The Impact of Artificial Intelligence Accounting Systems on Workforce Productivity and Job Satisfaction



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**Abstract** This research delves into the impact of AI accounting systems on workforce productivity and job satisfaction within the Bahraini marketplace. A comprehensive study involving 50 active participants revealed a substantial 88% awareness of AI accounting system implementation within their organizations. Employing descriptive statistical tests, the authors confirmed the alternative hypothesis, indicating a statistically significant influence of AI accounting systems on both workforce productivity and job satisfaction. The results illuminate a compelling relationship, emphasizing the positive outcomes associated with the adoption of AI accounting systems in the realms of workforce productivity and job satisfaction. This study contributes valuable insights into the transformative effects of AI technologies in the workplace, particularly within the specific context of Bahrain.

**Keywords** Artificial intelligence · Accounting systems · Workforce productivity · Job satisfaction · Sustainability

## 1 Introduction

The increasing adoption of artificial intelligence (AI) in various industries has led to significant transformations in workforce productivity and job satisfaction [1]. AI technologies, backed by machine learning algorithms and data analysis, have the potential to automate routine and mundane tasks, improve decision-making

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processes, and enhance overall work efficiency. However, the impact of AI on workforce productivity and job satisfaction is a complex and multifaceted topic, encompassing both positive and negative aspects [2]. The impact of artificial intelligence (AI) on workforce productivity and job satisfaction has been a subject of significant interest and discussion in recent years. With advancements in technology and the integration of AI systems, businesses and industries are experiencing transformative changes in the workplace [3]. AI has the potential to greatly enhance workforce productivity by automating repetitive and mundane tasks, allowing employees to focus on more complex and creative work. This shift in workload enables companies to streamline their operations, reduce human error, and increase overall efficiency. AI-powered tools and algorithms can analyze vast amounts of data at high speeds, providing valuable insights and assisting decision-making processes, which ultimately leads to improved productivity [4]. Furthermore, AI can improve job satisfaction by serving as a support mechanism for employees. With the automation of repetitive tasks, employees can dedicate more time and energy to tasks that require higher cognitive abilities, creativity, and problem-solving skills. This shift can not only increase job satisfaction but also offer opportunities for career growth and professional development. However, there are concerns regarding the potential negative impact of AI on job security. It is feared that the automation of certain tasks may lead to job displacement or the need for reskilling and upskilling to adapt to new roles. Industries that heavily rely on manual labor or routine tasks may face greater disruption. Thus, it becomes imperative for companies and policymakers to proactively address these challenges through reskilling programs, job transitions, and reimagining job roles to align with the changing technological landscape. Moreover, the implementation of AI systems requires careful consideration of ethical implications, transparency, and fairness. Striking the balance between utilizing AI for increased productivity while respecting individual privacy and ensuring fairness in decision-making processes is crucial [5]. One of the primary ways AI affects productivity is through task automation. With the ability to learn from data and perform repetitive tasks efficiently, AI systems can alleviate human workers from mundane and time-consuming activities. This automation allows employees to focus on higher-value tasks that require creativity, critical thinking, and human interaction [6]. Consequently, productivity can be significantly boosted, as employees can concentrate on activities that have a greater impact on organizational goals and outcomes. Additionally, AI-powered tools and systems offer advanced data analysis and insights that can aid in decision-making processes. By processing vast amounts of information and identifying patterns or trends, AI can augment human judgment, support accurate decision-making, and reduce the chances of errors. This, in turn, leads to more efficient and productive outcomes for organizations. However, the impact of AI on workforce productivity is not without challenges. The implementation of AI technologies requires significant investments, both in terms of financial resources and training employees to effectively utilize and adapt to these new tools [7]. Organizations must ensure that their workforce is adequately trained and equipped with the skills to work alongside AI systems, leveraging their capabilities rather than being replaced by them. Failure to address this aspect may result in lower productivity and

job satisfaction due to a lack of understanding or resistance toward AI integration [8]. Furthermore, the introduction of AI can also lead to concerns regarding job displacement and potential job loss. As AI systems take over certain tasks, some job roles may become obsolete or require restructuring. This can cause anxiety and apprehension among employees, impacting their job satisfaction and overall well-being. It is crucial for organizations to proactively address these concerns by investing in reskilling and upskilling initiatives, facilitating the transition to new job roles, and emphasizing the importance of human skills that complement AI capabilities [9].

In summary, the impact of artificial intelligence on workforce productivity and job satisfaction is a double-edged sword [10]. While AI technologies bring automation, enhanced decision-making, and increased efficiency, they also present challenges such as upskilling requirements and potential job displacement [11]. To optimize the positive impact of AI, organizations need to carefully navigate these challenges, ensuring that AI is seamlessly integrated into the workforce, allowing employees to contribute their unique skills and expertise alongside AI systems [12]. Also, AI's impact on workforce productivity and job satisfaction is significant. While there are concerns, when properly deployed and utilized, AI has the potential to streamline operations, improve productivity, and enhance job satisfaction [13]. Companies must navigate these changes with a strategic approach, ensuring that employees are prepared for the evolving workplace and that the benefits of AI are distributed equitably [14].

Accordingly, the study aims to answer the following questions: (1) How has the implementation of AI accounting systems impacted the productivity of workforce in the accounting industry? (2) What are the primary elements that influence the level of job satisfaction among workforce who utilize AI-driven accounting systems? (3) What measures can organizations take to guarantee the ethical and impartial utilization of AI accounting systems in their work environment? (4) How can companies facilitate a cultural transition to accommodate AI-based accounting systems?

## 2 Literature Review

In the ever-evolving landscape of technological progress, Artificial Intelligence (AI) has emerged as a remarkable driving force, experiencing a rapid and transformative evolution in recent years [15]. These advancements hold the promise of revolutionizing a multitude of industries, fundamentally reshaping the way we live and work. One of the most critical arenas where AI is poised to make a profound impact is the workforce [16]. As forward-thinking organizations increasingly embrace AI technologies, it becomes not just a matter of curiosity but a compelling necessity to comprehend the profound implications it bears on workforce productivity and job satisfaction [17]. The widespread integration of AI into various aspects of business operations, from customer service and data analysis to manufacturing and logistics, has ushered in a new era where machines are endowed with the ability to perform tasks with a level of precision, efficiency, and speed previously thought impossible



[18]. While the benefits of such technological progress are undeniable, there is a pressing need to examine the human side of this equation. How does the introduction of AI affect the individuals who form the backbone of these organizations? How does it influence their well-being, job roles, and overall job satisfaction? This literature review embarks on a comprehensive analysis, delving into the existing body of research on the subject to provide a holistic view of the multifaceted effects of AI implementation on the critical dimensions of workforce productivity and job satisfaction [19]. Through an exploration of various studies, findings, and expert insights, this review aims to shed light on the intricate interplay between technology and the human workforce [20]. It seeks to elucidate not only the opportunities and efficiencies AI can bring but also the challenges, adaptations, and potential pitfalls that organizations and employees must navigate in this era of profound technological change [21].

As we navigate this fascinating intersection of technology and human endeavor, it is imperative to understand how AI can empower, augment, and redefine the workforce while ensuring that it remains a source of fulfillment and growth for individuals [22]. By examining the diverse and evolving landscape of AI in the workplace, this review intends to contribute to a more informed and nuanced understanding of the dynamic forces shaping the future of work [23].

## ***2.1 Impact of Artificial Intelligence on Workforce Productivity***

In the ever-evolving realm of technological innovation, Artificial Intelligence (AI) has risen to the forefront as a transformative force, offering the potential to usher in sweeping changes across various industries [24]. One of the most pivotal dimensions of this transformation lies in its profound influence on workforce productivity [25]. This literature review embarks on an exploration of the extensive corpus of research dedicated to unraveling the multifaceted ways in which AI shapes workforce productivity, considering its impacts on both individual employees and the organizations in which they operate. As we delve into the annals of research, our endeavor is to unravel the nuanced and intricate relationship between AI and workforce productivity [26]. AI's integration into the workplace is not just a mere technological advancement; it signifies a profound shift in how we work, challenging existing norms, and setting the stage for a future where human and machine collaboration is the new norm [27]. By examining a multitude of studies and articles, our aim is to glean insights into the advantages and challenges that accompany the integration of AI into the workforce [28]. Numerous studies have probed the impacts of AI integration on overall organizational performance and productivity, with intriguing findings [29]. According to [2], companies that embrace AI technologies often witness a tangible boost in productivity and operational efficiency. This phenomenon is attributed to the streamlining of processes, enhanced decision-making capabilities, and a significant reduction in

human error, all of which contribute to a more productive work environment [30]. The automation of repetitive tasks through AI-powered systems liberates employees from mundane and time-consuming activities, allowing them to channel their efforts towards more intricate, creative, and value-added aspects of their roles [31]. This repositioning of human capital within organizations can notably elevate productivity levels, as corroborated by [1]. However, it is imperative to recognize that this relationship between AI and workforce productivity is not devoid of its complexities [32]. As we navigate this transformative landscape, there are also inherent challenges, such as concerns regarding job displacement, the need for upskilling, and the potential for AI to exacerbate existing inequalities within the workforce [33]. Our exploration of existing literature will delve into these complexities, providing a comprehensive perspective on the coalescence of human and machine in the contemporary workplace [34]. In this quest for understanding, this literature review endeavors to illuminate the profound implications of AI's role in shaping the productivity of the modern workforce [35]. By amalgamating insights from diverse sources, we hope to provide a comprehensive view of how AI is reshaping the way we work, offering new horizons of opportunity while also demanding careful consideration of the challenges and adaptations it entails [36]. While the advantages of integrating Artificial Intelligence (AI) into the workforce are evident, it is equally important to acknowledge and address potential challenges that may arise in this transformative journey [37]. Some studies have cast a spotlight on these challenges, emphasizing the need for thoughtful workforce integration strategies [38]. For instance, [9] have argued that AI implementation may inadvertently lead to job displacement and exacerbate skill gaps within the workforce. It is of paramount importance for organizations to approach this transition with meticulous planning and execution, aiming to minimize any negative repercussions on workforce productivity [39]. To achieve this, providing adequate reskilling and upskilling opportunities for employees is a critical step, ensuring that they can adapt to the evolving demands of their roles in the era of AI [40]. The role of AI in enhancing individual productivity and employee skills is a matter of substantial investigation [41]. AI-powered tools offer the advantage of real-time insights, predictive analytics, and personalized suggestions to employees, enabling them to make more informed and quicker decisions [6]. This access to data-driven insights has the potential to empower employees and significantly elevate their productivity levels [42]. Moreover, AI can be leveraged to optimize training and development programs, providing employees with efficient opportunities to acquire new skills [21]. By utilizing AI-enabled platforms, companies can deliver personalized learning experiences and targeted training content, resulting in quicker skill acquisition and overall enhanced productivity [43]. A noteworthy aspect of AI's impact on workforce productivity is the automation of repetitive tasks. AI technologies, including robotic process automation (RPA) and machine learning algorithms, exhibit the potential to automate tedious and routine activities [44]. This automation, in turn, liberates employees from the burden of such tasks, affording them more time to focus on strategic and value-added activities [6]. Furthermore, AI-powered systems execute tasks with precision and efficiency, reducing human errors and significantly

improving overall productivity [16]. Another area where AI demonstrates its transformative potential is in enhancing decision-making [45]. AI algorithms possess the remarkable capability to process vast quantities of data and extract meaningful insights [46]. This ability empowers employees to make data-driven decisions, a factor that significantly boosts productivity [47]. AI-powered analytics tools excel at identifying patterns, trends, and correlations, which might otherwise escape human cognition due to cognitive limitations [2]. In doing so, AI augments the decision-making capacity of employees, rendering their choices more informed, efficient, and productive [48]. In this multifaceted exploration of AI's implications on workforce productivity, it is imperative to recognize both the potential challenges and the remarkable opportunities it presents [49]. By comprehensively understanding and managing these dynamics, organizations can chart a path toward leveraging AI to its fullest potential, while concurrently ensuring that the workforce benefits from this integration in terms of productivity and skills enhancement [50]. In the contemporary landscape of work, the integration of Artificial Intelligence (AI) brings forth a range of transformative possibilities, especially in the realm of intelligent assistance and collaboration [51]. AI-driven virtual assistants and chatbots, equipped with their ever-expanding knowledge repositories and intuitive algorithms, play a pivotal role in guiding, supporting, and equipping employees with real-time information [52]. They serve as digital companions, enhancing efficiency and productivity by simplifying complex tasks and providing immediate answers to questions. AI goes beyond individual assistance and extends its impact to team collaboration as well [53]. The ability of AI systems to automatically organize, categorize, and share relevant information, documents, and resources across teams and departments fosters a culture of seamless collaboration [54]. This not only streamlines workflows but also fosters more effective teamwork, as employees can access the right information at the right time, enabling them to work more cohesively towards common goals [55]. Pugh [15] underscores the significance of AI in facilitating this collaborative environment, an aspect that inherently elevates overall productivity. The authors also mentioned that he anchored in a holistic exploration of AI's impact on workforce productivity, underscores the profound potential that AI integration holds [56]. The utilization of AI technologies can substantially enhance organizational performance in various ways [57]. It automates routine and time-consuming tasks, thereby freeing up valuable human resources to concentrate on more strategic, creative, and value-added activities [58]. AI also transforms decision-making processes by providing data-driven insights, enabling employees to make informed choices with alacrity [59]. Nonetheless, amidst these transformative possibilities, it is crucial to acknowledge the challenges that may surface in the wake of AI integration [60]. Job displacement and skill gaps are significant concerns that require strategic attention to ensure a smooth and equitable transition for all employees [61]. Organizations must invest in reskilling and upskilling initiatives to mitigate the adverse effects of job displacement, allowing the workforce to adapt to evolving roles and responsibilities [62]. Furthermore, the role of AI in enhancing individual productivity and employee skills should not be underestimated [63]. AI-powered tools offer personalized experiences, enabling employees to continually enhance their skill sets, which are essential in the

ever-changing job landscape [64]. By nurturing these aspects, organizations can empower their workforce to achieve higher productivity and contribute more effectively to the organization's goals [65]. In conclusion, this review brings into sharp focus the transformative effects of AI on workforce productivity [66]. The integration of AI technologies presents a myriad of opportunities to streamline operations, elevate individual and team performance, and foster a culture of continuous learning [67]. However, it is essential to tread carefully, acknowledging the challenges and ensuring that the workforce is prepared to embrace these changes [68]. By comprehensively understanding and harnessing the potential of AI, organizations can maximize productivity while also addressing the challenges that accompany this technological revolution [69].

## ***2.2 Impact of Artificial Intelligence on Job Satisfaction***

As artificial intelligence (AI) continues to advance and permeate various industries, it has significantly impacted job roles and work environments. The purpose of this literature review is to explore the research conducted on the impact of AI on job satisfaction. By examining the existing body of knowledge, this review aims to identify key findings, trends, and potential implications for both employees and organizations [70]. Several studies have emphasized the role of AI in automating routine and repetitive tasks, leading to a shift in employees' job roles [71]. This shift can influence perceptions of job significance, autonomy, and skill variety, thereby impacting job satisfaction. Research by [8] showed that employees who perceived the incorporation of AI positively experienced higher levels of job satisfaction. While AI has been associated with the substitution of some job tasks, it also contributes to skill enhancement and job enrichment [72]. Studies by [18] demonstrated that employees who received training and support in utilizing AI technology were more likely to experience job satisfaction in terms of increased competence and personal growth [73]. One significant concern associated with the integration of AI is the fear of job insecurity and uncertainty among employees. Research conducted by [5] indicated that employees who perceived AI as a threat to their job stability experienced lower levels of job satisfaction and higher levels of stress, indicating the importance of effective change management strategies. The interaction between employees and AI technologies can also impact job satisfaction [74]. Studies by [23] emphasized the significance of user-friendly AI interfaces and user experience for enhancing job satisfaction. Positive user experiences, ease-of-use, and effective AI-human collaboration were found to contribute to higher levels of job satisfaction [75]. Skill Enhancement and Innovation: AI adoption necessitates employees to acquire new skills to work alongside intelligent systems [76]. Research suggests that providing relevant training and upskilling opportunities positively impacts job satisfaction [21]. Employees who perceive AI as a tool for skill enhancement and professional growth tend to have higher job satisfaction levels [77]. Streamlined Work Processes: AI technologies reduce time-consuming administrative tasks, allowing employees to focus on more challenging, creative, and

engaging work [7]. When AI systems efficiently handle mundane duties, job satisfaction increases as employees could engage in intellectually stimulating tasks [78]. Reduced Error Rates: AI-driven tools minimize human errors and enhance accuracy in various job roles, contributing to increased job satisfaction [79]. Employees experience a sense of achievement when working in conjunction with AI systems, leading to higher overall job satisfaction levels [80]. The literature reviewed indicates that the impact of AI on workforce productivity and job satisfaction is substantial [16]. AI technologies automate repetitive tasks, enhance decision-making, and facilitate collaboration, all of which contribute to increased productivity [80]. Moreover, the adoption of AI systems brings about skill enhancement, streamlined work processes, and reduced error rates, fostering higher levels of job satisfaction [81]. As organizations continue to incorporate AI into their operations, it is imperative that they consider the potential impact on the workforce [82]. Establishing supportive environments, encouraging skill development, and ensuring effective human-AI collaboration will be crucial in maximizing productivity and maintaining high levels of job satisfaction in an AI-driven era. The complex relationship between AI and job satisfaction. While the automation of tasks and potential job displacement may create concerns, the potential for skill enhancement, job enrichment, and positive user experiences present opportunities for increased job satisfaction [83]. Organizations must address the challenges associated with AI integration and consider strategies such as providing training, promoting positive perceptions of AI, and ensuring effective employee-computer interaction to mitigate negative impacts on job satisfaction [84].

### 3 Methodology

The authors have opted for a descriptive approach, which enables them to offer in-depth interpretations of the data. This data is unquestionably effective in characterizing variables. Additionally, this design addresses questions related to what, when, where, and how. Furthermore, the research design defines the study population. Nevertheless, the researchers find the descriptive method inspiring due to its capacity to provide data on the reality of the phenomena being studied, along with interpretations of the facts, all while adhering to scientific procedures and the researchers' interpretive abilities. It also facilitates the quantitative or qualitative analysis and organization of data, as well as the formulation of research findings that enhance the understanding and development of the phenomena under investigation. Furthermore, it allows researchers to make comparisons. Apart from that, the descriptive approach is commonly employed to explore potential connections between the variables being investigated and other phenomena.

### **3.1 Theoretical Framework**

**Dependent Variable:** The dependent variable is the one that researchers are trying to explain or predict. In this research, both workforce productivity and job satisfaction can be considered dependent variables, depending on the specific research question or hypothesis being investigated. For example, in a study focusing on the impact of AI accounting systems on workforce productivity, workforce productivity would be the dependent variable.

**Independent Variable:** The independent variable is the one that researchers manipulate or study to understand its effects on the dependent variable. In this research, the independent variable is the adoption and integration of artificial intelligence (AI) accounting systems into the workplace. AI accounting systems adoption is seen as a factor that can influence or explain variations in workforce productivity and job satisfaction. Researchers examine how different levels or approaches to AI accounting systems adoption affect these dependent variables.

In this research, the researchers are examining how AI accounting systems adoption (independent variable) influences workforce productivity and job satisfaction (dependent variable).

It's important to note that the choice of dependent and independent variables may vary depending on the specific research questions, hypotheses, and focus of different studies within this broader research topic. For instance, some studies may primarily focus on the impact of AI accounting systems on workforce productivity as the dependent variable, while others may emphasize job satisfaction. The choice of variables should align with the specific research goals and objectives of each study.

### **3.2 Research Instrument**

The primary data source was a survey, structured into two main sections:

**Section one:** which gathered demographic data.

**Section two:** is designed to examine research variables, including ten items aimed at assessing the relationship between AI accounting systems and workforce productivity, as well as job satisfaction.

Secondary data, on the other hand, was sourced from academic materials such as PhD and master's theses, books, journal articles, and reports.

**Table 1** Cronbach Alpha coefficients assessing the internal consistency

Variables	Number of items	Cronbach Alpha
Independent: Artificial intelligence accounting systems	4	0.889
Dependent: Workforce productivity and job satisfaction	6	0.869
Total count of items	10	0.873

### ***3.3 Research Reliability and Validity***

The authors intend to create a pilot sample for assessing reliability using SPSS. In this context, validity refers to the extent to which the questions in the questionnaire accurately measure the intended aspects of the study and their clarity. The authors will conduct a comprehensive review of the questionnaire to identify and revise any statements to ensure their accuracy.

The internal consistency of the questionnaire, which gauges the reliability of its items and components, is assessed. To ensure data accuracy, the Cronbach Alpha test is used, with a preferred Cronbach alpha value of 0.7 or greater. Table 1 serves as proof of data accuracy since all item values surpass the 0.7 threshold.

### ***3.4 Processing Data***

To examine the relationship between AI-based accounting systems, job satisfaction, and work productivity, the researchers utilized a questionnaire. Once the pertinent data was collected, it was processed by transferring the survey data into an Excel spreadsheet and subsequently analysed using SPSS. Subsequently, in Chapter Four, the data is presented in tables along with explanations of the responses gathered during the research. The researchers employed various mathematical tests, including descriptive analysis and variable association, to condense the findings.

## **4 Results and Discussion**

This section delves into the findings, encompassing information about the participants' gender and educational backgrounds. Following that, probable explanations for the findings and a reliability test will be addressed.

### 4.1 Response Rate and Participant Background

The authors administered the questionnaire to 60 individuals selected for the study. Among them, 50 surveys were successfully completed, yielding a response rate of 83.3%. Table 2 indicates that 58% of the entire sample is female and the rest is males.

By organizing respondents according to their age (Table 3), more than half of the sample falls in the 25–34 age categories, making up 54% of the total. The age range of 35–44 constitutes 30%, the 45–54 group comprises 10%, and merely 6% fall into the 18–24 age group. It's worth highlighting that there were no participants aged 65 or older, signaling a restricted representation of users in this specific age demographic.

Examining the respondents' years of experience reveals that the largest portion, constituting 38% of the sample population, possesses four to six years of experience. Following this, 28% of respondents have one to three years of work experience, while 16% have accumulated seven to ten years of experience. Additionally, 14% report having more than ten years of experience, and only 4% indicate having less than one year of experience (Table 4).

**Table 2** Gender of respondents

		Frequency	Percent (%)
Valid	Male	20	42
	Female	27	58
	Total	50	100

**Table 3** Age of respondents

		Frequency	Percent (%)
Valid	18–24	3	6
	25–34	27	54
	35–44	15	30
	45–54	5	10
	Total	50	100

**Table 4** Years of experience of the respondents

		Frequency	Percent (%)
Valid	Less than 1 year	2	4
	1–3	14	28
	4–6	19	38
	7–10	8	16
	Total	50	100



**Table 5** Job position of respondents

		Frequency	Percent (%)
Valid	Entry-level	5	10
	Mid-level	18	36
	Senior-level	20	40
	Managerial	7	14
	Executive	0	0
	Total	50	100

**Table 6** Utilization of AI-based accounting systems

		Frequency	Percent (%)
Valid	Yes	44	88
	No	4	4
	Maybe	2	8
	Total	50	100

As depicted in the above graph, 40% of the respondents hold senior-level job positions, with 36% in mid-level positions, 14% in managerial roles, and 10% in entry-level positions (Table 5).

A significant 88% of the respondents acknowledged the utilization of AI accounting systems within their organization. A smaller percentage, 8%, expressed uncertainty, while 4% explicitly opted for not using such systems (Table 6).

A majority, or 62%, of the sampled population affirmed the implementation of AI accounting systems in their organizations. These systems offer functionalities like automated data entry, predictive analytics, and fraud detection. Among the participants, those opting for automated data entry and those favoring predictive analytics were evenly distributed, each accounting for 14%. Additionally, 10% reported using AI accounting systems specifically for fraud detection (Table 7).

Approximately 30% of respondents think that AI-based accounting systems lead to cost reduction. Simultaneously, 20% of respondents attribute the improvement of decision-making and accuracy to these systems, with each aspect representing an equal share of 20%. Additionally, 18% find them time-efficient, and 12% perceive them as beneficial in various other aspects (Table 8).

**Table 7** Types of AI-based accounting systems

		Frequency	Percent (%)
Valid	Automated data entry	7	14
	Predictive analytics	7	14
	Fraud detection	5	10
	All the mentioned above	31	62
	Total	50	100

**Table 8** Benefits of AI-based accounting systems

		Frequency	Percent (%)
Valid	Cost savings	15	30
	Time efficiency	9	18
	Improved accuracy	10	20
	Enhanced decision-making	10	20
	Other	6	12
	Total	50	100

## 4.2 Descriptive Statistics

The authors employed descriptive statistics to succinctly summarize and characterize numerical data. In addition, inferential statistics were applied to draw conclusions about the broader statistical population based on the characteristics observed in the selected sample. The researchers employed mean scores and standard deviations to examine the correlation between AI accounting systems and workforce productivity and job satisfaction.

Descriptive statistics employ the mean (average) and standard deviation to offer insights into a dataset's central tendency and variability (Table 9). The mean average, in this instance, is 3.97, signifying that, on average, values tend to cluster around this central point. A higher standard deviation suggests greater dispersion of values from the mean, while a lower standard deviation implies values are closer to the mean. Here, a standard deviation of 0.819 indicates a moderate degree of variability around the mean of 3.97. A mean score of 3.97 out of 5.00 suggests that, on average, the responses for the measured variables which are (workforce productivity and job satisfaction) fall slightly below the highest point on the scale. In a 5-point scale where 5.00 is the maximum score, a mean of 3.97 indicates a generally positive but not overwhelmingly high assessment.

## 4.3 Testing Research Hypothesis

After performing the regression model test, as depicted in the table above, it becomes evident that there exists a positive association between the AI accounting system and workforce productivity as well as job satisfaction. This is evident from the Sig value, which is zero, indicating statistical significance ( $p\text{-value} < 0.001$ ). The T-value stands at 15.21, surpassing 1.96, implying that AI accounting systems positively influence both workforce productivity and job satisfaction. Additionally, the R-value is 0.78, suggesting that AI accounting systems account for 78% of the variations in workforce productivity and job satisfaction levels (Table 10). The outcomes affirm the acceptance of the alternative hypothesis: **“There is a significant impact of AI accounting systems on workforce productivity and job satisfaction”**.

**Table 9** Descriptive statistics

Items	Mean	Std.
1. How has the implementation of AI accounting systems affected the efficiency of your daily tasks and responsibilities?	4.01	0.612
2. How would you rate the overall user experience of these systems?	4.07	0.88
3. Do you feel that the implementation of AI accounting systems has enhanced collaboration and communication within your team?	4.09	0.760
4. How has the implementation of AI accounting systems influenced the need for additional skills or competencies in your role?	4.28	0.721
5. To what extent do you feel satisfied with your current job?	3.68	0.713
6. Have you noticed any changes in your job satisfaction since the implementation of AI accounting systems?	3.99	0.752
7. How do you perceive the impact of AI accounting systems on your ability to balance work and personal life?	3.86	1.03
8. To what extent do you feel that the implementation of AI accounting systems has positively influenced your job satisfaction?	3.89	0.964
9. How was the resistance and concerns regarding changes in your company specifically related to the integration of AI accounting systems into your workflow?	3.87	0.938
Average	3.97	0.819

**Table 10** Regression model between Bitcoin price and Stock market price

Model	R	Beta	R Square	Adjusted R Square	T-value	Sig
1	0.78	0.73	0.645	0.665	15.21	0.000

## 5 Conclusion

This research aims to investigate the influence of AI accounting systems on workforce productivity and job satisfaction. A total of 50 participants took part in the study, with a notable 88% demonstrating full awareness of their organization's implementation of AI accounting systems. All participants are presently active in employment within the Bahraini marketplace. Following the collection of data, the authors proceeded to perform a descriptive statistical test. The outcomes of this analysis supported the acceptance of the alternative hypothesis. This finding suggests a noteworthy and statistically significant impact of AI accounting systems on both workforce productivity and job satisfaction within the context of the study. The results underscore the significant relationship between the adoption of AI accounting systems and positive

outcomes in terms of workforce productivity and job satisfaction. Accordingly, the study recommends the following:

- The results suggested a positive impact of AI accounting-based systems on both workforce productivity and job satisfaction. However, the outcomes were not overwhelmingly positive, instead they leaned towards a moderate influence.
- The average score for the impact of AI accounting systems on workforce productivity and job satisfaction factors was 3.97, affirming the earlier statement that the results suggested a moderate influence.
- Organizations must Develop and implement tailored training programs for employees to enhance their proficiency and familiarity with AI accounting systems. This targeted training can contribute to maximizing the positive impact on productivity and job satisfaction.
- To improve employee's productivity and satisfaction organizations should establish a system for ongoing monitoring and feedback to gauge the evolving impact of AI accounting systems. Regular assessments will provide insights into areas for improvement and allow for timely adjustments.
- Organizations should also consider Implement initiatives that focus on employee well-being, considering factors beyond productivity metrics. This holistic approach can contribute to job satisfaction by addressing work-life balance, stress management, and overall mental health.

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# Correction to: Improving Timetable Quality Through Multi-objective Optimization: A Case Study on Post-enrolment Course Scheduling



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