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The effect of knowledge management on organizational performance in the service sector: The role of transformational leadership as the moderating

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ABSTRACT

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The main aim of the current study is to assess the relationship between knowledge management (KM) capabilities and organizational performance (OP) in developed nations. In addition, this study also aims to assess the moderating influence of transformational leadership (TL) between KM infrastructure (KMCI) and organizational performance (OP) of the Jordanian service and tourism sectors. In this study, it's suggested that KMCI and its components will directly affect OP. In addition, it's expected that TL moderates the relation between study variables. Purposive sampling was used to gather data from the service and tourism sectors in Jordan, as it is the population of this study. Partial Least Squares was used to analyze the data. The findings indicate that KMCI and its components significantly affect OP. TL moderated the effect of KMCI on OP. It is advised for decision-makers to concentrate on KMCI, create the proper culture and organizational structure, and improve its technologies to support the growth of KM activities in Jordanian service and tourism sectors.

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1. Introduction

Knowledge management (KM) has become more crucial for commercial organizations over the past three decades. The significance of knowledge management for businesses and nations has been explored by researchers, practitioners, and policy makers (Ali & Anwar, 2021). Knowledge is power and those who have the right knowledge will be able to reduce the operational cost and increase the organizational ability to create competitive advantage and superior performance (Grant, 1996; Shaturaev, 2021). The necessity of shifting to a knowledge-based economy is being emphasized by nations all over the world, and this paradigm shift is linked to raising national income and achieving the position of a developed nation (Mohamed, Al-Sada, & Koç, 2021). Similar to this, the idea of relating knowledge to the costs of operation and the profitability of the organizations (Ai Ping et al., 2023; Ali & Anwar, 2021). Since Jordan is a developing nation, the service and tourist industries are the most significant industries which are playing a critical role in the Jordanian income. Service and tourism sectors together covered a 60% of Jordan's economic sectors. Most of the businesses are in the service, banking, finance, healthcare, transportation, and telecommunications industries, etc. Because of this, the country's service and tourist industries expand and contribute to its Gross Domestic Product (GDP) (Trading Economics, 2022). Prior investigations on (OP) of businesses mostly collected secondary data and examined the financial performance (Abd Rahman et al., 2021; Liu, Tsui, & Kianto, 2022). Prior research mostly focused on supply chain performance, and particularly for industrial organizations (Abbas & Kumari, 2021). In contrast, despite the importance of other economic sectors such as service sector, to the individual, groups,

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organizations, and countries, few studies have investigated the OP using financial and non-financial indicators (Liu, Tsui, & Kianto, 2022). Previous studies focus on the factors that affect the OP and relate these factors to company's structure, governance, board characteristics, and paid up capital (Mehralian, Nazari, & Ghasemzadeh, 2018). Studies that related the OP to new and emerging variables such as knowledge management capabilities (KMC) and leadership are few. In addition, most of the previous studies have been conducted in developed countries (Fraihat & Samadi, 2017). While studies on KM and OP in developing countries such as Jordan are few (Rezaei, Khalilzadeh & Soleimani, 2021). According to Grant's (1996) knowledge-based view theory, businesses must understand knowledge management if they want to perform better than their peers and gain a competitive advantage. Additionally, Gold, Malhotra, and Segars (2001) produced a pioneering model of KM, suggesting that the KMC model, although other researchers Using the KMC model and they discovered that KMC is linked to a variety of organizational outcomes, including innovation, organizational effectiveness, competitiveness, and new product creation (Donate & Sánchez de Pablo, 2015; Sahibzada, Jianfeng, Latif, Shafait, & Sahibzada, 2022). However, only a small number of earlier studies examined how knowledge management affects OP (Attia & Eldin, 2018). Beside the knowledge, leadership of an organization has a vital effect on the overall performance of organizations. There are many styles of leadership. However, empirical research in the area discovered that transformational leadership (TL) is more significant than other leadership philosophies (Cohen and Olsen, 2015). A small number of earlier research evaluated the TL's moderating influence (Engelen, Gupta, Strenger, & Brettel, 2015). Previous Researchers push coming studies to highlight the connections between leadership styles and performance in earlier studies (Kythreotis, 2010; Lei, 2021).

Therefore, the purpose of this research is to determine how KMCI has affected the OP of Jordan's service and tourist industries. The study also intends to examine if TL can moderate the connection between KMCI and OP of the Jordanian service and tourist industries.

2. Literature Review and Hypotheses Development

2.1 Organizational Performance

The definition of organizational performance (OP) is the degree to which a goal was attained by an organization or an assessment of efficiency of the individuals, group, or organization (Maduenyi, Oke, Fadeyi, & Ajagbe, 2015). The primary focus of research has been on utilizing financial indicators to assess how well organizations operate (Taouab & Issor, 2019), while Balanced Scorecard (BSC) was created as a response to address the shortcomings of OP assessment and to give businesses a framework for achieving parity between financial and non-financial indicators (Kaplan and Norton, 1992: 1996). For instance, Wu and Chen (2014) measured the OP using financial achievement, product leadership, customer intimacy, operational excellence. Tseng (2016) uses financial performance, processes, and people development to measure the OP of Taiwanese companies.

2.2 Conceptual Model

This study suggests that KMCI and its subcomponents (technology infrastructure, organizational culture, organizational structure, and human KM resource) would directly affect OP based on the KMC model, the TL theory, and the literature evaluation. The findings suggest that TL will moderate KMCI's direct impact on OP. The conceptual framework for this investigation is shown in Fig. 1.

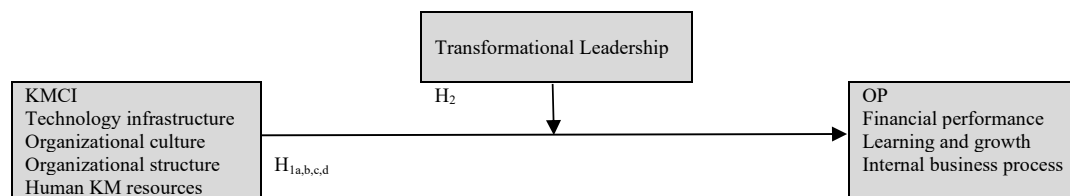


Fig. 1. Conceptual framework

3. Hypotheses Development

Both direct effect and moderating hypotheses are presented forward in this study based on the literature evaluation and conceptual framework. The evolution of the study's hypotheses is discussed in the following sections.

3.1 KMCI

Organizations would intentionally build a KMCI as a distinctive dynamic capability to manage its knowledge base over time (Almajali et al., 2022a; Santoro et al., 2019). According to Gold et al. (2001), KMCI consists of three elements: organizational culture, organizational structure, and technological infrastructure. There are more elements that are regarded as KMCI,

according to researchers who used Gold et al (2001)'s paradigm. People and employees of organizations are a critical part for the success of any KM approach and they are considered essential KM assets (Ayatollahi & Zeraatkar 2020). In relation to this, researchers incorporated along with the three dominant components, the component of human KM resource (Cohen and Olsen, 2015; Ayatollahi & Zeraatkar 2020). For this, this study operationalized the KMCI under four components that are the organizational culture, organizational structure, technology infrastructure, and human KM resource. The study matches the majority of previous studies in incorporating culture, structure and technology infrastructure and added the human KM resources as the fourth components of KMCI.

Previous research focused on how KMCI affected business effectiveness. Cepeda and Vera (2007) discovered that KMCI considerably and favorably impacted the knowledge configuration. According to Shih and Tsai (2016), KMCI significantly affects competitiveness, KMCI, and OP. According to Rafi, Ahmed, Shafique, and Kalyar (2021), the KMCI has a positive influence on the OP and effectiveness. As a result, the following is postulated in this study:

H₁: *The OP is significantly impacted by KMCI.*

3.1.1 Technology Infrastructure

Technology infrastructure was defined by Panda, Rath, and colleagues (2021) as the parts of KMCI that include the electronic systems used by enterprises to link and support KMCI as well as knowledge and information transferring and communication. Studies have attempted technological infrastructure to impact organizational performance (OP) and other organizational indicators including innovation and competitiveness both directly and indirectly (Panda & Rath, 2021).

Rezaei, Khalilzadeh, and Soleimani investigation of how technological infrastructure affects OP in 2021 discovered a substantial relationship between the two factors. OP is significantly impacted by IT resources, which are infrastructural technologies (Almajali et al., 2023a; Alkhwaldi et al., 2023), according to other research such as that conducted by Hao and Song (2015). As a result, the following hypothesis is put out for this study:

H_{1a}: *Technology infrastructure significantly influences OP.*

3.1.2 Organizational Culture

Organizational conventions, values, and routines are referred to as culture. However, in the context of knowledge management, culture refers to behavior, norms, values, symbols, and beliefs that have a critical impact on an organization's ability to manage knowledge effectively (Acevedo et al., 2022). Organizational culture is a crucial factor in fostering information sharing in firms, according to researchers who have investigated its impact (Bany Mohammad et al., 2022; Al-Okaily & Al-Okaily, 2022; Aws et al., 2021; Azeem et al., 2021). The impact of organizational culture on the effectiveness of US corporations was shown to be considerable by Gold et al. (2001), who regarded culture as one of the key factors determining organizational effectiveness. Therefore, it is proposed that:

H_{1b}: *Organizational culture significantly influences OP.*

3.1.3 Organizational Structure

The organizational structure, according to Gold et al. (2001), encompasses the organizational hierarchy, rules, regulations, as well as the reporting connection in the organizations. It also serves as a manual for controlling and coordinating organizational operations. According to Gold et al 2001, organizational structure significantly influences how well US corporations operate. Other studies, like Zusman, (2021), investigated the impact of organizational structure on operating performance and discovered that the structure of businesses had an impact on performance. According to Abualoush, Bataineh, and Alrowwad's (2018) study, organizational structure is essential for supporting KM processes and activities. Therefore, it is proposed that:

H_{1c}: *OP is significantly impacted by organizational structure.*

3.1.4 Human KM Resource

The level of employee specialization in a certain field and their ability to use that knowledge in social interactions are considered human knowledge resources, which have a substantial impact on a company's ability to compete (Almajali et al., 2022b; Ayatollahi & Zeraatkar 2020). Similar to this, Papa et al. (2018) explored how human KM resources affect operational performance and discovered a favourable and substantial influence. According to the author of the study by Alias et al. (2018), human KM resources had a direct impact on both knowledge management (KM) and corporate innovation. This shows that human resources are necessary for greater results in KM. As a result, it is proposed that:

H_{1d}: *Human KM resource significantly influences OP.*

3.2 Moderating Effect of TL

TL is a more modern form of leadership in which the leader attempts to bring about change while guiding the company toward achieving its goals (Ywioek et al., 2022). When an organization adopts a TL style, it will have an impact on the behaviour of the followers, which will ultimately result in the achievement of the goals of the followers, leader, and organization. Theory of TL highlighted on creating and delivering value, feelings, and constructing links with followers to motivate them to be innovative, creative, and enhance their abilities and skills to achieve their goals as well as the goals of the organization (Akdere & Egan, 2020).

While Eliyana and Ma'arif (2019) explored the direct impact of TL on work satisfaction, they discovered a favourable correlation between the two factors. Nusair, Ababneh, and Bae (2012) examined how TL affected Jordan's public sector innovation and the results shows that TL significantly influences inventiveness. Authors recommend coming researchers to investigate the potential purpose of TL, though. Orabi (2016) examined the direct impact of TL on the OP of Jordanian banks and discovered that it had a favourable impact. He proposed that to compare the impact of TL, researchers should examine how TL is influencing different industries.

Few studies have examined how leadership may act as a moderator (Engelen et al., 2015; Duan et al., 2021). Nevertheless, prior study advised academics to examine the possible impact of leadership style (Kythreotis et al., 2010). For instance, Nir and Hameiri (2014) discovered that the TL has a moderating influence between the efficacy and the passive leadership style.

However, some previous studies have contradicted the results. For example, Saleem and Naveed, (2017) examine the moderating effect of TL between leaders' personal attributes and resistance to change and found that TL did not moderate the relationship between the variables. Laeque and Babar (2016) also found that TL did not moderate the effect of learning organization practices on OP of companies. There is a contradiction in the findings. However, this study is proposing that TL will enhance the KMCI and will lead to a better relationship between the variable and the OP. Consequently, it is proposed that:

H₂: *The influence of KMCI on the OP is moderated by TL.*

4. Research Methodology

The following sections discuss the research methodology of this study.

4.1 Population and sampling

The population of this study is the service and tourism sectors in Jordan represented by top, middle and operational management. According to the Amman Stock Exchange, the number of service and tourism sectors in Jordan, 2021 are 198 companies (Amman Stock Exchange, 2021). These companies are the unit of analysis while the proxy are around 9000 employees working in these companies. Since this study is investigating the KMCI among the service and tourism sectors, the sample techniques of this study is a purposive sampling techniques. Thus, the method used in this study since it only has interest in businesses who have implemented or are currently utilizing KM.

4.2 Research Instrument

This study has chosen to collect the data using an online and paper-based questionnaire. The components of KMCI includes the technology infrastructure (adopted from Hooff and Huysman, 2009), organizational culture (adopted from Hooff and Huysman, 2009), human KM resource (adopted from Chuang, 2004) and organizational structure (adopted from Hooff and Huysman, 2009). TL was adopted from Akdere & Egan, 2020. OP and its three components as financial performance (adopted from Tseng, 2016) internal business process (adopted from Tseng, 2016) and learning and growth (adopted from Tseng, 2016). Five Likert scales are used for measuring the items. The questionnaire was translated into Arabic language and was validated by ten experts.

4.3 Data Collection

The data of this study was collected from managerial level employees working at the Jordanian service and tourism sectors. The English version as well as Arabic version was created using the Google online questionnaire application and the paper based questionnaire. The contact information of the respondents was obtained from the website of the Amman stock market and from the website of the companies. A cover letter explaining the purpose of this study along with the questionnaire was sent to the public relations departments of the companies. A total of 770 questionnaires were either handed out or emailed out to the respondents. A period of five months was devoted to data collection. In which, follow up procedures and phone calls as well as emails were sent to encourage the respondents to fill in the questionnaire. This has resulted in 308 questionnaires during the five months of data collection. This made the response rate around 30% and these responses were sufficient.

5. Findings

This section presents the findings of this study and tests the hypotheses.

5.1 Data examination

Studying missing values, outliers, normality, and multicollinearity was advised by researchers (Hair, Hult, Ringle, & Sarstedt, 2017; Pallant, 2016). As a result, these analyses were used in this research to ensure that the measurements are full, devoid of outliers, and normally distributed. Nine responses were removed due to missing values. Three responses were also removed because of the concerns with the outlier. As a result, there are 305 comprehensive and useful replies. The data had a normal distribution, and Kurtosis and Skewness values were within the absolute two ranges as suggested by Hair et al (2017). There was no multicollinearity problem found. All of the variables have variance inflation factors (VIF) under five and tolerance values larger than 0.20. In order to confirm that the items are related to the appropriate variables, an exploratory factor analysis was performed.

5.2 Measurement Model

Hair et al. (2011) state that the internal consistency reliability Cronbach's Alpha (CA) and the composite reliability (CR), both of which should be more than 0.70, are used to evaluate the measurement model. Additionally, the indicator loadings which are also known as factor loadings, or indicator reliability should be greater than 0.70 (Al-Fraihat et al., 2022; Al-Kofahi et al., 2023; Alqudah et al., 2022). Convergent validity is also evaluated, and this is done if the Average Variance Extracted (AVE) value is higher than 0.50. Additionally, the evaluation takes into consideration the completion of discriminant validity, which is accomplished when the indicator loading exceeds all of its cross loading. Table 1 displays the measuring model's findings. It demonstrates that all factor loadings are bigger than 0.70 and the composite reliability (CR) and Cronbach's Alpha (CA) are both higher than 0.70. as well as AVE must be More than 0.50.

Table 1
Result of Measurement Model

Construct	Variable	Item	FL >0.70	CA > 0.70	CR >0.70	AVE > 0.50
Knowledge Management Capabilities Infrastructure	Organizational culture	OC-OC	0.867-0.883	0.923	0.942	0.765
	Organizational structure	OS-OS	0.863-0.893	0.960	0.966	0.782
	Technology infrastructure	TI-TI	0.895-0.906	0.941	0.955	0.809
	Human KM resource	HR-HR	0.876-0.894	0.918	0.938	0.752
Transformational Leadership	TL	TL-TL	0.807-0.874	0.971	0.953	0.754
Organizational Performance	Financial performance	FP-FP	0.914-0.935	0.944	0.980	0.867
	Internal business process	IBP-IBP	0.935-0.947	0.956	0.978	0.887
	Learning and growth	LG-LG	0.883-0.923	0.947	0.953	0.880

Table 2 illustrates that every diagonal integer is higher than both its row and column, and this illustrating that discriminant validity is achieved.

Table 2
Discriminant Validity

	FP	HR	IBP	LG	OC	OS	TI	TL
FP	0.926							
HR	0.679	0.867						
IBP	0.672	0.707	0.939					
LG	0.683	0.723	0.674	0.909				
OC	0.719	0.754	0.704	0.752	0.888			
OS	0.628	0.598	0.631	0.661	0.761	0.880		
TI	0.305	0.389	0.321	0.357	0.390	0.307	0.851	
TL	0.140	0.158	0.239	0.300	0.188	0.172	0.306	0.842

5.3 Structural Model

There are four criteria to evaluate the structural model, according to Hair et al. (2011). These are as the following, path coefficient, predictive relevance, and R-square and the effect size, (β , Q^2 , R^2 , F^2). The results of the structural models in this study demonstrated that each model's R2. It demonstrates that the direct effect model has a significant R²of 0.77. The R²for TL's moderating impact is 0.83. To determine the Q^2 , a blindfolding analysis was employed. The results showed that for all models, Q^2 had a value larger than zero. As a result, the values display a reasonable level of cross-validated redundancy. By computing Cohen's F^2 , it is possible to identify the effect size for each route model, with 0.02, 0.15, and 0.35 denoting small, medium, and large impacts, respectively (J. Cohen, 1988). The value of F^2 is provided in the analysis' result in Smart PLS. Every impact size is suitable.

5.4 Hypotheses Testing

In this investigation, direct and moderating hypotheses have been created. The outcomes of hypotheses are described in this section.

5.4.1 Direct Effect Hypotheses

Five direct hypotheses were put out in this investigation. Testing of the direct effect hypothesis is shown in Table 3. The table includes the number of the hypothesis (H), the path coefficient, the standard deviation, the T-values, P-values, and the comment.

Table 3

Effects of KMCI and KMCP on OP

H	Path	B	STDEV	T	P	Comment
H1	KMCI → OP	0.468	0.072	5.111	0.000	Supported
H1a	Technology infrastructure → OP	0.123	0.032	1.776	0.018	supported
H1b	Organizational culture → OP	0.130	0.062	2.105	0.035	Supported
H1c	Organizational Structure → OP	0.111	0.047	2.348	0.019	Supported
H1d	Human KM resource → OP	0.221	0.054	4.117	0.000	Supported

(H1) was supported ($\beta=0.468$, $P<0.05$). The four remaining KMCI sub-hypotheses (H1a, H1b, H1c, and H1d), as indicated in Table 3, were supported. Human KM resources are the most crucial elements of KMCI followed by organizational culture.

5.4.2 Moderating Effect of TL

The outcome of the hypothesis testing for the moderating impact of TL is displayed in Table 4.

Table 4

Result of Moderating Effect of TL

H	Path	B	STDEV	T	P	Comment
	KMCI → OP	0.466	0.083	6.368	0.000	
H2	KMCI × TL → OP	0.189	0.092	2.066	0.039	supported
	TL → OP	-0.011	0.040	0.276	0.782	

The outcome of hypothesis testing shown in Table 4, can explain the second primary hypothesis (H2), TL moderated the effect of KMCI on OP. The moderating effect (KMCI *TL → OP) is significant ($\beta=0.189$, $P\text{-value}<0.05$).

6. Discussion

The results of this investigation showed that KMCI significantly and directly affects OP. The most crucial element is the human resource for knowledge management, which is followed by culture, technology infrastructure, and structure. The results also showed that the moderating impact of TL on the relation between KMCI on OP was validated. For the effect of KMCI on OP, it can be seen that human KM resources, which is the storage of the knowledge of the organization, are highly important components for the companies in Jordan. Jordanian service and tourism sectors apply and involve its workforce in knowledge activities where knowledge and lessons learned as well as experience are shared and communicated to other organizational members. Establishing a knowledge-based culture that facilitates and encourages the knowledge application in the organization is a main driver to enhance the OP. However, our study discovered that technology is currently playing a crucial role in the implementation of the knowledge base process and in promoting the OP. Technology is an organizational mechanism that makes it possible to create and disseminate information in the best possible way. In addition, flattening the organizational structure to speed the decision making and the response to market changes based on knowledge and information, will lead to better OP. These KMCI dimensions cause a positive effect on the OP of service and tourism organizations in Jordan.

The second main hypothesis predicted that TL will moderate the effect of KMCI on OP. The findings confirmed the moderating effect of TL between KMCI and OP indicating that the increase in TL as a moderator will increase the positive effect of KMCI on OP. A possible explanation of these findings is that TL is relationship-based leadership where the leader encourages employees to develop their skills and capabilities as well as the innovative thinking and problem solving. These attributes are individual based, and it is felt through the relationship with the leaders. Thus, KMCI might be affected by the behaviour of the leader or the supervisor.

7. Conclusion, Limitation, and Future Work

The limitations of this study must be taken into consideration when interpreting the results, and they should be addressed in further studies. The sample technique used in this study is one of its inherent limitations. A non-probability sampling approach was used to get the sample for this study since there was little information available on the study's population. As a result, the conclusions and interpretation cannot be applied to the entire population. In order for the results of future studies to be generalizable to the study's population, it is advised that the data be collected from an informative population and using a probability sampling approach, such as random sampling. In conclusion of this study, decision makers are recommended to pay attention to KMCI and to establish the right culture technology and structure to enhance the KM activities in the PLCs in Jordan.

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