

ISSN 2063-5346



IMPACT OF TRANSFORMATIONAL LEADERSHIP ON PROCESS AND PRODUCT INNOVATION: THE MEDIATING KNOWLEDGE SHARING AND THE MODERATING ROLE OF HPWS

Khaled adnan Bataineh*

Article History: Received: 01.02.2023

Revised: 07.03.2023

Accepted: 10.04.2023

Abstract

The purpose of this paper is to examine the impact of transformational leadership on innovation capability in Jordan context and the mediating role of knowledge sharing, moderating High-performance work systems. The paper collected data through a questionnaire-based survey method. Researchers used questionnaires to collect data for the paper in order to select participants. In order to select participants, we randomly selected 40 companies in Jordan from the list of the top 100 service and manufacturing firms published by the Jordan Business Association in 2020. KS has a significant impact on an organization's ability to innovate, according to the research. In addition, transformational leadership increased knowledge sharing and innovation capabilities, according to the study. KS, HPWS and innovation capability have both been demonstrated to benefit greatly from transformational leadership. The study also revealed that KS mediates the link between leadership style and innovation capability. In this study, we provided a framework for the decision-makers of Jordanian companies on the antecedents that can contribute to enhancing innovation capabilities, particularly, TLs. Leaders need to improve their understanding and awareness of the importance of KS, HPWS, and innovation capability, since these factors can significantly impact their performance when they are adopted and managed systematically. It is also important for managers to create a knowledge sharing culture within their organization so they can create innovative methods and practices out of new ideas.

Key word: transformational leadership, knowledge sharing HPWS, process innovation, product innovation, Jordan.

Department of Business Administration.

Irbid National University, Irbid, Jordan

Email: dr.khaled.adnan @inu.edu.jo

Correspondence: Khaled adnan Bataineh, Department of Business Administration, Irbid National University, Irbid, Jordan

DOI:10.31838/ecb/2023.12.s1-B.357

1. Introduction

in the business environment is characterized by uncertainty, complexity, and rapid change, innovation is seen as a key factor for organizations to thrive, to become more effective and flexible, and to be able to quickly adapt to the changes in the business environment (Berraies et al., 2021; Franco and Antunes, 2020). Innovation is the most important field in improving the interaction relationship between the organization and its environment. Not to mention that the different types of innovation help in finding solutions for both internal and external problems within the organization, keeping pace with developments, and facing challenges. Adopting innovation in an organization is beneficial for human resources because the human being is considered as the core and origin of innovation. As a consequence, innovation is a critical condition for any organization seeking uniqueness, particularly in the light of the current changes and complications in the organization's environment (Gui et al., 2021; Ullah et al., 2021; Abualoush et al., 2018). It is worth mentioning that innovation enables organizations to quickly respond to customers' needs, compete with other organizations, seize the available strategic opportunities in markets, and commensurate the company's strengths with the market opportunities, particularly in the light of rapid technological changes, globalization, and increased competition. (Ben Rejeb et al., 2020).

The literature sheds light on the critical and essential role of leadership as a driving force for improving organizations' abilities to innovate, particularly transformational leadership (Visser and Scheepers, 2022), which is considered one of the most effective factors for enhancing the ability of organizations to innovate by developing and encouraging employees both intellectually and creatively, along with changing their self-interests to become a

part of organizational objectives. Additionally, Meharalian et al. (2021) point out that "innovation focuses on the outputs, but some inputs are required to accomplish it". In order to remain innovative, organizations always need rare, unique and irreplaceable resource, Among these resources, human resources and knowledge management are the most valuable and most difficult assets to manage because such valuable resources may contribute to innovation through people's ideas and efforts (as their contribution to innovation may result from the ideas and efforts of people). As a consequence, both human resources and knowledge management play a pivotal role in enhancing innovation. Studies and literature point out the importance of fostering the institution's strategic resources, including its intellectual and knowledge capital, because they enable the companies to remain and survive for centuries (Gürlek and Çemberci, 2020). However, Nguyen et al. (2021) Maintain that there is a limited relationship between transformational leadership and certain elements of corporate innovation, insufficient, and needs more elaboration. Toward a better understanding of TL and innovation, Through the mediating role of KS and the mediator HPWS, this study created a model for exploring the impact of transformational leadership on innovation. This study is considered new, critical, and essential for a variety of reasons that will be articulated in this research. As mentioned, such research will contribute to the theory of leadership in a meaningful way, human resources management, knowledge management, and organizational innovation on several grounds.

First, of all, several studies indicate the importance of TL and knowledge management, particularly KS, which is considered one of the main organizational factors that enhance and promote organizations' abilities to innovate. According to Lei et al. (2021); Le et al.,

(2020), Knowledge sharing is one important of the knowledge management processes, it enhances the ability to discover new knowledge to promote innovation. In spite of the fact that TL and KS are regarded as important for innovation, Few research studies have examined the impact of these constructs on innovation capabilities such as product and process innovation (Gürlek and Çemberci,2020 ; Gerlach et al.,2020), accordingly, The purpose of this research is to bridge the theoretical gaps addressed above as well as provide insights into the path leading to improving the organization process and product innovation in emerging countries.

Second, Knowledge sharing process across organizational borders is considered a daunting and complicated task. Successful knowledge sharing relies on several organizational sharing mechanisms. The challenges of knowledge sharing among emerging or developing countries, in which most of their organizations are considered small or medium-sized, are greater than those in developed countries because of their limited resources, their inability to invest in advanced technology, and their unofficial strategies (Tang and Martins,2021). Therefore, this study suggests that the knowledge sharing process in the organization might have a direct impact on the innovation strategy. Meanwhile, knowledge sharing might be enhanced by the internal critical factors of the organization (Fischer and Döring, 2020). The study found that knowledge sharing among individuals in the organization is influenced by some factors in the companies by focusing on employees, organizational structures, organizational culture, advanced technology, promotion, and organizational strategy. Nevertheless, the current study addressed the main internal factors as indicators that contribute to enhancing knowledge sharing that were highlighted in previous studies (Nguyen et al.,2022), they are considered appropriate and are

expected to have a significant impact in the current study. They are summarized as transformational leadership and high-performance work systems, such as ability-enhancing practices, opportunity-enhancing practices, and motivation-enhancing practices. HPWS is considered a method for improving both individual and organizational performance by combining the diverse practices of human resource diversity management.

Third, the majority of researchers are aware of the importance of leadership in enhancing high-performance work systems within organizations(Chang,2016 _),However, the correlation between transformational leadership and high-performance work systems has not received much attention. A dearth of studies investigates their correlation. It should be mentioned that transformational leadership (TL'S) is widely considered to be one of the primary factors that encourage employees both intellectually and creatively and shifts their self-interests to become an integral part of the organization's mission (Wang et al.,2021; Chang,2016). Besides, examining the mediating impact of high-performance work systems and their correlation between TL's and KS is of paramount importance. Accordingly, carrying out a study on the impact of transformative on innovation is highly important for researchers and managers in order to unravel the significance of innovation in improving the institution successfully due to the mediating role of high-performance work systems between TL and KS. To clarify some of the research questions raised above, this study will attempt to fill some theoretical gaps:

RQ1. How does TL and KS influence process and product innovation?

RQ2. Is KS mediating the TL effects on product and process innovation?

RQ3. Is there any relationship between TL and KS moderated by HWPS?

There are five sections to this research. A literature background is presented in the second section, as are research hypotheses. Research methodologies are described in the third section. The paper's results are discussed in the fourth section. A discussion of possible implications for future research appears in Section 5.

2- Literature review and hypothesis.

TL's influence on innovation capabilities.

transformational leadership forms lasting relationships with those they lead, which build trust and have a positive impact on them and their organizations, with transformational leadership, organizational excellence become a shared goal (Sammut and Scicluna,2020). The theory of TL is oriented around behavioral skills based on four key elements: the idealized influence of a leader is that the leader is trusted, respected, and admired. Providing a vision and perception of mission to achieve pride, gain respect, and gain trust; inspirational motivation , By following activities such as expressing important goals in simple terms, communicating great expectations, and utilizing symbols to converge efforts; intellectual stimulation; Promoting rationality, intelligence, and problem-solving and individualized consideration Individual attention, coaching, and advice for each employee (Bass, 1985; Bass and Avolio,2000; Nguyen et al.,2021). TL has been widely used in management literature due to its relational and inspirational characteristics (Khalili, 2016). and appeared as one of the most important leadership theories (Gui et al.,2021). thus, TL and innovation capability can be better understood by examining how they correlate with each other.

No one doubts the ability of innovation. It is widely recognized that innovation is one of the keys to growth and improvement for organizations in coping with change, and succeeding after the hard times of the business environment. (Lei et al.,2020),

An organization adopts innovation mainly to improve its performance and competitiveness (Sammut and Scicluna,2020), Innovative refers to the capacity to develop and implement new ideas or behaviors related to systems, policies, programs, devices, processes, products, and services by people who interact over time with each other in organizations. Innovation is also the production of a new idea in addition to applying it to a new product, process or service, which contributes to economic expansion, increasing employment opportunities and gaining a new competitive advantage (Lei et al., 2019). Innovation is classified in many classifications or categories (Podrug et al., 2017), such as innovation technology, radical and incremental innovation, management innovation, Yet, In dynamic and complex, and rapidly changing environments, there are two crucial capabilities for innovation: product and process innovation (Rasheed et al.,2021; Bekhet, and Al-Smadi, 2017). Product innovation is defined as the introduction of a unique good or service with improved features, such as technical specifications, materials, or ease of use that are aimed at gaining the satisfaction of the customer (Aydin, 2020; Chaudhry et al., 2020). While Ma et al. (2017) Process innovation relates to the actions taken by organizations to make products and services more efficient and effective and to change the way they are delivered to customers. The resource-based approach stresses that the innovation of an organization is a function of its capabilities and resources (Segarra-Ciprés et al.,2019). In particular, Leadership is thought to be one of the most important contextual resources contributing to innovation in an organization. Leadership is usually regarded as key to the outcome of an innovation culture (Aydin, 2020; Chaudhry et al., 2020) The decisive influence of leadership on innovation has been explored in a number of previous

studies (Nguyen et al., 2021; Sattayaraksa, and Boon-itt, 2018), Particularly in terms of the TL-innovation relationship (Dwivedi et al., 2020) , In the authors' view, TLs are essential for organizational innovation because they allow employees to work together on new products and services or adapt existing ones under conditions of complexity and risk . according to Bass et al. (2003), TL can motivate employees to innovate and develop new products and processes, making them more aligned with the organization's objectives. Le (2020) It is hypothesized that the use of TL dramatically impacts employees' ability to innovate by creating an environment in which they are free to discuss, experiment, and come up with new ideas. Employees in such an environment may be encouraged to raise the bar on quality products and services to meet requirements against the scarcity of resources. By promoting intellectual stimulation and articulating a long-term vision for workers (Gumusluoglu and Ilsev, 2009). Sattayaraksa, and Boon-itt, (2018) We conclude that visionary, inspirational leaders have a positive effect on product

innovation performance. In order to be creative and innovative, transformational leaders encourage their followers to think differently about old situations (Bass and Avolio, 1994). Leaders do not criticize followers whose ideas differ from their own. As a result, open communication and a positive working environment are fostered, allowing new ideas, along with inventive solutions, to emerge from team members (Segarra-Ciprés et al., 2019). Al-edenat(2018) seen , TL has a strong understanding of the organization's vision, as well as a talent for creating an innovative workplace. Transformational leaders desire excellence that surpasses expectations. This, in turn, employees develop their ability to think critically and come up with new ideas, leading to the development of innovative products and processes. In order to foster an organizational culture of innovation, transformational leaders are key antecedents (Li et al., 2021). In light of the above discussion, the following hypotheses have been proposed regarding TL's effects on product and process innovation: (see Figure 1):

H1a.b. TL is positively related to process and product innovation.

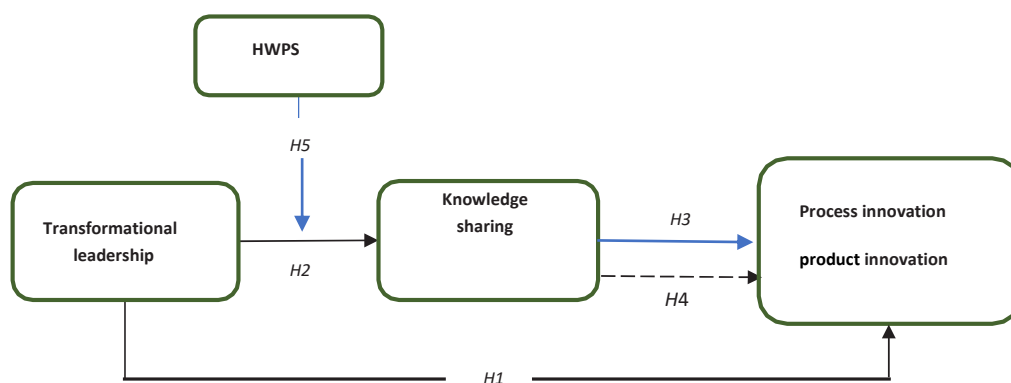


Figure 1. Conceptual Framework

Ks mediates the relationship between TL and innovation capability.

Knowledge is the essential ingredient enabling companies to enhance their

competitive edge and improve their performance (Kim et al., 2021). According to researchers and experts, knowledge management initiatives, especially KS, are essential to an organization's success (Le

and Lei, 2017). It is well known that the KS within the organizations is comprising the portfolio of individuals' behaviors that allow transfer and effectively communicating their knowledge with the other organizational members (Lo et al.,2021), Knowledge sharing (KS) involves several important activities, including exchanging data, information, knowledge, skills, feedback, and expertise between individuals for the purpose of accomplishing organizational goals.

In this context, KS could be deemed as the process of jointly generating new knowledge between employees by eliciting and exchanging tacit and explicit information. A large body of current literature research / or investigations is more focusing on such fashion based on significant (potential) effects of explicit and tacit knowledge on major organizational outcomes, such as firm performance, productivity, and innovative capability. (Fischer and Döring. 2022). The explicit knowledge (EK) is codified knowledge that can be transmitted orally or in writing and is typically described as the knowledge that is easily transferred (Nonaka and Takeuchi, 1995). A tacit knowledge (TK) is intuitive and unarticulated information crafted from the past experience of individuals, that cannot be easily identified and that can be formalized and shared with others. (Lo et al.,2021). Certainly, the robustness of KS, and more specifically tacit Knowledge within the organization environment is one of the main challenges facing the managers, where the employees are often unwilling and/or resist sharing their own gained knowledge (Malik and Malik,2021). Employees who do not feel motivated to share their knowledge with others often refuse to do so, The reason behind their culture lies in their insistence on keeping their own knowledge as an advantage and power source. Concerning such aspects, various affected factors on knowledge sharing in organizations have been investigated by many knowledge

management Scholars. Transformational leadership was one of the main instruments and useful approach to convince such style of employees and overcome on this noxious obstacle and promote the knowledge sharing (Iqbal.,2021).

according to the literature, Leadership plays an important role in employee knowledge-sharing processes, due to the significant impact of such approach on knowledge sharing (refs). Interestingly, with vision for a better future - changing for the better, followers were more likely to share their knowledge with other actors when a transformational leader called for it, and then Collaborate on improving the status quo of the organization and upscaling the achievements and enhancing the future of the organization and all individual members (Yin et al., 2019; Alsmadi et al., 2022; Al-Omouh et al., 2019).

Another suggestion manifested in the transformational management approach guarantee sustainable skills development based on multiple ways to learn and share ideas. It is demonstrated that knowledge sharing is approvingly related to the leadership style which motivates the employees to do more and overcome the challenges (Dwivedi et al., 2020). Importantly, Under the leadership of TL, the employees are highly motivated to share their expertise and knowledge, where the leader and colleagues became more trusting and unquestioning (Lei et al., 2019). Moreover, it is revealed that TL is very potent leadership style in the foundation of trust and developing the knowledge-centered culture, and therefore, promoting the employees to share their knowledge within the organization. Noteworthy, that the leaders have the ability to promote their staff to be postmodern-ed to deal with the difficulties and thereby, promote KS activities (Al-Ahmad Char and Easa, 2021).

It is argued that transformational leaders are able to improve the atmosphere to assist in enhancing the knowledge creation/ing and sharing through discussions (debates) and exchanging the ideas. However, some fundamentals such as fruitful debates among organization' members (actors) and facilitate an experiment may improve KS activities. Additionally, promoting creative ideas, innovative initiatives and effective communications may contribute to KS practices. In contrast, that leaders who prevent such efficient fashion and useful approaches are subjected to big losses (failed and get lost KS activities). Le and Lei (2018) TL impacts employees' knowledge-sharing processes directly and indirectly by enhancing employee trust in leadership, in addition to significantly influencing practices like tacit sharing and explicit sharing of knowledge (Chisita et al.,2021). Based on the aforementioned arguments and the positive impact TL has on KS. Current research aims to investigate how TL relates to particular aspects of KS, Hypotheses we propose are:

H2a.b: TL has a positive effect on tacit and explicit KS.

An increasing number of authors have shown an interest in studying the relationship between KS and innovation capability. Many studies have indicated that KS activities play an important role in facilitating organizational innovation, assisting organizations to make continuous improvements to their administrative processes, and organizational structures to create new innovations (Ling and Nasuridin 2010). Yang et al. (2018) indicate that sharing knowledge can help employees learn and become more proficient in converting new ideas into innovations through the creation and adoption of new knowledge. Zhao et al.,(2021), Highlighted the facilitating role of knowledge sharing (KS) to promote employees to explore new knowledge without duplication. Moreover, the

experience of others can be used for reference, thereby reducing the time and make the employee innovation cost effective. Another advantage of KS is manifested in the acceleration of innovation process by promoting the interaction and combination of ideas (Hussein et al., 2016).. More advantage of knowledge sharing among the employees including promote product and process innovation capabilities, generate new ideas, (Li 2021; Ganguly et al., 2019). While the relationship between KS and innovation capability is well established, little empirical research has examined how KS processes affect innovation across different aspects, such as product and process innovation Zhao et al.,(2021). We, therefore, proposed following hypotheses:

H3a.b: Tacit and Explicit KS is positively associated with product and process innovation.

The above discussions indicate that KS mediates TL's important influence on KS, which has a positive impact on innovation. In addition to this, current literature has also established that KS acts as a mediating between TL and aspects innovation. For example, Dwivedi et al., (2020) pointed, By enhancing the followers' leadership skills, a transformational leader enables them to think creatively and take initiative, TL utilizes their knowledge and experience expertise to develop their staff, professional leaders in knowledge building and sharing, as well as following their development concerning to get the innovation capability.

In the perspective of the knowledge creation theory: collective learning, distributed cognition, and activity theories are assuming that innovation is built through collaborative efforts. TL may promote process, product innovations, and social interactions and intrinsically motivates organizational members that encourages them to share their expertise

and knowledge tacit and explicit knowledge (Berraies et al., 2020). The role of effective leadership in fostering a supportive environment for organizational innovations is significant. Researchers found that TL can predict firm performance and innovation capabilities based on employee KS activity robustness (Uddin et al., 2017). KS processes have a positive impact on how TL and innovation are correlated and positive boosting of knowledge-oriented leadership on innovation performance were evidenced (Birasnav et al., 2013; LE 2020). Hypotheses are outlined below:

H4. KS mediates TL effects on Process and product innovation.

High-performance work systems (HPWS) moderate the effects of TL on innovation capability.

Recently, the studies concerning HPWS have been raised up significantly (refs), presenting sufficient evidences and indicating that HPWSs are beneficial to individuals and their organizations (Dayarathna et al.,2020). Due to the inevitably challenges (strategy, innovation, and competitiveness for sustainable growth) that facing various organizations, developing a high-performance work system is very vital approach to be survived and competitor (Muduli and McLean,2021). It is very systemic approach in human resource management, and considering HR functions with the key goals of the organization (Oudat, 2020; kasasbeh et al., 2022; Marwan Alzoubi et al., 2022). Seven suggested HPWS practices involving (including) ability-enhancing HR practices (selection, training and development), motivation-enhancing HR (job security, performance-related pay and promotion) and opportunity-enhancing HR practices (autonomy, communication) (Mostafa and Gould-Williams 2014).

Many studies were indicated that HPWS significantly moderates the impacts of TL on KS. For example, according to for example, Transformational leadership

stimulates followers' perceptions of the work and creates an environment conducive to growth, As a result of HR practices, employees' perceptions of their working environment were affected, which in turn impacted followers' knowledge sharing (Jyoti and Rani, 2021). Modern human resource practices are associated with many advantages and plying vital (significant role) in the developing the employees capabilities, e.g. understanding, transfer and exchange, etc., (Muduli and McLean,2021) and many organizations are adopting such professional practices in their human resource development. In order to improve the ability for innovation, many firms are applying modern human resources practices that encourage knowledge sharing. Human resource management practices are vital in encouraging employees' understanding, transfer, and exchange of knowledge. HPWS allowing organizations to construct modern and professional infrastructure and healthy environment that accelerate (promote) employees to gain, assimilate, and share their knowledge, towards improved innovative behavior (Bhatti et al., 2020; Alrawashdeh et al., 2022; Hasan et al., 2015; Bekhet, and Al-Smadi, 2015).

Certainly, the HR practices further augment workers' inclination to generate new idea, and empower the employees to produce and discover more, and properly use the available knowledge in the organization and yielded better results. Noteworthy, that the Participative management engages employees in decision making process targeting reinforce their vision and knowledge, which they employ in other discourses to achieve organizational objectives. Consequently, high-performance work encourages and invests in the development of the employee and enables them to acquire, share, and apply knowledge throughout the organization (Alatail et al., 2019).

H5. High-performance work systems positively moderates TL effect on KS.

3.Methodology

Sample and data collection

The paper used the survey method based on using questionnaires to collect data. To select participants, the paper employed a survey methodology that relied on questionnaires to gather data. In order to select participants, we randomly selected 40 companies in Jordan from the list of the top 100 service and manufacturing firms published by the Jordan Business Association in 2020. In order for our research to be useful, key employees in the fields of administration, R&D, accounting, operation, marketing and sales need to be the respondents in order for them to understand their firm well and exchange strategic information regularly with their

colleagues. To fulfill with the study's requirements, respondents and our research must be key employees who are team leaders or department heads in administration, R&D, accounting, operation, marketing, and sales to ensure the required understanding of their company as well as regular exchange of strategic information within the organization.

Contacted 40 companies representatives by phone and/or in person to clarify the purpose of the work and request their assistance in gathering questionnaires. 61 firms are prepared to provide support. 650 questionnaires were distributed to participants in the formal data collection, and 430 responses were received. There were 355 valid responses with corresponds to a validity rate of 54.6%.See table (1)

Table (1)

Category	Category	Frequency	Percentage%
Gender	Male	84	0.236
	Female	271	0.7633
	Total	355	100%
Education level	Bachelor	235	0.661
	Master	107	0.301
	Ph.d	13	0.366
	Total	355	100%
Management level	Top management	90	0.253
	Middle management	120	0.338
	Low management	145	0.408
	Total	355	100%
Experience	Less than 5 years	70	0.197
	5- less than 10 years	140	0.394
	10-less than 15 years	90	0.253
	15 years and above		
	Total		

Measurements

All items in this study are measured using Likert-type scales ranging from "1" (strongly disagree) to "5" (strongly agree). TL. Assessing the perceptions of participants about their leader, researchers modified 8 items from earlier studies such as Pattnaik et al., (2018). Here is an example item " I am encouraged to take on challenges by my supervisor" high-performance work systems. 9 items used in this study were adapted Mehralian et al., (2021) to measure HPWS in their firms. Here is an example item”

Innovation capability (IN). From Lei et al.'s research (2019) 6 items were used to measure process innovation (five items), Here is an example item " " as well as product innovation (five items), Here is an example item

Knowledge sharing (KS). 6 items were adapted for this study Abualoush et al (2018), In order to measure tacit and explicit sharing, Three items relate to tacit knowledge and three items relate to

explicit knowledge Here's an example of tacit knowledge ." We promote sharing of information and knowledge between team members and the various units ". Here's an example of explicit knowledge "Employees in our company frequently share knowledge based on their experience"

Measurement model

In the first step of testing for reliability, we examined each construct's Cronbach's Alpha ($C\alpha$) coefficient, The range was from (0.82 to 0.92), In addition, The level exceeded the recommended level of 0.7 (Serkan 2016). Our overall measurement model was then tested. Validity of convergence and discrimination based on CFA, following hair et al. (2006) recommendations. A convergent validity test finds that the model meets the following criteria: (1) factors are loaded greater than (0.6) (p value * 0.001); (2) CR is greater than 0.7, and (3) AVE is greater than 0.50

Table (2). RELIABILITY AND VALIDITY OF THE CONSTRUCTS

Construct	Item No	Loadings	t-value	Cronbach's Alpha	Composite reliability	AVE
Transformational leadership	TL1	0.834***	21.456	0.87	0.92	0.72
	TL2	0.845***	23.481			
	TL3	0.812***	20.745			
	TL4	0.850***	20.730			
	TL5	0.834***	22.813			
	TL6	0.861***	20.419			
	TL7	0.802***	20.764			
	TL8	0.745***	18.765			
High performance work system	HWPS 1	0.849***	19.765	0.82	0.91	0.76
	HWPS 2	0.810***	21.765			
	HWPS 3	0.805***	19.568			
	HWPS 4	0.791***	21.875			

	HWPS 5	0.829***	22.875			
	HWPS 6	0.820***	18.645			
	HWPS 7	0.891***	19.874			
	HWPS 8	0.772***	20.567			
	HWPS 9	0.796***	22.349			
knowledge sharing	KST 1	0.851***	23.876	0.87	0.93	0.77
	KST 2	0.793***	19.632			
	KST3	0.812***	20.764			
	KSE1	0.781***	22.764			
	KSE2	0.882***	23.891			
	KSE3	0.764***	21.834			
Innovation capability	PDIN	0.845***	21.678	0.92	0.92	0.78
	PDIN	0.810***	22.891			
	PDIN	0.874***	20.852			
	PCIN	0.845***	21.941			
	PCIN	0.760***	22.810			
	PCIN	0.823***	21.972			

Note(s): $\alpha \geq 0.7$; $CR \geq 0.7$; $AVE \geq 0.5$; *** significant at $p < 0.001$.

Table (3). Mean, SD., and discriminant validity

Construct	Mean	SD	TL	HPWS	KS	PDIN	PCIN
Transformational leader	3.65	.74	0.87				
High performance work system	3.78	.76	0.73***	0.82			
knowledge sharing	3.67	.78	0.76***	0.77	0.85		
Product innovation	3.81	.71	0.75***	0.72	0.76***	0.83	
Process innovation	3,74	.76	0.72***	0.74	0.76***	0.765**	0.84

Notes: *** $p < 0.001$

Factors supposedly measuring the construct are not predicted by unrelated criteria in discriminant validity (Fornell and Larcker, 1981). As a measure of

discriminant validity, Fornell and Larcker (1981) used their AVE measure (Table 2). Contrasting the AVE's square root with latent variable correlations, we tested the

research instrument's discriminant validity, Across the constructs , There is a greater correlation between constructs when the square root of the AVE is greater. This means that neither the construct validity of the scales nor the concurrent validity or discriminant validity can be questioned

The research proposal was tested using SEM. The software AMOS version 22.0 was used, and the maximum likelihood method was used to establish whether the hypothesis was valid.

Table 4. Summary of results

Hypothesis	Path	Beta (β)	T-value	Result
H1a	TL PDIN	0.342***	6.234	Supported
H1b	TL PCIN	0.286***	5.239	Supported
H2a	TL KST	0.345***	8.345	Supported
H2b	TL KSE	0.265***	6.873	Supported
H3a	KS PDIN	0.435***	5,834	Supported
H3 b	KS PCIN	0.423***	8.951	Supported
H5	TL*HPWS –KS	0.125***	8.456	Supported
H4a	TL KS PDIN	0.213***indirect effect		Supported
H4b	TL KS PDIN	0.213***indirect effect		Supported

Notes: ***p < 0.001

As shown in Table 4, Different aspects of innovation are directly influenced by TL and KS processes. H1 and H2, therefore, are supported. In H1, A positive impact of TL on product and process innovation has been suggested. A look at Table 4 supports H1: TL influences product innovation ($\beta = 0.342$; $p < 0.001$) as well as process innovation ($\beta = 0.286$; $p < 0.001$). There is also support for H2 on the positive effects of TL on tacit and explicit knowledge. More specifically, TL has more of an effect on explicit KS ($\beta = 0. 0.265$; $p * 0.001$) than it does on tacit KS ($\beta = 0. 0.345$; $p < 0.001$). Based on the findings of the study on the relationship between KS and innovation capabilities, it was found that KS positively impacts product innovation ($\beta = 0.435$; $p < 0.001$) and process innovation ($\beta = 0. 0.423$; $p < 0.001$). Thus, hypothesis H3A and hypothesis H3b are also supported, Similarly, Table 4 confirms H5. HPWS further emphasizes TL's positive effect KS ($\beta 5 0.093$; $p < 0.001$). The results of this

research confirm that HPWS is a moderating factor in the relationship between TL and KS. An attempt was made to demonstrate that KS played a mediating role in the relationship between TL and innovation capacities, specifically in Process and Product Innovations, deeper analyses are conducted to gauge their magnitude and statistical significance. we conducted a statistical test (see Table 4) to determine the significance of indirect effects., Indirect effects were tested with 5,000 bootstrap iterations.

4- Discussions

Firms in emerging countries are experiencing increasingly complex and uncertain environments due to a combination of increasing competition pressure, rapid technological changes, and changing customer preferences (Ben Rejeb et al.,2020). This paper provides an in-depth examination of the hypothesis developed to assist firms in making decisions about the right endeavors for improving innovation capability. This

paper makes several contributions both theoretically and practically.

Theoretical contributions.

TL's impact on innovation has been the focus of the few empirical studies that have been conducted within business firms (Gerlach et al.,2020). Within the developed countries, another study explored the relationship between these variables (abualoush et al.,2018). Based on that and to provide more information and new knowledge and fill the knowledge gap in terms of such aspects, this the current study was designed to examine the link between TL, process and product innovations in Developing Countries, particularly in the Jordanian context or firm's environment Jordanian. In this vein, our empirical findings indicated that TL positively influences both product and process innovation in the Jordanian firm. Give more information. Interestingly, the obtained results from this study were verified the studies of Le and Lei (2021); Le (2021), The TL practice has the ability to shape culture by encouraging creativity, and nurturing innovation. They are assisting the firms to improve innovation bringing, employees into healthy environment and willingness to develop innovative solutions and cross the difficulties. Creating and enhancing a positive organizational culture for organizational innovation is the responsibility of transformational leaders (Kim et al.,2021). In order to achieve organizational goals, TL boosts morale, internally motivates followers, and improves performance(Rasheed et al.,2021), These will help with promoting innovation by concentrating on essential functions to produce competitive goods and services at low costs as a result of TL's effects. (Berraies et al., 2020; Al-Smadi, 2020). The purpose of such a style is to motivate employees by appealing to their strong moral and ethical values, encouraging them to accomplish more than

expected, and increasing the efficiency of the organization.

Indeed, further studies, concerning the context (nature- environment) of developing Countries. The purpose of this study, therefore, has been to address these issues by developing a proposal research model to examine the potential mediated relationship between TL style and specific innovations based on tacit and explicit KS. It is concluded by the findings of this study that KS processes can act as mediators, and TL style is the most effective way for firms located in developing countries, including Jordan, to generate product and process innovation by encouraging employees' tacit and explicit KS activities, Remarkably, KS is important for process and product innovation, as indicated previously and confirmed by the current findings (Lo et al.,2021). Moreover, the current study has differentiated between the two types of knowledge; tacit and explicit ones. In order to ensure more valuable information, there is a need for further research examining how different KS affect the process and product innovations. Noteworthy, that both types of knowledge are sharing positively role firms' innovation performance (Li, 2021). It is useful, to address the higher predictor impact of firms' innovation performance comparing with the other type. Knowledge sharing has several benefits, including the ability to innovate by encouraging companies to exchange ideas and gain market insight (Iqbal ,2021; Al-Smadi, & Al-Smadi, 2021).

Lastly, to answer to the scholars' recommendations for identifying clearer mechanisms of HWPS that moderate organizational dynamics, particularly those relating to TL and KS as well as innovation capabilities, (Bhatti et al.2021), this research investigated the impact of HWPS on the influences of TL on KS. The empirical findings have revealed good insight and provided evidences for the

significant and positive moderator of HWPS in the connection between TL and KS. The obtained results from this study significantly contribute to bringing and positioning leadership and KS literature (Alatailat et al.,2019) HWPS interacts with TL to positively influence KS by interacting with the situational variable HWPS. According to findings, the level of positive collaboration at an organization may affect the effectiveness and results of TL's influence on all aspects of KS. These findings suggest that if leaders can create an open environment in which cooperation is cultivated, Firms will be able to innovate more effectively.

Practical contributions

The research found that by implementing TL, managers may foster a trust-based work environment, which in turn may strengthen KS in organizations. For KS to flourish, employees need to work in a trusting environment, enhance leading practices, and allowing to take initiative and seek ways to improve the current process and express their feelings, suggestions, and perspectives. It is useful to provoke, that some managers were hesitant or not keen to share their knowledge due to their desire to control uncertainty and their fear of losing valuable resources (Mansour et al., 2014). As a result of an understanding of the possible outcomes of TL and HPWS on KS, Jordanian managers can engage in a variety of actions that will promote KS and modernize the knowledge of their workers. It is vital that they develop HPWS so as to minimize silos between employees and improve and motivate KS. On the other hand, in regions marked by uncertainty and brain drain, leaders need to adopt a modern and usefulness managerial style more geared towards allowing employees to develop their creativity and autonomy in light of their turnover intentions. Trust-based atmosphere must be constructed within firms to motivate the workers' knowledge, and who will be

responsible to be highly motivated for effective communication within and among the working arena, in order to encourage innovation through the sharing of knowledge and creativity.

Limitations.

With respect to the limitations of this study, Due to its cross-sectional nature, causality cannot be determined, as the data are collected at a single point in time. The hypothesized relationships may be further confirmed by longitudinal studies. You can also collect data during specific periods of time in phases. Each phase of collection will be separated by a time lag, thereby reducing the possibility of common method variances and separating the collection of independent, mediator, and dependent variables. as with all other studies, The results of this study should not be viewed as conclusive. The first reason is that, although Jordan has a thriving pharmaceutical industry that follows universal standards, this type of project would be limited when conducted in a Jordanian context as far as its generalizability is concerned. The study model could definitely be generalized in other situations if examined in other contexts.

References.

- Abualoush, S., Masa'deh, R., Bataineh, K. and Alrowwad, A. (2018a), "The role of knowledge management process and intellectual capital as intermediary variables between knowledge management infrastructure and organization performance", *Interdisciplinary Journal of Information, Knowledge, and Management*, 13, 279-309
- Al-Smadi, A. W & Al-Smadi, R. W. (2021). The Impact Of Changes In Oil Prices On The Stock Market: Evidence From Jordan: *Turkish Online Journal of Qualitative Inquiry*, Vol. 12 No. 7.

- Al-Smadi, R. W. (2020). FINANCIAL DEVELOPMENT, ENERGY CONSUMPTION AND ECONOMIC GROWTH IN JORDAN: NEW EVIDENCE FROM TIME SERIES ANALYSIS. *International Journal Of Advanced Science And Technology*, 29(3), 1558-1567.
- Al-Ahmad Char, S. and Easa, N.F. (2021), "Does transformational leadership matter for innovation in banks? The mediating role of knowledge sharing", *International Journal of Disruptive Innovation in Government*
- Alatailat, M., Elrehail, H. and Emeagwali, O.L. (2019), "High performance work practices, organizational performance and strategic thinking: A moderation perspective", *International Journal of Organizational Analysis*, Vol. 27 No. 3, pp. 370-395.
- Alsmadi, A.A., Al-Gasaymeh, A., Alrawashdeh, N. (2022). Purchasing Power Parity: A Bibliometric approach for the period of 1935-2021. *Quality - Access to Success* , 23(189), pp. 260–269.
- Al-edenat, M. (2018), "Reinforcing innovation through transformational leadership: mediating role of job satisfaction", *Journal of Organizational Change Management*, Vol. 31 No. 4, pp. 810-838
- Al-Okaily, A., Abd Rahman, M. S., Al-Okaily, M., Ismail, W. N. S. W., & Ali, A. (2020). Measuring success of accounting information system: applying the DeLone and McLean model at the organizational level. *J. Theor. Appl. Inf. Technol*, 98(14), 2697-2706.
- Al-Okaily, A., Ai Ping, T., & Al-Okaily, M. (2023a). Evaluation of Data Analytics-Oriented Business Intelligence Technology Effectiveness: An Enterprise-Level Analysis. *Business Process Management Journal*. Vol. and No. ahead-of-print. <https://doi.org/10.1108/BPMJ-10-2022-0546>.
- Al-Omoush, K. S., Al Attar, M. K., Saleh, I. H., & Alsmadi, A. A. (2019). The drivers of E-banking entrepreneurship: an empirical study. *International Journal of Bank Marketing*, 38(2), 485-500.
- Alrawashdeh, N., Alsmadi, A. A., & Anwar, A. L. *FinTech: A Bibliometric Analysis for the Period of 2014-2021. Quality - Access to Success* . Jun2022, Vol. 23 Issue 188, p176-188. 13p.
- Alsmadi, A. A., Shuhaiber, A., Alhawamdeh, L. N., Alghazzawi, R., & Al-Okaily, M. (2022). Twenty years of mobile banking services development and sustainability: A bibliometric analysis overview (2000–2020). *Sustainability*, 14(17), 10630.
- Aws, A. L., Ping, T. A., & Al-Okaily, M. (2021). Towards business intelligence success measurement in an organization: a conceptual study. *Journal of System and Management Sciences*, 11(2), 155-170. doi: 10.33168/JSMS.2021.0210.
- Bamber, G.J., Bartram, T. and Stanton, P. (2017), "HRM and workplace innovations: formulating research questions", *Personnel Review*, Vol. 46 No. 7, pp. 1216-1227
- Bass, B.M. (1985), *Leadership and Performance beyond Expectations*, Free Press; Collier Macmillan.
- Bass, B.M. and Avolio, B.J. (2000), *MLQ: Multifactor Leadership Questionnaire*, Mind Garden,
- Ben Rejeb, W., Berraies, S. and Talbi, D. (2020), "The contribution of board of directors' roles to ambidextrous innovation: Do board's gender diversity and independence matter?", *European Journal of*

- Innovation Management, Vol. 23 No. 1, pp. 40-66
- Berraies, S., Hamza, K.A. and Chtioui, R. (2021), "Distributed leadership and exploratory and exploitative innovations: mediating roles of tacit and explicit knowledge sharing and organizational trust", *Journal of Knowledge Management*, Vol. 25 No. 5, pp. 1287-1318.
- Bhatti, S.H., Zakariya, R., Vrontis, D., Santoro, G. and Christofi, M. (2021), "High-performance work systems, innovation and knowledge sharing: An empirical analysis in the context of project-based organizations", *Employee Relations*, Vol. 43 No. 2, pp. 438-458.
- Bekhet, H. A., & Al-Smadi, R. W. (2015). Determinants of Jordanian foreign direct investment inflows: Bounds testing approach. *Economic Modelling*, 46, 27-35.
- Bekhet, H. A., & Al-Smadi, R. W. (2017). Exploring the long-run and short-run elasticities between FDI inflow and its determinants in Jordan. *International Journal of Business and Globalisation*, 18(3), 337-362.
- Al-Okaily, A., Ai Ping, T., Al-Okaily, M., Iranmanesh, M., & Al-Betar, M. (2023b). The Efficiency Measurement of Business Intelligence Systems in the Big Data-Driven Economy: A Multidimensional Model. *Information Discovery and Delivery*. Vol. and No. ahead-of-print.
- Chang, Y.-Y. (2016), "High-performance work systems, joint impact of transformational leadership, an empowerment climate and organizational ambidexterity: Cross level evidence", *Journal of Organizational Change Management*, Vol. 29 No. 3, pp. 424-444.
- Chisita, C.T. and Fombad, M.C. (2021), "Knowledge sharing to support climate change adaptation in Zimbabwe: Views from selected climate action organisations", *VINE Journal of Information and Knowledge Management Systems*, Vol. 51 No. 2, pp. 333-350.
- Dayarathna, D.K., Dowling, P.J. and Bartram, T. (2020), "The effect of high performance work system strength on organizational effectiveness: Opportunities for international joint ventures by foreign firms", *Review of International Business and Strategy*, Vol. 30 No. 1, pp. 77-95.
- Dwivedi, P., Chaturvedi, V. and Vashist, J.K. (2020), "Transformational leadership and employee efficiency: knowledge sharing as mediator", *Benchmarking: An International Journal*, Vol. 27 No. 4, pp. 1571-1590
- Fischer, C. and Döring, M. (2022), "Thank you for sharing! How knowledge sharing and information availability affect public employees' job satisfaction", *International Journal of Public Sector Management*, Vol. 35 No. 1, pp. 76-93
- Ganguly, A., Talukdar, A. and Chatterjee, D. (2019), "Evaluating the role of social capital, tacit knowledge sharing, knowledge quality and reciprocity in determining innovation capability of an organization", *Journal of Knowledge Management*, Vol. 23 No. 6, pp. 1105-1135.
- Al-Okaily, M. (2022). Toward an integrated model for the antecedents and consequences of AIS usage at the organizational level. *EuroMed Journal of Business*. Vol. and No. ahead-of-print. <https://doi.org/10.1108/EMJB-05-2022-0100>.
- Gerlach, F., Hundeling, M. and Rosing, K. (2020), "Ambidextrous leadership and innovation performance: a longitudinal study", *Leadership &*

- Organization Development Journal, Vol. 41 No. 3, pp. 383-398.
- Gui, L., Lei, H. and Le, P.B. (2021), "Determinants of radical and incremental innovation: the influence of transformational leadership, knowledge sharing and knowledge-centered culture", *European Journal of Innovation Management*
- Gürlek, M. and Çemberci, M. (2020), "Understanding the relationships among knowledge-oriented leadership, knowledge management capacity, innovation performance and organizational performance: A serial mediation analysis", *Kybernetes*, Vol. 49 No. 11, pp. 2819-284
- Hai, S., Wu, K., Park, I.-J., Li, Y., Chang, Q. and Tang, Y. (2020), "The role of perceived high-performance HR practices and transformational leadership on employee engagement and citizenship behaviors
- Hasan, H., Oudat, M.S., Alsmadi, A.A., Nurfahasdi, M., Ali, B.J.A. (2021). Investigating the causal relationship between financial development and carbon emission in the emerging country. *Journal of Governance and Regulation*, 2021, 10(2), pp. 55–62.
- Hussein, A.T.T., Singh, S.K., Farouk, S. and Sohal, A.S. (2016), "Knowledge sharing enablers, processes and firm innovation capability", *Journal of Workplace Learning*, Vol. 28 No. 8, pp. 484-495
- Iqbal, A. (2021), "Innovation speed and quality in higher education institutions: the role of knowledge management enablers and knowledge sharing process", *Journal of Knowledge Management*, Vol. 25 No. 9, pp. 2334-2360
- Jyoti, J. and Rani, A. (2017), "High performance work system and organisational performance: role of knowledge management", *Personnel Review*
- kasasbeh, H., Alzoubi, M., Alsmadi, A.A., Al-dweik, A.F. (2022). The Impact of COVID-19 on Amman Stock Market (ASE) Performance: An ARDL Approach. In: Yaseen, S.G. (eds) *Digital Economy, Business Analytics, and Big Data Analytics Applications. Studies in Computational Intelligence*, vol 1010. Springer, Cham. https://doi.org/10.1007/978-3-031-05258-3_35
- Khalili, A. (2016), "Linking transformational leadership, creativity, innovation, and innovation supportive climate", *Management Decision*, Vol. 54 No. 9, pp. 2277-2293.
- Khan, M.M., Mubarik, M.S., Ahmed, S.S., Islam, T., Khan, E., Rehman, A. and Sohail, F. (2021), "My meaning is my engagement: exploring the mediating role of meaning between servant leadership and work engagement", *Leadership & Organization Development Journal*, Vol. 42 No. 6, pp. 926-941.
- Kim, S.J., Jang, Y., Yoo, M. and Song, J.H. (2021), "The mutual impact of university president's leadership and organizational justice on knowledge sharing: the mediating effect of communication", *Industrial and Commercial Training*, Vol. 53 No. 3, pp. 268-282.
- Lei, H., Leungkhamma, L. and Le, P.B. (2020), "How transformational leadership facilitates innovation capability: the mediating role of employees' psychological capital", *Leadership & Organization Development Journal*, Vol. 41 No. 4, pp. 481-499
- Li, G. (2021), "The impact of supply chain relationship quality on knowledge sharing and innovation performance: evidence from Chinese manufacturing industry", *Journal of Business &*

- Industrial Marketing, Vol. 36 No. 5, pp. 834-848
- Lo, M.F., Tian, F. and Ng, P.M.L. (2021), "Top management support and knowledge sharing: the strategic role of affiliation and trust in academic environment", *Journal of Knowledge Management*, Vol. 25 No. 9, pp. 2161-2177
- Malik, P. and Malik, P. (2021), "Investigating the impact of knowledge sharing system on workplace deviance: a moderated mediated process model in Indian IT sector", *Journal of Knowledge Management*, Vol. 25 No. 8, pp. 2088-2114
- Marwan Alzoubi, Alaa Alkhatib, Ayman Abdalmajeed Alsmadi and Hamad Kasasbeh (2022). Bank size and capital: A trade-off between risk-taking incentives and diversification. *Banks and Bank Systems*, 17(4), 1-11. doi:10.21511/bbs.17(4).2022.01
- Mehralian, G., Moradi, M. and Babapour, J. (2021), "How do high-performance work systems affect innovation performance? The organizational learning perspective", *Personnel Review*, Vol. ahead-of-print No. ahead-of-print
- Muduli, A. and McLean, G.N. (2021), "Training transfer climate: examining the role of high performance work system and organizational performance in the power sector of India", *Benchmarking: An International Journal*, Vol. 28 No. 1, pp. 291-306.
- Nguyen, T.-M., Siri, N.S. and Malik, A. (2022), "Multilevel influences on individual knowledge sharing behaviours: the moderating effects of knowledge sharing opportunity and collectivism", *Journal of Knowledge Management*, Vol. 26 No. 1, pp. 70-87.
- Nguyen, T.N., Shen, C.H. and Le, P.B. (2021), "Influence of transformational leadership and knowledge management on radical and incremental innovation: the moderating role of collaborative culture", *Kybernetes*, Vol. ahead-of-print No. ahead-of-print.
- Oudat, M.S., Hasan, H., Alsmadi, A.A. (2020). Macroeconomic variables and portfolio investment in bahrain using an ardl bound testing approach. *Accounting*, 2020, 6(4), pp. 465-472.
- Pattnaik, S.C. and Sahoo, R. (2021), "Transformational leadership and organizational citizenship behaviour: the role of job autonomy and supportive management", *Management Research Review*, Vol. 44 No. 10, pp. 1409-1426.
- Rasheed, M.A., Shahzad, K. and Nadeem, S. (2021), "Transformational leadership and employee voice for product and process innovation in SMEs", *Innovation & Management Review*, Vol. 18 No. 1, pp. 69-89
- Redwood City
- Sammut, R. and Scicluna, A. (2020), "Nurses' and nurse managers' perceived transformational leadership behavioral practices: a survey", *Leadership in Health Services*, Vol. 33 No. 4, pp. 385-396
- Sattayaraksa, T. and Boon-itt, S. (2018), "The roles of CEO transformational leadership and organizational factors on product innovation performance", *European Journal of Innovation Management*, Vol. 21 No. 2, pp. 227-249
- Segarra-Ciprés, M., Escrig-Tena, A. and García-Juan, B. (2019), "Employees' proactive behavior and innovation performance: Examining the moderating role of informal and formal controls", *European Journal of*

- Innovation Management, Vol. 22 No. 5, pp. 866-888.
- Tang, J. and Martins, J.T. (2021), "Intergenerational workplace knowledge sharing: challenges and new directions", *Journal of Documentation*, Vol. 77 No. 3, pp. 722-742.
- Ullah, I., Mirza, B. and Jamil, A. (2021), "The influence of ethical leadership on innovative performance: modeling the mediating role of intellectual capital", *Journal of Management Development*, Vol. 40 No. 4, pp. 273-292
- Visser, J. and Scheepers, C.B. (2022), "Exploratory and exploitative innovation influenced by contextual leadership, environmental dynamism and innovation climate", *European Business Review*, Vol. 34 No. 1, pp. 127-152
- Wang, Z., Ren, S. and Meng, L. (2021), "High-performance work systems and thriving at work: the role of cognitive appraisal and servant leadership", *Personnel Review*, Vol. ahead-of-print No. ahead-of-print
- Yin, J., Ma, Z., Yu, H., Jia, M. and Liao, G. (2020), "Transformational leadership and employee knowledge sharing: explore the mediating roles of psychological safety and team efficacy", *Journal of Knowledge Management*, Vol. 24 No. 2, pp. 150-171.
- Zhao, S., Jiang, Y., Peng, X. and Hong, J. (2021), "Knowledge sharing direction and innovation performance in organizations: Do absorptive capacity and individual creativity matter?", *European Journal of Innovation Management*, Vol. 24 No. 2, pp. 371-394.