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## Examining the mediating role of organizational trust in the relationship between organizational learning and innovation performance: A study of information systems and computer science service firms

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### ABSTRACT

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Innovation is a crucial driver of competitive advantage and long-term success, particularly in the dynamic Information Systems and Computer Science Service industry. This study investigates the relationships between organizational learning constructs (organizational memory, knowledge acquisition, knowledge interpretation, and knowledge distribution), organizational trust, and innovation performance within Information Systems and Computer Science Service Firms in Jordan. Recognizing the potential mediating role of organizational trust, the study aims to provide insights into the mechanisms that enable effective translation of organizational learning into innovation outcomes. The study employs a quantitative research design using a cross-sectional survey approach. In this study, the data was gathered from 468 participants from Information Systems and Computer Science Service companies in Jordan, consisting of both senior managers and department heads, and the people involved in organizational learning and innovation processes. The analysis shows that organizational memory, knowledge collection and knowledge interpretation have direct impacts on innovations' performance, but knowledge distribution does not contribute to this performance. Primarily, organizational trust works as the mediating factor that allows the innovation constructs of organizational learning to improve throughput sizes. The evidence also shows that competent learning is a prerequisite for organizational trust.

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## 1. Introduction

In today's dynamic and competitive business landscape, organizational learning and innovation have emerged as critical determinants of success for firms across various industries. The ability to execute and synthesize information and knowledge quickly has become an essential quality that distinguishes companies willing to survive and adapt to the market in the process of constant change (Argote & Miron-Spektor, 2011). To the other side, developing competition has become a key component of a winning organizations' strategy to ensure that their products are cutting-edge, exceptional, and that they satisfy the evolving consumer needs to stay ahead of the competition (Damanpour & Aravind, 2012; Fraihat et al., 2024). Because the idea of organisational learning has attracted great interest in recent years, as it includes knowledge acquisition, interpretation and distribution processes (Crossan, et al., 1999). Organizational memory, knowledge acquisition,

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knowledge interpretation, and knowledge distribution are some of the essential parts of organizational learning and help enterprises use their collective experiences; thus, their judgments become more detailed and precise, and decision-making amid problems and innovation is facilitated (Argote & Miron-Spektor, 2011). As well, the degree to which organizational learning supports innovation performance is not necessarily that simple. It is now a statement that studies show that trust constitutes a possible intermediary that moderates the balance between ICTs and organizational performance (Serenko, & Bontis, 2016; Aledwan et al., 2017). Organizational trust means the mutual understanding and certainty that all members of the organization have in the valuable, effective, and competent activities of their colleagues, managers, the organization and itself (Shockley-Zalabak et al., 2000). Jordanian economic growth has had a positive impact on the development of its services sector, which as an output has grown to become a key sector in the economy (Ismaeel, et al., 2023; Fraihat et al., 2024). The Jordanian economy incorporates sectors such as banking, tourism, teacher training, healthcare and different kinds of services. By means of diversifying its economy through the strategic location of the country and leveraging on the skilled workforce, Jordan has taken an active role in the growth of the services sector (Al-Nawafah et al., 2019). It is a device fueling an increased number of Information Systems and Computer Science Service Firms, including small and medium-size enterprises and huge multinational corporations, which provide work for people and drive economic development. Organizational learning and innovation nowadays are deemed a major aspect in meeting increasing customer demands in service industries and yet some Information Systems and Computer Science Service Firms in Jordan still continue to experience difficulties in implementing these practices. Another problem of the lesson is a disorganized manner of employee learning. The study by Alsheikh et al. (2023) showed that 37% Information Systems and Computer Science Service Firms in Jordan had an organized knowledge acquisition front and a knowledge sharing system. This, in turn, can be an impediment in the effective transfer of knowledge turning out to be valuable and beneficial for the organization. Besides that, organizational silos and roadblocks to knowledge flow could be the reasons for knowledge spaces where the information cannot be shared or distributed properly (El –Masri, et al., 2020; Alwaely et al., 2024a; Mataalka et al., 2024). According to the study conducted by the Jordan Strategy Forum (2021), this fact was confirmed by the fact that 48% of Information Systems and Computer Science Service Firms mentioned the absence of good alignment and communication between sections as the most obvious barrier to innovativeness. Apart from this, the lack of growth in training and retaining talented workers is another crucial problem. As per the report of Jordanian Ministry of Labor (2020), the Information Systems and Computer Science Service Firms were in high number who do not provide enough training and development opportunities to their employees (22%). This can cause experts inside the organization to leave, which may lead to a loss of critical business information and decrease the organization's ability to develop new ideas and strategies and respond to market changes in a timely manner. The other challenge is cultural barriers and resistance to change to the learning and innovation process which may be high especially for nested organizations (Kurniawan, et al., 2020). Apart from that, a study conducted by the Jordanian Business Association (2019) reveals that 63% of Information Systems and Computer Science Service Firms faced resistance from employees during the time when new processes and technologies were introduced, and the main reason was either fear of change or lacked enough of understanding of advantages after the change. Organizational trust, as one of the issues that should not be ignored, has a significant role in addressing these challenges. Trust contributes tremendously by easy flowing of knowledge through sharing, collaboration and open interaction (Serenko & Bontis, 2016; Al-Shakri et al., 2024). Besides, the study of Chen et al. (2023) indicated that just 42% of the services companies in Jordan approved with the idea that the trust between employees and administration was high. The deficiency of the culture of trust can impede positive and efficient implementation of organizational learning and innovations. For this reason, the main aim of this research is to explore the mediating role of organizational trust in the relationship between organizational learning and innovation performance within Information Systems and Computer Science Service Firms in Jordan. This study carries a very important theoretical emphasis for the field of organizational behavior and strategic management. Mediation of organizational trust in the relationship between organizational learning and innovation performance is the focal point of the study allowing us to look deeper into the intricate web of the interacting vital organizational factor groups. In the first place, research on organizational learning tends to cover the multi-dimensional nature of the parameter, representing organizational memory, knowledge appropriation, knowledge interpretation, and knowledge distribution. As a result, this multidimensional way helps us to understand the importance of each subsystem and their net performance on innovation. Thus, this study builds upon prior studies on organizational trust by evaluating its role as mediator in the acquisition, interpretation, and implementation of new knowledge and skills in an organization. This adds-up to making sure that trust becomes part of a more comprehensive theory on how trust helps the implementation of learning-based techniques or impairs them and thus have an impact on innovation performance. Besides that, the research may be assigned to the discovery of the mechanisms inspiring organizational trust which in turn leads to organizing the interaction between learning and innovation performance. Through this process of revealing, the research shows the way for the design of more efficient approaches, including trust building, organizational learning, and innovation development in the Information Systems and Computer Science Service Firms.

## **2. Literature Review**

### *2.1 Organizational Learning Theory*

Organizational learning theory provides a comprehensive framework for understanding how organizations acquire, interpret, and disseminate knowledge to enhance their performance and adaptability (Argote & Miron-Spektor, 2011). This theory

puts forward the proposition that the learning processes in an organization at the same time occur in the scale of individual participation, group participation, and that of the organization itself. At the organizational level, employees acquire knowledge from diverse sources they encounter daily, formal education, training programs, personal experiences, and contacts with co-workers (Crossan et al., 1999; AlQudah et al., 2022). Discrete or individual learning, though, is the foundation for organizational learning, since every worker probably possesses, if not more, perspectives, skills, and insights they bring to the common pool of knowledge. Although, organizational learning is a broader term than individual learning as it stresses on organization level processes involved in group learning. A team or a work group put heads together, and information is shared between individual group members. Also, there is an interpretation of things, and mental models are formed together (Crossan et al., 1999; Hussien et al., 2021; Jaradat & AL-Shakri 2012). Group members can connect, partner and pull together cross-examination of each one concept or view to spark new ideas, refine existing knowledge, and build on a collective understanding that cannot be learned from a single solitary knowledge. At the end of the day, organizational learning happens when the parts-, or smaller, and lines-, i.e., human understandings are made organizational through being institutionalized and embedded within organizational systems, structures, and routines (Crossan et al., 1999; Zraqat, Al-Bawab et al., 2021). That becomes possible through creating organizational memory that is a collection of collective knowledge (the organizational cognition), experiences as well as best practices. Also, more than process capability, the development of tools for knowledge assimilation, analysis and transfer is paramount in this process of strengthening the knowledge base within the organization. Organizational learning theory postulates that firms that apply effective organizational learning processes are generally better placed to recognize, and consequently respond to, changes occurring in the environment in which the firms exist, and be able to meet, and more so, develop new solutions for, new emerging challenges (Argote & Miron-Spektor, 2011; Alwaely et al., 2024b). Through creating a culture of 'continuous learning' organizations can unveil their collective knowledge and skills and use them to foster better decision making, solve problems and to be more creative. Finally, the approach regarding organizational memory, knowledge acquisition, knowledge interpretation, and knowledge in distribution as central element of the learning process of the organization is also considered by the theory (Argote & Miron-Spektor, 2011; Ahmad et al., 2024; Alwaely et al., 2024c). Organizational memory as a repository, bearing the collective expertise and lessons, the organization can base on the knowledge and experiences stored and recall what they want. The process of getting knowledge includes not only memory-associated activities such as retaining and internalizing, but also doing active studies and obtaining information from internal and external sources. The knowledge interpretation deals with processing the information obtained, harmonizing it with the elements of the existing knowledge networks. To sum up, this is an assurance that knowledge is both properly adhered to and applied in the organization, and the working of the organization is amplified (Alkhalwaldeh et al., 2024).

## 2.2 Trust Theory

Trust theory provides a critical perspective on the pivotal role that trust plays in fostering an organizational environment conducive to learning and innovation (Shockley-Zalabak et al., 2000). Trust which is one of the components of the multi-perspective structure of an organization reflects the collective stereotyped confidence and reliance that the organizational members have in the integrity, reliability, and competence of their colleagues, top managers and the organisation itself. As it turns out, trust theory suggests that there is a safe environment where employees may confidently share their intelligence and experience without the fear of any negative consequences. This occurs when organizational trust is high (Shockley-Zalabak et al, 2000). When companies can build trust across a workforce, employees are more inclined to communicate openly and honestly with one another, to request and receive feedback from other team members, and to listen to and consider changing their ways (Serenko & Bontis, 2016). Additionally, it promotes collaboration and exchange of know-how, with the trust relationship being a factor that removes the uncertainties and risks associated with vulnerability and openness (Shockley-Zalabak et al., 2000). People who are confident in their coworkers and supervisor tend to exhibit a greater readiness in the production of knowledge releases, experiences and expertise, as those are looked upon as valid and of high par. In this case, the 'open-source' principle becomes important and the 'information flow and knowledge exchange' supports organizational learning along with the creation of new ideas and solutions. Regretfully, a low level of organizational trust results in an environment that is developed upon siloed approach, poor communication, and resistance to change (Shockley-Zalabak et al., 2000; Fraihat et al., 2023). When there is no trust, employees may withhold information either purposefully or subconsciously, shy away from suggesting their ideas or voicing their opinions out of the fear of rejection or reject new initiatives and processes out of suspicion and/or scepticism. The phenomenon of lack of confidence can be fatal for organizational learning paths, as it also blocks the flow of knowledge from one person to another and eventually crushes all innovation initiatives. Trust theory proposes that within an organization the trust builds up a trusting environment that in turn acts as a driver or a catalyst of organizational learning and innovation through promotion of psychological safety, encouraging risk-taking and engendering openness and mutual help (Shockley-Zalabak et al., 2000). Through the growing of the trust within the organization, the leaders can set the environment that accelerates the process of gaining the new knowledge; interpreting and disseminating the knowledge amongst the members of the organization, which then becomes the fruit of the organization's ability to adapt, innovate and gain a sustainable competitive advantage. As a result, trust theory constitutes a theoretical background for the exploration of the mediation character of organizational trust within the link between organizational learning and innovation performance (Serenko & Bontis, 2016). Building trust acts as the key intermediary element which will be leading to positive innovation or organization inhibition, depending on the trusting degree that we have within the organization.

### 2.3 Empirical Studies and Hypotheses Development

Organizational learning theory emphasizes the importance of organizational memory, knowledge acquisition, knowledge interpretation, and knowledge distribution as key components of organizational learning processes (Argote & Miron-Spektor, 2011; Crossan et al., 1999). Empirical studies devoted the attention to the interplay of such a category of organizational learning as innovative performance and the insights they brought drove us to more precise understanding of organizational results. Organizational memory which enriches the collective knowledge, experiences and best practices that are preserved in the organization, to strongly influence innovation performance has been found. Yu, et al. (2021) in their research involving the Information Systems and Computer Science Service Firms in Spain demonstrated an evident and strong positive connection between organizational memory and product and process innovations. Much the same, Donate and Guadamillas (2011) do state that organizational memory was the factor that aided in innovation generation as well as implementation among the Spanish firms. That includes knowing the successful methods of knowledge acquisition which are - internal and external expedients - is related to little level of innovation performance improvement. What faced that knowledge from external sources among several sources such as customers, suppliers, and competitors had the positive impact on product and process innovation in the case of the Information Systems and Computer Science Service Firms in Malaysia the study of Verdu-Jover et al. (2018) had. On the contrary, Cegarra-Navarro, and Martelo-Landroguez, (2020) showed that internal knowledge acquisition via training and adoption of cutting-edge technology was also an important factor that determined innovation performance for Chinese manufacturers. The role of information processing, which includes understanding the knowledge assumed and harmonizing it with the present data structures is now considered a major factor by which innovation takes place. Alsheikh et al. (2023) evaluated the effects of both radical and incremental innovations and found positive impacts for both of these innovation types on the knowledge interpretation capabilities of Chinese high-tech firms. Besides that, Kragulj, (2021) reported that converting the gained knowledge into new products and services contributed to Finnish Information Systems and Computer Science Service Firms in acquiring a competitive edge in the industry. Besides delivering distributed knowledge, which means that the information is spread and shared universally throughout the organization, the studies have revealed that it improves the organization's innovative capacity. Research conducted by Heisig, et al. (2021) on Pakistani Information Systems and Computer Science Service Firms found the connection between diffusion of knowledge and performance in terms of innovation through the process of organizational learning was a mediating factor. In line with that, according to Tortorella et al. (2020), not only did knowledge distribution practices help to improve product and process innovation in Brazilian industrial companies, but they also contributed to overall innovation. Based on the empirical evidence and the theoretical underpinnings of organizational learning theory, the following hypotheses can be proposed:

**H<sub>1a</sub>:** *Organizational memory statistically and positively affects innovation performance.*

**H<sub>1b</sub>:** *Knowledge acquisition statistically and positively affects innovation performance.*

**H<sub>1c</sub>:** *Knowledge interpretation statistically and positively affects innovation performance.*

**H<sub>1d</sub>:** *Knowledge distribution statistically and positively affects innovation performance.*

Organizational learning theory and trust theory provide theoretical foundations for examining the relationship between organizational learning dimensions and organizational trust. Organizational memory, which represents the collective knowledge and experiences embedded within an organization, has been found to positively influence organizational trust. Lopez-Cabacos et al (2021) study on Spanish firms showed that the organizational memory helps employee development of trust within by developing a shared concept of the organization's values, norms, and practices. For instance, Sen et al. (2023) found out that organic memory helped in building trust in Taiwanese high-tech firms through providing consistency and reliability across the organization's actions. Teaching and learning, especially the ones from outside sources, are being connected to the high trust levels in organizations. According to Rungsithong, and Meyer, (2020), the interaction with the external partners, such as customers and suppliers, that involved the firm's knowledge acquisition contribute to the creation of the trust within Chinese manufacturing firms as such phenomenon makes companies transparent and open. Moreover, the authors developed the argument that employees are the custodians of the knowledge that they acquire within the organization and that establishing training and development programs positively influence the corporate trust in Spanish Information Systems and Computer Science Service Firms. Information analysis focuses on understanding the meaning of the acquired knowledge and incorporating it into existing structures of knowledge. The tendency to build trust in an organization is closely tied to the degree of information analysis. Lin, et al. (2021) demonstrated that the productivity of the Chinese high-tech companies was aided through employees' ability to be able to interpret what they were taught effectively, which in turn yielded to the establishment of shared mental models and mutual understanding which consequently builds trust among employees. Similarly, a study conducted by Inthavong, et al. (2023) determined that the interpretations of knowledge brought Information Systems and Computer Science Service Firms trust-building practices to a higher level. This was done by facilitating an open dialogue and knowledge sharing. Secondly, knowledge sharing or the course of action that guarantees the prompt distribution of knowledge across the organization has been revealed to positively influence development of trust in organizations. According to the research by Ouakouak, and Ouedraogo, (2019) involving Canadian organizations, knowledge diffusion activities presented through multiple platforms including transparency, information-sharing, and collaborative learning, developed a trust relationship among members. This is analogous to the result of Lai, et

al. (2022) concluding that knowledge distribution leads to increased trust with Chinese manufacturing companies, through the avenues of idea exchange and inculcating feelings of shared ownership of knowledge. Hence, this study proposed:

**H<sub>2a</sub>:** *Organizational memory statistically and positively affects organizational trust.*

**H<sub>2b</sub>:** *Knowledge acquisition statistically and positively affects organizational trust.*

**H<sub>2c</sub>:** *Knowledge interpretation statistically and positively affects organizational trust.*

**H<sub>2d</sub>:** *Knowledge distribution statistically and positively affects organizational trust.*

Trust theory provides a theoretical lens for understanding the role of organizational trust in fostering an environment conducive to innovation and creativity (Shockley-Zalabak et al., 2000). As observed by Ahmad et al. (2020) in Pakistan, the relation of trust and organizational performance relating to innovation, that is amazingly positive, has already been found true with sharing of knowledge playing the role of the mediator. Conversely, more trust between organizations is seen as the source of products and process innovations of Chinese manufacturing enterprises in the research by Lin, et al. in 2021. Open communication, risk taking, and knowledge exchange could be made possible with this kind of organizational trust. On a higher level, Sen et al. (2023) reported that innovative performance in the radical innovation field of Chinese high-tech firms is positively correlated with organizational trust, which leads to the construction of a safe psychological space in which employees freely work out unique ideas and take risks. However, structurally Martínez-Sánchez et al. (2023) pointed out that Organizational trust in Spanish Information Systems and Computer Science Service Firms as a growth factor through facilitating collaboration and knowledge integration among all departments was incremental innovation associated with. Based on the empirical evidence and the theoretical underpinnings of trust theory, the following hypothesis can be proposed:

**H<sub>3</sub>:** *Organizational trust statistically and positively affects innovation performance.*

Organizational learning theory and trust theory provide complementary perspectives on the interplay between organizational learning, organizational trust, and innovation performance. Empirical studies have explored the mediating role of organizational trust in this relationship, offering insights into the complex dynamics at play. Chen et al. (2023) conducted studies on the Jordanian firms and presented that the organizational trust partially mediated the link between organizational learning techniques (comprising data acquisition, data sharing, and data usage) and innovation performance. Enormous degree of trust appeared to be a very important factor that affected successful application of organizational learning programs that resulted in effective innovation. Also, in a study carried by Kurniawan et al. (2020) organizational trust was revealed as the mediator between KM practices such as knowledge acquisition, dissemination, and application and product and processes innovations by Jordanian Information Systems and Computer Science Service Firms. Discovered vital information which was based on a trusting environment that is important for all the operations such as knowledge sharing, collaboration and innovation. In another survey by AL-Sous, et al. (2023), the role of organizational trust as the mediator of the relationship between organizational learning dimensions (organizational memory, knowledge acquisition, knowledge interpretation, and knowledge distribution) and firm innovation is also being investigated in Jordanian Information Systems and Computer Science Service Firms. The results of their research showed that organizational trust significantly interacted with these relations, reminding us that trust is a propellant of knowledge exploitation for a productive innovation process. In light the fact that the respective hypotheses later verified by empirical evidence and with reference to organizational learning theory and trust theory, the following hypothesis postulated.:

**H<sub>4</sub>:** *Organizational trust mediates the relationship between organizational learning (organizational memory, knowledge acquisition, knowledge interpretation, and knowledge distribution) and innovation performance.*

## 2.2 Theoretical Framework

The research framework for this study is grounded in organizational learning theory and trust theory, providing a comprehensive perspective on the interplay between organizational learning, organizational trust, and innovation performance in Information Systems and Computer Science Service Firms in Jordan. According to the organizational learning theory on knowledge (Crossan et al., 1999; Argote & Miron-Spektor, 2011), organizational memory, knowledge acquisition, knowledge interpretation and knowledge deployment are the essential elements of organizational learning activity, with positive effects on the innovation performance. Trust theory (e.g., Shockley-Zalabak et al., 2000; Serenko & Bontis, 2016) holds that, trust acts as a catalyst or facilitator for organizational learning and innovation by enhancing openness, positive communication, and collaboration through psychological safety which is an environment characterized by feels like trust in others. Proposed research design considers the links between organizational learning's dimensions (organizational memory, knowledge acquisition, knowledge transformation e.g., knowledge distribution, and knowledge utilization) and innovation performances. Such a relationship is regarded to be modulated by organizational trust. The theory of trust building within organizations relies heavily on the fact that such theory successfully incorporates other theories so as to result in a holistic comprehension of how this trust can influence the transformation of organizational learning initiatives into a concrete innovation product for Information Systems and Computer Science Service Firms in Jordan.

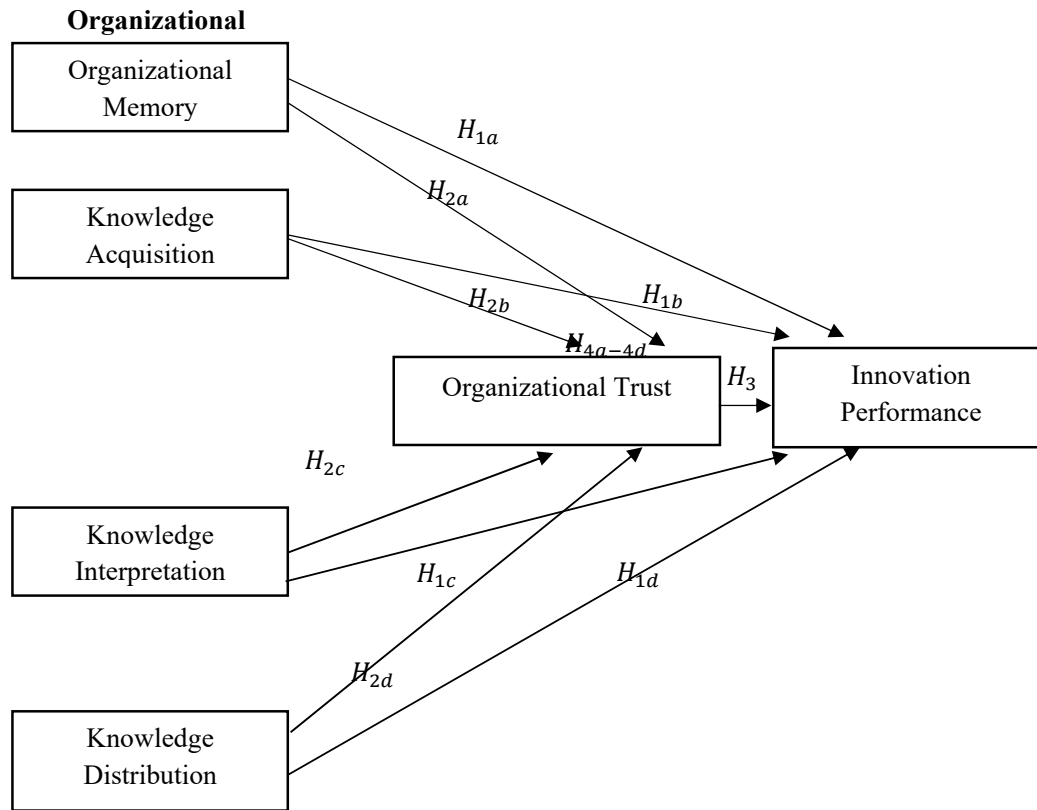


Fig. 1. Framework

### 3. Methodology

This study employs a quantitative research design using a cross-sectional survey approach. Cross-sectional surveys are suitable for examining relationships between variables at a specific point in time (Mackey & Bryfonski, 2018), making them appropriate for investigating the mediating role of organizational trust in the relationship between organizational learning and innovation performance. This research aimed to investigate the Jordanian companies that provide the service. In accordance with the 2023 Statistics of the Jordanian Department of Statistics, Information Systems and Computer Science Service Firms which cover mainly finance, tourism, health care and professional services were around 5,200 organisations registered in such fields. The quantity of samples to recruit was dependent on the recommendation of Hair et al. (2019) that stated a sample size should have a minimum number of 10 times the maximum of various arrows that are pointing towards a construct in the structural model. Accordingly, our study sample will be 390 employees (managers, supervisors and staff directly involved in these areas of Information Systems and Computer Science Service Firms) in Jordan. Nevertheless, in order to allow for a non-response bias and sufficient statistical power, the sample size increased by 20%. Hence this research has the target sample size of 468 employees (seniors, division heads and employees who directly take part in the change process) of companies working in the Information Systems and Computer Science Service sector in Jordan. The sample was provided through stratified random sampling. Such technique was applied by us to ensure that various sectors were adequately included and that the firms were of different sizes. The division of jobs within Information Systems and Computer Science Service Firms strictly adhered to sectors (financial, tourist, medical, professional services). In turn, a random sample of employees were picked up in each stratum proportional to its size (Mackey, & Bryfonski, 2018). The study relied on the use of validated and modified measurement scales, drawn from other studies, with which the research variables were measured. The Organizational Learning scale developed by Jerez-Gómez et al. (2005) and adapted by AL-Sous, et al. (2023) was used to measure organizational memory (OM), knowledge acquisition (KA), knowledge interpretation (KI), and knowledge distribution (KD). Organizational Trust (OT) scale developed by Cummings and Bromiley (1996) and adapted by Chen et al. (2023) was used to measure organizational trust. Innovation Performance (IP) scale developed by Calantone et al. (2002) and adapted by Kurniawan, et al. (2020) was used to measure innovation performance. In order to work with the local context of Jordan, the items were modified and the questionnaire was reworded to fit the genre of Information Systems and Computer Science Service Firms. Data was collected from the managers, directors and employees of the target companies, using the self-administered questionnaire distributed to the key informants. Key informants were representatives with knowledge and experience in areas of organizational learning, innovation, as well as the trustworthiness, which include for example senior managers, department heads or those ones who have been directly

engaging in these functions. The data collection from January 2024 to February 2024 does the span. The time is sufficient for carrying out many follow-ups, distribution, and collection responses. The analyzed data was performed by PLS-SEM algorithms which are well known for incomparable applications on studying complex relationships between constructs and testing mediating effects (Hair et al., 2019). The PLS-SEM approach seems to be highly relevant when the research object has multiple variables with distinct interaction as is the case with this study. The analysis proceeds in two stages: (1) assessment of the measurement model used to investigate the reliability and validity of the measurement constructs, and (2) assessment of the structural model to study the hypothesized relationships and indirect effects, in which case (Hair et al., 2019). By the process laid down, the findings were verified for robustness and credibility using the already defined parameters and criteria of PLS-SEM analysis.

#### 4. Results

Table 1 presents the factor loadings of the measurement items for each construct in the study. The factor loadings represent the correlations between the items and their respective constructs. According to Hair et al. (2019), factor loadings should be higher than 0.708 for the occupied items and 0.7 for newly developed ones in the effort to increase convergent validity. Table 1 demonstrates that all item factor loadings ranged from 0.734 to 0.896 thus reaching the set limit of 0.7. This implies that it is strongly related to its own constructs, showing in the correlation with both dimensions which demonstrates the aspect of convergent validity (Dewasiri, et al., 2018; Hair et al., 2019). The most considerable factor loading is estimated for the KA4 item (0.891), which relates to knowledge acquisition, but the least loads are obtained for the IP6 item (0.734), which refers to the innovation performance.

**Table 1**  
Measurement Model

Items	IP	KA	KD	KI	OM	OT
IP1	0.754					
IP2	0.861					
IP3	0.844					
IP4	0.741					
IP5	0.759					
IP6	0.734					
IP7	0.762					
IP8	0.794					
KA1		0.811				
KA2		0.872				
KA3		0.866				
KA4		0.891				
KA5		0.832				
KA6		0.896				
KD1			0.773			
KD2			0.851			
KD3			0.807			
KD4			0.800			
KD5			0.779			
KD6			0.799			
KI1				0.770		
KI2				0.736		
KI3				0.752		
KI4				0.759		
KI5				0.784		
KI6				0.791		
KI7				0.776		
OM1					0.762	
OM2					0.801	
OM3					0.854	
OM4					0.841	
OM5					0.827	
OM6					0.771	
OT1						0.829
OT2						0.865
OT3						0.873
OT4						0.823
OT5						0.773
OT6						0.796

Table 2 presents the reliability and validity measures for the constructs in the study. Cronbach's alpha values range from 0.861 to 0.895 which is higher than 0.7 standard (Hair et al., 2019) which is the recommended level for acceptable reliability which indicates good internal consistency. Moreover, rho\_a and rho\_c composite reliability indices generated are

ranging from 0.878 to 0.920 and they are all above the presumably 0.7 mark (Hair et al., 2019; Dewasiri, et al., 2018), which indicates construct reliability as well. The range of values of average variance extracted (AVE), considered as the indicator of the variance amount captured by the construct rather than by the measurement error itself, varies from 0.507 to 0.660. While the construct of knowledge interpretation (KI) shows an AVE value between the recommended level of 0.5 and the acceptable level (Hair et al., 2019), the other constructs surpass the latter threshold, thus presenting satisfactorily convergent validity. In essence, the table exhibits good reliability and validity through these measurement scales; it gives a sturdy claim which can speed up the process of hypothesis testing and the further analysis.

**Table 2**  
Reliability and Validity

Constructs	Cronbach's alpha	Composite reliability (rho_a)	Composite reliability (rho_c)	Average variance extracted (AVE)
IP	0.885	0.893	0.909	0.559
KA	0.884	0.879	0.915	0.650
KD	0.862	0.859	0.898	0.596
KI	0.861	0.887	0.878	0.507
OM	0.883	0.886	0.911	0.632
OT	0.895	0.903	0.920	0.660

Table 3 presents the Heterotrait-Monotrait Ratio (HTMT) values for assessing discriminant validity among the constructs in the study. Going by Hair et al. (2019), discriminant validity can be achieved if HTMT values are not greater than 0.85. This data indicates that all the HTMT values of variables are below the upper recommended threshold of 0.85, which is observed to range from 0.622 which is between knowledge interpretation (KI) and organizational trust (OT) to 0.802 which is between innovation performance (IP) and knowledge acquisition (KA). This cannot but suggest that the constructs are exclusive and measured differently which attest to the discriminant validity of the scales (Abutabenjeh, & Jaradat, 2018). The value of HTMT ratio, which accounts between 0.802 where IP (Innovation Performance) and KA (Knowledge Acquisition) constructs are concerned, is high perhaps due to the fact that one construct likely affects another i.e., knowledge acquisition is likely to influence innovation performance. In contrast, the value of the construct is beneath that threshold; therefore, the constructs set apart and measured with different aspects of the theoretical model.

**Table 3**  
Heterotrait-Monotrait Ratio Discriminant Validity

	IP	KA	KD	KI	OM	OT
IP						
KA	0.802					
KD	0.759	0.656				
KI	0.679	0.679	0.767			
OM	0.800	0.793	0.731	0.652		
OT	0.686	0.696	0.747	0.622	0.673	

Table 4 presents the results of the common method bias analysis using Harman's single-factor test. This test reveals whether one factor, which is likely the main reason for the variation in the results, is responsible for a considerably high percentage of the whole variance, which would tell about the existence of common method bias (Wingate et al., 2018). The table is for the initial eigenvalues, leave-one-out cross-validation sum of squared loadings and the rotation of sum of squared loadings for the unrotated factor solution. The first factor, however, makes up only a relatively small proportion of the overall variance accounting for 49.383% of total variation which is below the designated benchmark of 50% (Hair et al. 2019). Moreover, this pattern eliminates the fear that the common method bias is one of the important reasons to sustain the effects of the study. On the other hand, other two factors as well as the last one together would make up 63.364% of the total variability which is the outcome of the interaction of the first six factors that are defined through PCA.

**Table 4**  
Common Method Bias Results

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	16.790	49.383	49.383	16.790	49.383	49.383	9.841	28.944	28.944
2	3.103	9.126	58.509	3.103	9.126	58.509	5.215	15.339	44.283
3	1.413	4.155	62.664	1.413	4.155	62.664	3.265	9.602	53.885
4	1.142	3.360	66.023	1.142	3.360	66.023	2.604	7.659	61.545
5	.933	2.745	68.768	.933	2.745	68.768	2.004	5.895	67.440
6	.769	2.262	71.030	.769	2.262	71.030	1.221	3.590	71.030

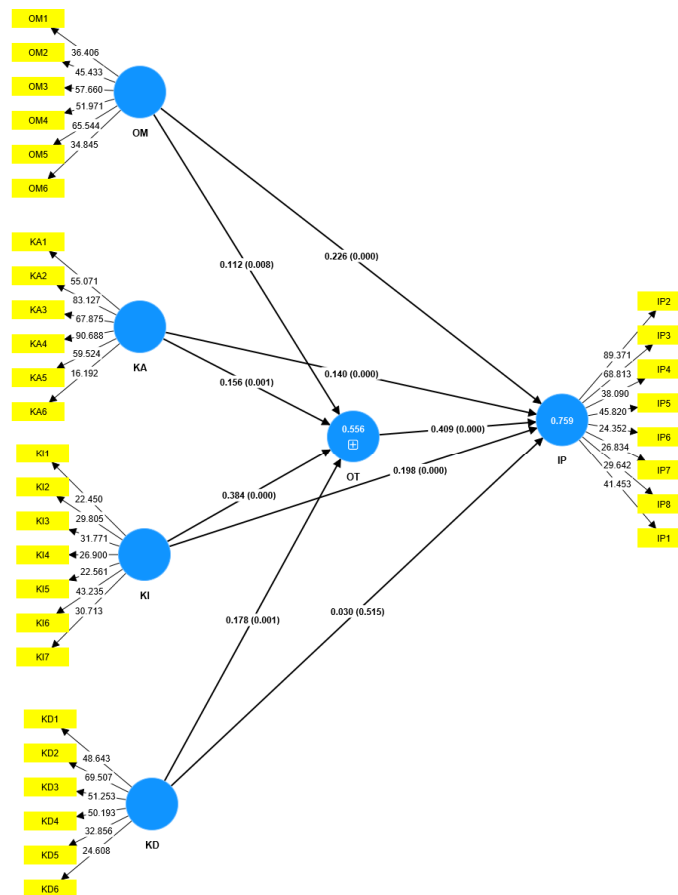
Table 5 and Fig. 2 present the results of the structural model analysis, including the path coefficients, their significance levels, and the mediation analysis. These results reveal the relationships between organizational learning constructs (organizational memory (OM), knowledge acquisition (KA), knowledge interpretation (KI), and knowledge distribution (KD)), organizational trust (OT), and innovation performance (IP). The direct effects show that OM ( $\beta = 0.226$ ,  $p < 0.001$ ),



KA ( $\beta = 0.14, p < 0.001$ ), and KI ( $\beta = 0.198, p < 0.001$ ) have significant positive effects on IP, while the effect of KD ( $\beta = 0.03, p = 0.515$ ) on IP is not significant. These findings indicate that organizational memory, explicit knowledge acquisition, and knowledge interpretation are imperative antecedents of innovation performance, excluding knowledge diffusion which was not significant in this research (Hair et al., 2019). Furthermore, OM ( $\beta = 0.112, p = 0.008$ ), KA ( $\beta = 0.156, p = 0.001$ ), KI ( $\beta = 0.384, p < 0.001$ ), and KD ( $\beta = 0.178, p = 0.001$ ) all have significant positive effects on OT, indicating that these organizational learning constructs contribute to building organizational trust. Slightly more notably, and as predicted by H4, OT has a substantial positive effect on IP ( $\beta = 0.409, p < 0.001$ ), therefore, supporting the hypothesis pertaining to the importance of organizational trust in the overall performance of innovative output. The mediation analysis reveals that OT significantly mediates the relationships between OM ( $\beta = 0.046, p = 0.007$ ), KA ( $\beta = 0.064, p = 0.002$ ), KI ( $\beta = 0.157, p < 0.001$ ), and KD ( $\beta = 0.073, p = 0.001$ ) and IP. These findings imply that organizational trust offers a moderating influence on the link between organizational learning constructs and innovation performance (Hair et al., 2019).

**Table 5**  
Path Coefficient Results

Path Analysis	Beta	STDEV	T statistics	P-values	Decision
OM → IP	0.226	0.034	6.710	0.000	Supported
KA → IP	0.14	0.038	3.708	0.000	Supported
KI → IP	0.198	0.029	6.905	0.000	Supported
KD → IP	0.03	0.047	0.652	0.515	Not Supported
OM → OT	0.112	0.042	2.655	0.008	Supported
KA → OT	0.156	0.049	3.194	0.001	Supported
KI → OT	0.384	0.033	11.58	0.000	Supported
KD → OT	0.178	0.053	3.358	0.001	Supported
OT → IP	0.409	0.029	13.975	0.000	Supported
Indirect Effect: Mediation Results					
OM → OT → IP	0.046	0.017	2.709	0.007	Supported
KA → OT → IP	0.064	0.02	3.145	0.002	Supported
KI → OT → IP	0.157	0.02	7.784	0.000	Supported
KD → OT → IP	0.073	0.022	3.262	0.001	Supported



**Fig. 2.** Graphical Results

## 5. Discussion

Organizational learning theory suggests that organizations can acquire, interpret, and distribute knowledge to enhance their performance and adaptability (Argote & Argote, 2013). The direct effects observed in Table 5 align with this theory, as organizational memory, knowledge acquisition, and knowledge interpretation positively influence innovation performance. Organizational learning systems output the effective organization of the knowledge, which holds for following the implementation of novelty and creativity (Lai, et al., 2022). Organization memory which refers to the store and retrieval of knowledge within an organization becomes highly pivotal in innovation by providing the support structure to get new ideas from the existing knowledge and experiences (Adel Odeh, et al., 2021). Knowledge-acquisition process is represented in gaining new knowledge from the outer sources, which enlarge the organization's knowledge-base and represent fresh outlooks, which allows innovatively resolved tasks (Argote & Argote, 2013). Knowing application is necessary so that knowledge acquired can be altered to fit with the existing knowledge first and then create creativity that leads to innovation (Héraud, 2021). On the other hand, the result regarding the insignificant direct effect of knowledge dissemination on innovation performance suggests that giving colleagues the only knowledge that organization possesses might not facilitate inventions (Schillebeeckx et al., 2021). Rather, the reality might be the proper intervention and use of knowledge where the trust of an organization acts as a vehicle for turning knowledge into innovative products. The Trust Theory postulates that trust is a critical element of organizational relationships, and essentially, serves as the glue that binds cooperation, knowledge sharing, and organizational effectiveness (Fulmer & Gelfand, 2012). This study's findings show this theory as true because they systematize the impact of organizational trust to innovation performance and it's the mediation role between organizational learning constructs and innovation performance. Within the framework of organizational trust, there is a space for people to experiment with their ideas, learn from each other, and to take a chance is not afraid to do so. Trust eliminates the concern of exploitative behavior or opportunistic acts between the partners which enhances communication, thereby nurtures collaboration, and that is essential to innovation. Consequently, if trust exists people become more open to shaping and combining various perspectives that contribute to finding new solutions (Chen, et al., 2021). The studies show the mediation effects listed in Table 5, and trust plays a role in the organizational trust environment, thereby fostering the enactment of organizational learning processes leading to innovation performance (Argote, 2013). Trust in an organization provides the basis for its relations through the dissemination, acquisition, translation, and the application of knowledge in an environment that welcomes innovation (Fulmer & Gelfand, 2012). In addition to this finding, the results prove that organizational learning components provide sustenance to the state of organizational trust within the organization. In addition to just learning, organizations become effective at knowledge acquisition, analysis, interpretation, and distribution, which adds to transparency and is another way to gain the trust of employees (Masood et al., 2023). The features of strong organizational memory and knowledge base management become the signals that communication in the organization is steady and efficient, leading to building a brand that people trust (Lahiri, et al., 2021). After presenting the organizational learning theory and trust in Table 5, we conclude that their integration is a decisive factor of the existing relations in Table 5. It is the organizational learning processes that set-in motion knowledge creation and interpretation, while the development of organizational trust fosters the sheer utilization and implementations of this knowledge (Argote, 2013; Fulmer & Gelfand, 2012). This dialectic underscores that psychological safety is an indispensable element of the organizational climate that can facilitate both learning and trust to empower innovation efficacy.

## 6. Conclusion and Recommendations

The primary objective of this study was to examine the mediating role of organizational trust in the relationship between organizational learning (organizational memory, knowledge acquisition, knowledge interpretation, and knowledge distribution) and innovation performance within Information Systems and Computer Science Service Firms in Jordan. The outcomes provide informative lessons on how the different concepts work together and influence the innovation venture. It seems to be very clear that organizational memory, knowledge acquiring and knowledge interpretation are the ones who have perfect effects on a firm's innovation. These organizational knowledge systems design, organize, and finally use the existing knowledge in such a way that it becomes the source for original ideas and innovation. However, knowledge distribution alone does not impact directly on the innovation performance, meaning that the transmission and distribution of knowledge by themselves is probably not the key, not solely what matters; what really matters is the effective usage and application of this knowledge for turning it into the innovative outcomes. Interestingly, it is being shown that it is high trust within an organization that drives its new business success. It plays this role of a mediator which enables the marrying exercise of organizational learning processes on the other hand to innovation enhancement. Trust can become a defining characteristic of a company and make individuals feel comfortable to pursue more radical solutions, try innovative techniques, and interact among themselves with an informed attitude. Such an environment builds a solid basis for joint efforts, exchange of knowledge, and hiring of the same approaches to tapping different views, which, consequently, results in new approaches. Additionally, the outcomes state that mental constructs of organizational learning such as organizational memory, knowledge acquisition, knowledge interpretation, and knowledge distribution impact the credible trust for building. With its own brand of learning which understands and prioritizes the employee, it inadvertently creates a situation that is conducive to the growth and fostering of employees themselves. Implementation of quality knowledge management techniques conveys the power to reliable information and knowledge, building trust among the organization. Thus, studying

the role of organizational learning and organizational trust in improving innovation in the Information Systems and Computer Science Service sector in Jordan emphasizing the necessity of the two. The organization's learning processes must provide groundwork for knowledge generation and transmission, whereas trust within the organization acts as a catalyst in exploiting and utilizing this knowledge for innovation. Through the establishment of a culture of continuous learning and through an atmosphere of trust among workers, firms are better equipped to unlock their Information Systems and Computer Science Service industry potential and might just be able to maintain a competitive edge in global Information Systems and Computer Science Service Firms industry markets. The study's outcome provides relevant meanings for managers of Information Systems and Computer Science Service Firms to develop integral innovation abilities. Being able to know how organizational learning and the development of organizational learning & knowledge sharing are affected by level of trust and cross-departmental innovation can prepare a basis for the strategy to develop organizational learning processes and cultivate an environment of trust. Placing emphasis on knowledge acquisition, interpretation, organizational memory concern, and trust-building practices such as transparent communication and co-decision-making can increase the employees ability to collaborate effectively and hence, make innovation possible. The research thereby supplements current thinking by furthering integration of organizational learning theory and trust theory, and universalizing these concepts through establishing empirical predictions. It provides empirical evidence from the Jordanian service organizations that extend the applicability. Create an example. The given sentence can be humanized by the following: It confirms, in fact, the results of the study by using data based on Jordanian Information Systems and Computer Science Service Firms that raises researchers' confidence in finding a correlation between pricing and the costliness of the service. Through organizational learning and trust elements a positive societal impact can be achieved, which in turn can lead to economic growth, problem solving and a good surrounding. Though of importance, the research has limitations; namely, use of cross-sectional design, limited coverage of Jordan in the Information Systems and Computer Science Service sector, and use of data self-reported by respondents. Future studies might target the long-term ones, look into different industries and cultures, utilize more data sources, and analyse the variables which might mediate or moderate the mechanisms behind the relationships, among others.

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