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Digital leadership, it support, and organizational learning capability: The mediating role of knowledge sharing

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ABSTRACT

The accelerating pace of digital transformation and globalization has placed significant pressure on organizational innovation sustainably. This study investigates the extent to which Digital Leadership (DL), IT Support (ITS), and Knowledge Sharing (KS) contribute to the development of Organizational Learning Capability (OLC). The research was conducted in South Korea's Daegu Industrial Area, with a focus on the automobile industry. The survey consisted of a total of 355 respondents, providing insights into their perceptions of IT support, digital leadership, and knowledge-sharing practices within their organizations. The study employed partial least squares structural equation modeling (PLS-SEM) to analyze research data. Grounded in the Resource-Based View (RBV) theory, the study found that both DL and ITS substantially and positively influence KS, which in turn substantially influences OLC. Moreover, the analysis revealed that KS fully mediates the relationships between DL and OLC, as well as between ITS and OLC. These findings emphasize the central role of KS in boosting sustainable OLC. The findings provide meaningful understanding for managers seeking to align KS initiatives with their organizations' strategic objectives. By simultaneously examining the interrelationships among DL, ITS, KS, and OLC, this study extends prior empirical research and provides actionable recommendations for strengthening sustainable OLC in digitally advanced business settings. The study provides useful insights to foster OLC by replacing old and obsolete learning methods to remain sustainably competitive in terms of innovation and creativity. However, the digital work environment of South Korea may limit the applicability of the findings to other work environments.

Contribution/Originality: The study contributes to enhancing organizational learning capability in a digital work environment to achieve sustainability in operations. The originality of the study is that it provides empirical evidence that KS fully mediates the relationship between DL and OLC; and ITS and OLC to achieve sustainable competitiveness.

1. INTRODUCTION

Organizational learning capability (OLC) has long been considered a key success factor for organizations, compelling them to consistently introduce premium-quality products and services to ensure sustainable growth and long-term success (Curado, Muñoz-Pascual, & Galende, 2018) despite digitalization and globalization. Digital leadership (DL) has emerged as a critical element in driving classroom learning to professional learning (Ghamrawi

& Tamim, 2023) sustainably, exerting increased pressure on companies across the globe (Carbonara & Basile, 2025). DL is instrumental in improving sustainable organizational performance (Jinkyo, Mollah, & Choi, 2023), especially in environments that are complex, rapidly evolving, and interconnected, where uncertainty is prevalent, DL must provide employees with proper training to build the necessary skills and expertise (Eberl & Drews, 2021). This development is achieved through KS processes, which involve distributing knowledge among individuals or teams within the organization (Gui, Lei, & Le, 2024). Information Technology supports learning by enabling the business organization to acquire, organize, store, access, and disseminate knowledge from various sources. By successfully deploying ITS to strengthen their IT capabilities, companies can secure a competitive advantage (Halim, Mustika, Sari, Anugerah, & Mohd-Sanusi, 2017). Effective ITS facilitates both internal and external knowledge sharing and fosters a dynamic capability for OLC. Elkjaer (2021) argued that digital environments present unique challenges for learning and that algorithms and digital tools will continue to shape online education in ways that promote sustainability.

To effectively steer digital transformation efforts, leaders need a broad range of digital competencies that enable them to collaborate in virtual settings, take initiative, respond swiftly to new developments, and handle complex challenges under time constraints. DL plays a pivotal role in fostering KS and strengthening OLC. Many have already adopted advanced digital tools and are successfully managing transitions in technology (Arar, Saiti, & Guajardo, 2022). However, despite the depth and breadth of digital leadership in performance (Jinkyo et al., 2023), higher education (Ghamrawi & Tamim, 2023) business transformation (De Araujo, Priadana, Paramarta, & Sunarsi, 2021), there has been limited research carried out on how leadership and information technology function as key enablers in managing KS to support the development of OLC. This underscores the necessity of conducting more comprehensive and integrated studies to understand the relationship among DL, ITS, and KS as core factors shaping OLC, especially in the automobile industry context of South Korea. This study seeks to bridge that gap in the literature. Furthermore, as digital connectivity continues to evolve, existing models of organizational learning have become increasingly obsolete, highlighting the need for sustainable learning frameworks that reflect the realities of a digital world (Elkjaer, 2021). In the present study, organizational learning capability has emerged as a critical outcome variable, prompting the questions: a) How will DL and ITS influence and reshape OLC in the organization? b) How do KS practices affect OLC? c) How do KS affect their interactions?

South Korea ranks as the fourth-largest exporter of motor vehicle products globally and holds the seventh spot in worldwide automobile production. The automotive industry is the nation's most significant manufacturing sector, generating an estimated output value of 296.5 trillion South Korean won. This sector is a cornerstone of South Korea's economy, accounting for approximately 13% of total employment and 17% of the country's manufacturing output. It also contributes around 9% to the national GDP and potentially up to 18% of all manufacturing-related jobs. Furthermore, with nearly 65% of automobile production designated for export, the industry remains highly sensitive to fluctuations in international trade dynamics (Yoon, 2025). This study investigates the connections among DL, ITS, KS, and OLC within the context of Daegu's automobile sector in South Korea.

The conceptual framework of the study is formulated using RBV aimed at contributing to the current literature by offering practical insights for industry leaders on effectively managing knowledge and digital capabilities within a digitalized environment with a view to achieving sustainable OLC. To the best of my knowledge, it is one of the first studies to explore the relationship between DL and ITS on OLC, via KS acting as a mediating variable in South Korea's dynamic workplace context.

This study is organized into seven sections: the first section presents the introduction; the second section outlines the literature review; the third section underpins the theoretical foundation and hypothesis development; the fourth section underpins the research methodology; the fifth presents analysis and findings; the sixth provides discussions; and the final section offers the conclusion, implications, limitations, and recommendations of the study.

2. LITERATURE REVIEW

Organizational learning capability (OLC) is increasing globally and is forming part of new reform initiatives (Elkjaer, 2021) to encounter both internal and external challenges (Cortellazzo, Bruni, & Zampieri, 2019) for preserving the nature on which they are originated in the digital age to evolve at the same rate of changes influencing environments and business (Ghamrawi & Tamim, 2023). To achieve operational excellence and maintain a sustainable competitive edge, firms must focus on several strategic priorities, including speed, quality, cost efficiency, innovation, and customer responsiveness. Within the realm of strategic management, businesses must manage numerous changes while striving to grow, remain sustainable, and position themselves effectively in competitive markets (Halim et al., 2017). Organizational change is commonly assessed through. A digital leader seeks digital transformation of his/her organization by supporting the organization to respond to dynamic technology changes effectively, aiming for sustainable innovative solutions to remain competitive in the best interests of their employees and organization (Ghamrawi & Tamim, 2023). However, these metrics are distinct and interrelated in complex ways, often influenced by the specific industry context (Migdadi, 2021). Knowledge sharing is strongly associated with OLC, as many organizational improvements stem from collaborative knowledge exchanges between firms (Curado et al., 2018; Gui et al., 2024). Organizational learning is now widely acknowledged as a strategic asset essential for achieving and sustaining competitive advantage. Consequently, OLC has emerged as a central theme in contemporary management research (Migdadi, 2021).

Information technology support (ITS) has become increasingly vital for gaining strategic advantage and supporting organizational operations, making information systems personnel critical to business success, particularly in the shift toward digitalization. Digital technology and leadership foster global citizenship, facilitate collaboration, support communication, promote self-efficacy, and social networking (Ghamrawi & Tamim, 2023) across departments, which improves the swift collection, storage, and dissemination of knowledge (Kumar, Mamgain, Pasumarti, & Singh, 2024). Research has highlighted the importance of "lifelong" (Eberl & Drews, 2021) and "continuous" (De Araujo et al., 2021) learning in knowledge creation. Leaders play a key role in fostering this environment by providing opportunities for skill development necessary for thriving in a digital future (Ante, Fischer, & Strehle, 2022). When effectively implemented, leadership-driven knowledge sharing (KS) strategies can significantly enhance an organization's core competencies (Mokhchy et al., 2025). Leaders in knowledge-intensive organizations face the challenge of fostering collaboration while also developing personal attributes such as emotional intelligence, initiative, integrity, courage, and resilience (Arar et al., 2022). Leadership studies are closely connected to the RBV, which explores how resources, including leadership capabilities, contribute to organizational performance (Carbonara & Basile, 2025).

KS is instrumental in helping organizations achieve positive outcomes by facilitating the co-creation of knowledge, thereby improving problem-solving and decision-making capabilities. ITS and KS act as precursors to OLC, which is a driver of innovation (Curado et al., 2018). Merely having access to knowledge is not sufficient; organizations must also ensure effective retention and sharing to manage knowledge efficiently and convert it into intellectual capital that enhances productivity. The RBV offers a robust framework to understand the interconnected roles of DL, ITS, and KS to boost sustainable organizational learning. This theory supports the view that DL and KS, as intangible resources, can generate unique capabilities that improve performance by leveraging knowledge assets when implemented effectively across multiple organizational levels (Camisón & Villar-López, 2014).

While previous research has investigated the factors influencing OLC in both developed and developing economies, there is limited empirical evidence focusing specifically on South Korea's automotive sector. To date, to the best of my knowledge, no studies have examined the effect of these elements on OLC within this highly digitalized industry, particularly through the theory of RBT extended by the DL construct. Most existing research has concentrated on competitive advantage in general, paying insufficient attention to the direct influence of DL and the

strategic role of OLC as a source of advantage within the RBT framework. Furthermore, there is a notable knowledge gap regarding the determinants of OLC in digital-intensive environments like South Korea's automobile industry.

3. THEORETICAL FOUNDATION

The Resource-Based Theory (RBT) of the firm, also known as the Resource-Based View (RBV) (Barney, 1991), emphasizes that resources and capabilities which are effectively organized, rare, inimitable, valuable, and non-substitutable facilitate the achievement of sustainable competitive advantage Barney and Clark (2007). Among these capabilities, organizational learning stands out as a strategic asset, based on the assumption that firms possess unique resource combinations that are unevenly distributed and remain relatively stable over time. According to Camisón and Villar-López (2014), RBV involves the effective use and reconfiguration of such resources to boost productivity and sustainable competitive advantage. Resources and core competencies that possess distinctiveness enhance a firm's competitiveness and drive operational excellence. The uniqueness of strategic capabilities, particularly their rarity, value, and inimitability, empowers firms to restructure and allocate resources efficiently, thereby advancing digital competencies and KS, which in turn contributes to improved OLC.

Organizational success is increasingly tied to effective leadership behaviors, collaborative work cultures supported by ITS, and transparent KS practices, which play a vital role in boosting overall competitiveness (Mokhchy et al., 2025). RBT emphasizes the strategic value of intangible assets such as learning and knowledge, which often yield greater returns than acquiring resources externally. Knowledge-based assets and dynamic capabilities are considered core components of a firm's strategic infrastructure, enabling the creation, integration, and dissemination of knowledge to deliver enhanced value. Competitive advantage today depends less on tangible or financial assets and more on leveraging intangible resources such as organizational learning capability (OLC). The conceptual framework proposed in this study, grounded in RBV, illustrates how DL and ITS foster cohesive knowledge-sharing mechanisms, thereby enhancing OLC. Based on this theoretical foundation, the following research model is proposed; Figure 1 illustrates the relationship among the variables of the study, including the indirect effect (mediating effect) with dotted lines. The detailed process of hypotheses development is explained in the following sub-sections.

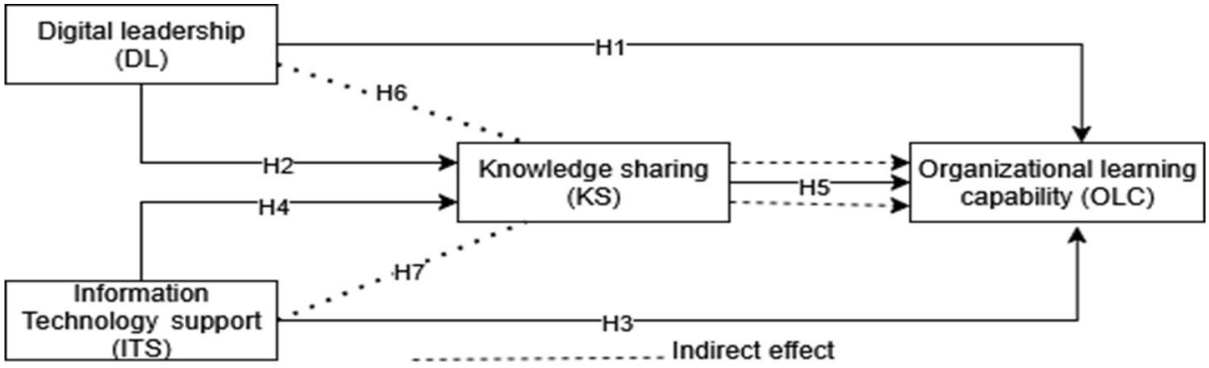

Figure 1. Conceptual research model.

3.1. Hypothesis Development

3.1.1. Digital Leadership (DL)

Digital leadership (DL) is a socially oriented process that shapes individuals, teams, and entire organizations by influencing their emotions, cognitive patterns, attitudes, behaviors, and overall performance, supported by digital technologies that (Fatima & Masood, 2024). In this study, DL is the ability of a leader to use digital technologies to enhance organizational learning capability (OLC) and knowledge sharing (KS) among both internal and external stakeholders. The concept of DL has developed in response to new leadership challenges originating from digitalization and the broader digital business transformation (De Araujo et al., 2021). Digital leaders are vital in promoting a culture of KS and continuous learning by making use of remote work arrangements with advanced digital

communication and collaboration tools (Kazim, 2021). A digital leader proactively aligns the organization to adapt to changes arising from digital transformation (Eberl & Drews, 2021), integrates digital platforms, tools, and techniques to foster innovation, collaboration, and ongoing learning (Cortellazzo et al., 2019) for sustainability.

Previous studies indicate that leader support and influence play a significant role in shaping employees' interest and motivation to share knowledge (Liu, Li, Shi, & Liu, 2017). Accordingly, it is the role of digital leaders to leverage digital tools effectively to facilitate knowledge sharing (Cortellazzo et al., 2019). Fatima and Masood (2024) highlighted that digital leaders contribute to enhancing knowledge sharing as a pathway to open innovation. Grounded on the reviewed literature, the study proposes the following hypotheses:

H_1: DL has a positive and substantial effect on OLC.

H_2: Strong DL positively and significantly affects KS.

3.1.2. Information Technology Support (ITS)

Information technology support (ITS) refers to the extent to which the use of IT enhances an organization's knowledge management processes (Kumar et al., 2024). ITS is widely recognized as a critical determinant of organizational learning and serves as a vital facilitator for knowledge generation and dissemination (Ghamrawi & Tamim, 2023). Within the framework of the study, ITS is the degree to which IT strengthens employees' organizational learning capability (OLC), enabling them to create knowledge, acquire essential skills, and ultimately foster innovation for sustainability. IT is particularly crucial in knowledge-intensive automobile industries, where adequate systems can significantly enhance the development of OLC (Curado et al., 2018). Evidence suggests that when individual learning is supported by personal and collaborative digital tools, it can positively and substantially affect professional learning (Ghamrawi & Tamim, 2023). Moreover, ITS facilitates effective and efficient KS by boosting a firm's capability to acquire, share, and apply knowledge, all of which are vital to fostering innovation in services and achieving strong performance outcomes (Akhavan, Hosseini, Abbasi, & Manteghi, 2015; Kumar et al., 2024). Drawing from this theoretical underpinning, the study proposes:

H_3: ITS has a positive impact on OLC.

H_4: ITS positively and significantly influences KS.

3.1.3. Knowledge Sharing (KS)

Knowledge sharing (KS) is the ability of a firm to use and apply essential business information from partners to identify emerging market opportunities (Curado et al., 2018). Within this study, KS is the process of gathering relevant market information and exchanging knowledge with stakeholders of the organization to achieve strategic objectives. KS behavior reflects individuals' ability, attitudes, and readiness to share their expertise, skills, and information with co-workers (Akhavan et al., 2015). KS plays a crucial role in enhancing learning capability and fostering employee creativity within organizations for sustainability. Yang, Nguyen, and Le (2018) argued that KS plays a crucial role in fostering an organization's ability to manage its knowledge resources and facilitates stakeholders in performing their organizational goals more efficiently. KS enhances organizational efficiency and strengthens the competitive advantage of a firm (Azeem, Ahmed, Haider, & Sajjad, 2021). Curado et al. (2018) highlighting the positive impact of KS on OLC to expand product innovation performance, as KS has the potential to drive organizational learning capability. Therefore, incorporating the conceptual arguments discussed above leads to the following hypothesis:

H5: Knowledge sharing positively affects OLC.

3.1.4. Knowledge Sharing as Mediators

Knowledge sharing (Akhavan et al., 2015) is a method of distributing relevant and appropriate information among employees within organizations. The KBV considers knowledge sharing as a resource for the exchange of

intellectual capital among organizations (Liu et al., 2017) and facilitates the creation of a competitive advantage (Azeem et al., 2021). According to Kumar et al. (2024), the flow of information across the organization influences the innovative behavior of mid-level managers. Researchers have found a positive impact of KS on obtaining new mechanisms, information, and OLC (Curado et al., 2018; Fatima & Masood, 2024; Kumar et al., 2024). Moreover, KS fosters information exchange, social satisfaction, and dependence among firms and promotes innovation capability in a collaborative culture (Yang et al., 2018). However, researchers Azeem et al. (2021) and Yang et al. (2018) found a mediated effect of KS in extending competitive advantage. Accordingly, the hypothesis is as follows.

H_6: Knowledge sharing serves as a mediator in the relationship between ITS and OLC.

H_7: Knowledge sharing acts as a mediator in the relationship between DL and OLC.

4. RESEARCH METHODOLOGY

4.1. Data Collection

This study investigates the relationships among DL, ITS, KS, and OLC. A quantitative research approach was employed, as it is generally regarded as more reliable and objective than qualitative methods for studies of this nature. To gather primary data, a structured questionnaire was presented in both Korean and English to obtain meaningful responses. After completing data collection, only the English language was used to analyze data and present the findings.

In line with guidelines from Sekaran and Bougie (2016), who recommend sample sizes between 30 and 500 for most behavioral studies, a simple random sampling method was applied to gather data using a structured questionnaire. The data collection process took place between December 2024 and February 2025. To encourage participation and ensure contextual understanding, the researcher made direct visits to the offices of various automobile companies to personally distribute the questionnaires. Prior to distribution, company management was briefed on the study's aims and its broader significance to secure their cooperation.

4.2. Measurement

The survey employed a multi-item approach, utilizing a 5-point Likert scale to measure all variables, where "1" represented "strongly disagree" and "5" indicated "strongly agree." All items used to operationalize the constructs were adapted from previously validated studies (see Appendix A). Specifically, ITS was measured using four items from Venkatesh, Morris, Davis, and Davis (2003) and Venkatesh et al. (2018), while a four-item scale for DL was adopted from Jinkyo et al. (2023). KS was assessed through four items from Azeem et al. (2021) and Venkatesh et al. (2018). OLC was evaluated using four items from (Curado et al., 2018).

4.3. Data Analysis

A total of 500 questionnaires were distributed, with several workplace visits conducted to enhance the response rate. Of these, 389 questionnaires were returned, including 91 in hard copy and 298 submitted online via platforms such as Google Forms. After reviewing the submissions, 34 questionnaires were excluded due to incompleteness or improper responses. Consequently, 355 fully completed questionnaires were deemed valid for analysis, resulting in a final response rate of 71.0%. For data analysis, IBM SPSS version 23 was utilized to process demographic information. To evaluate the research model, both the measurement and structural models were examined using Smart PLS version 4.1.1. The measurement model was scrutinized to assess the reliability and validity of the constructs, while the structural model was utilized to test the proposed hypotheses. The Partial Least Squares (PLS) algorithm was applied to examine internal consistency, scale reliability, convergent validity, and discriminant validity of the constructs.

Table 1. Demographic Profile of the respondents.

Items	Categories	Frequency	Percentage
Gender	Female	50	14.1
	Male	305	85.9
Age	24-34	221	62.3
	35-44	124	34.9
	45-54	10	2.8
Education	Bachelor	262	73.8
	Masters	92	25.9
	PhD or MPhil	1	.3
Experience (year)	1-5	200	56.3
	6-15	129	35.8
	16-25	28	7.9

Source: Primary data.

5. ANALYSIS AND FINDINGS

5.1. Demographic Profiles

Table 1 shows the demographic information of the respondents. In this study, 14.1% of respondents are female and 85.9% are male, while 62.3% of respondents are below 35 years of age, 34.9% are between 35-44 years of age, and only 2.8% are over 44 years of age. Additionally, 73.8% of respondents have a bachelor's degree and 25.9% have a master's degree. Furthermore, 56.3% of respondents have less than 6 years of experience, 35.8% have between 6-15 years of experience, and only 7.9% have more than 15 years of experience.

5.2. Measurement Model

The measurement model was evaluated to determine the convergent and discriminant validity of the constructs. All factor loadings exceeded the ideal threshold of 0.70, in line with the recommendation by Vinzi, Chin, Henseler, and Wang (2010). The Variance Inflation Factor (VIF) values for all items were below the acceptable limit of 5, as suggested by Hair, Ringle, and Sarstedt (2011), indicating that multicollinearity was not a concern. Reliability was assessed using Cronbach's alpha and composite reliability (CR), with both values exceeding the recommended threshold of 0.70 (Hair et al., 2011), confirming strong internal consistency among the constructs. The Average Variance Extracted (AVE) values also exceeded the acceptable benchmark of 0.50 suggested by Bagozzi and Yi (1988), thereby indicating convergent validity. A summary of VIF values, factor loadings, Cronbach's alpha, AVE, and CR is presented in Table 2 for all constructs included in the study.

Table 2. Measurement model.

Construct	Items	VIF	Loadings	Cronbach's alpha	AVE	CR (rho_a)	CR (rho_c)
Digital leadership (DL)	DL1	1.638	0.802	0.790	0.614	0.794	0.864
	DL2	1.450	0.754				
	DL3	1.935	0.839				
	DL4	1.589	0.735				
Information technology support (ITS)	ITS1	1.556	0.769	0.770	0.592	0.773	0.853
	ITS2	1.601	0.797				
	ITS3	1.492	0.740				
	ITS4	1.564	0.771				
Knowledge sharing (KS)	KS1	1.526	0.736	0.783	0.606	0.785	0.860
	KS2	1.609	0.786				
	KS3	2.016	0.791				
	KS4	2.033	0.798				
Organizational learning capability (OLC)	OLC1	2.291	0.853	0.855	0.696	0.856	0.902
	OLC2	2.150	0.837				
	OLC3	1.707	0.811				
	OLC4	1.924	0.836				

Note: VIF: Variance inflation factor, AVE: Average variance extracted, CR: Composite reliability.
Source: Primary data

Table 3. Fornell-Lacker criteria.

Constructs	DL	ITS	KS	OLC
DL	0.784			
ITS	0.498	0.769		
KS	0.426	0.469	0.778	
OLC	0.291	0.345	0.560	0.835

Note: DL digital leadership, ITS information technology support, KS knowledge sharing, OLC organizational learning capability, OP organizational performance.
Source: Primary data

Table 3 presents the findings of Fornell and Larcker (1981), which measures discriminant validity by comparing the square root of the AVE for each construct with its correlations with other constructs. Discriminant validity is established when the square root of a construct's AVE exceeds its corresponding inter-construct correlations. Additionally, Table 4 displays the Heterotrait-Monotrait Ratio (HTMT), with threshold values below 0.85 considered acceptable, as recommended by Henseler, Ringle, and Sarstedt (2016). All HTMT values in this study fall within the acceptable range, thereby further confirming the discriminant validity of the measurement model.

Table 4. Heterotrait-Monotrait (HTMT) ratio.

Constructs	DL	ITS	KS	OLC
DL	0.784			
ITS	0.644	0.769		
KS	0.542	0.606	0.779	
OLC	0.347	0.422	0.677	0.834

Note: DL digital leadership, ITS information technology support, KS knowledge sharing, OLC organizational learning capability, OP organizational performance.
Source: Primary data

5.3. Structural Model

In this study, bootstrapping with 5,000 resamples was performed to evaluate the higher-order constructs within the model. This technique generated path coefficients, t-values, and p-values, which were used to examine the strength and statistically significant relationships between the constructs (see Figure 2). The research explores the effects of DL and ITS on KS and OLC. It also examines the influence of OLC on performance outcomes. In addition, the study explores the mediating role of KS in the relationships between DL and ITS with OLC. The coefficient of determination (R^2) values for KS and OLC were 0.270 and 0.323, respectively, exceeding the minimum recommended threshold of 0.1 proposed by Falk and Miller (1992). These values indicate that the predictor variables possess sufficient explanatory power. Figure 2 presents the structural path diagram, including significance and p-values. The path diagram shows that DL has a significant impact on KS ($\beta = 0.256$, $t = 4.454$, $p = 0.000$), and ITS significantly influences KS in the organization ($\beta = 0.342$, $t = 6.507$, $p = 0.000$). Furthermore, H5 demonstrates that KS has a strong positive influence on OLC ($\beta = 0.503$, $t = 8.882$, $p = 0.000$). Table 5 presents the detailed results of hypotheses proposed in the study, including path coefficients, t-values, p-values, and BCIs of each path.

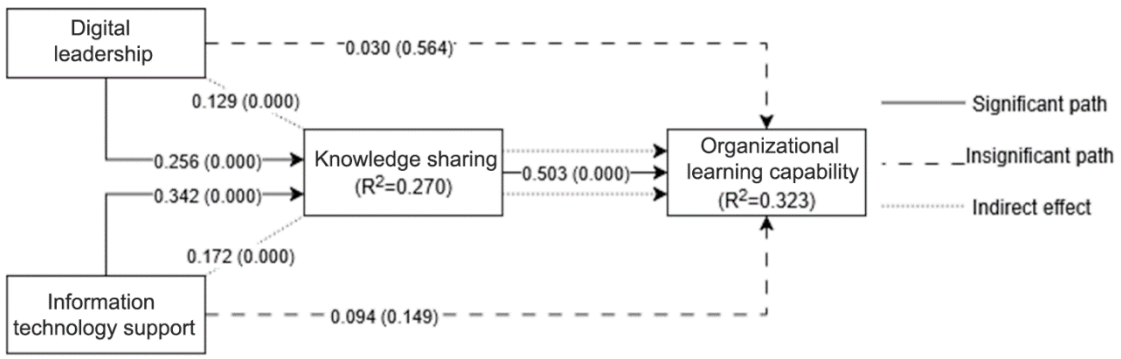

Figure 2. Path diagram with P-values.

Source: Primary data.

Table 5. Structural model.

Path	B	t-Statistics	P-value	BCI	
				2.50%	97.50%
H_1: DL →OLC	0.030	0.577	0.564	-0.075	0.132
H_2: DL →KS	0.256	4.454	0.000	0.144	0.368
H_3: ITS →OLC	0.094	1.445	0.149	-0.034	0.220
H_4: ITS→ KS	0.342	6.507	0.000	0.244	0.449
H_5: KS →OLC	0.503	8.882	0.000	0.391	0.617

Note: Significant at p<0.05; P<0.001.
Source: Primary data.

5.4. Mediation Analysis

The mediating effect of KS in the relationship between DL and OLC was assessed through mediation analysis (Table 6). The direct effect of DL on OLC was found to be statistically insignificant (β = 0.030, t = 0.577, p = 0.564), but the indirect effects of DL were statistically significant on OLC (β = 0.129, t = 3.827, p = 0.000). In addition, the direct effect of ITS on OLC was statistically insignificant (β = 0.094, t = 1.445, p = 0.149), and the indirect effects between ITS on OLC were significant (β = 0.172, t = 4.724, p = 0.000). These findings confirm H6 and H7, demonstrating that KS serves as a full complementary mediator between DL and OLC, and also between ITS and OLC.

Table 6. Mediation analysis.

Path	IV	DV	B	t-Statistics	P-value	BCI	
						2.50%	97.50%
H_6: DL → KS→ OLC	DL	OLC	0.129	3.827	0.000	0.068	0.201
H_7: ITS→ KS→ OLC	ITS	OLC	0.172	4.724	0.000	0.109	0.251

Note: Significant at p<0.05; P<0.001.
Source: Primary data.

6. DISCUSSION

Organizational sustainability and development depend on the effective use of digital tools, with the help of a digital leader (Jinkyo et al., 2023). Digital leaders utilize various digital tools, platforms, and technologies to foster an environment of collaboration and ongoing learning, which in turn promotes innovation within organizations (Cortellazzo et al., 2019) for sustainable competitive advantage. This DL style is particularly useful for automobile firms in South Korea as they navigate technological changes required for long-term transformation. Such leaders also play a substantial role in motivating employees by recognizing their contributions and emphasizing their values, thereby encouraging the exchange of knowledge. Similarly, ITS has a significant positive influence on KS among employees, supporting the results of Kumar et al. (2024) in India's Uttarakhand region. These findings indicate that in technologically developed nations, especially within high-tech sectors like the automobile industry, both DL and ITS are useful in promoting internal knowledge sharing, which fosters collective learning. Furthermore, the study identified a strong positive relationship between KS and OLC, consistent with findings in the Portuguese SME sector by Curado et al. (2018). This implies that KS boosts sustained learning and facilitates both creativity and performance. Hence, nurturing a KS culture in digitally mature organizations like the automobile industry of South Korea can significantly improve OLC.

The study similarly indicated that regarding employees, digital leadership (DL) has no significant direct impact on organizational learning capability (OLC). This finding contradicts the conclusions drawn by Cortellazzo et al. (2019) and Kazim (2021). This inconsistency may be attributed to a lack of digital leadership competencies and skills, or insufficient motivational skills necessary to encourage employees to utilize technology within the complex framework of South Korean automotive companies. Employees might also face challenges related to adaptability and the need for self-directed, ongoing, sustained learning over extended periods. Additionally, organizational learning

capability (OLC) could be constrained by strategic or tactical issues related to digital transformation initiatives. In the context of South Korea's automobile industry, a highly technologically equipped work environment did not lead to a significant impact of ITS on OLC, which contradicts the findings of Curado et al. (2018) and (Ghamrawi & Tamim, 2023). Factors such as misalignment between organizational objectives and IT goals, low appreciation of the intangible value of IT, and other organizational issues may influence this outcome. Furthermore, key factors critical to the successful integration of IT include organizational culture and human capital. Inadequate technical knowledge remains an evolving challenge and a barrier to developing OLC, highlighting the need for targeted strategies to address these organizational and technological gaps.

The SEM analysis identifies the mediating role of knowledge sharing (KS) in the relationship between digital leadership (DL) and organizational learning capacity (OLC), as well as ITS and OLC. The results reveal that DL fosters KS, which in turn contributes to higher OLC. Digital leaders actively develop a knowledge-sharing culture that enhances organizational learning. This culture motivates employees to share and exchange a wide range of ideas, skills, and experiences, thereby driving innovation in processes, products, and technology, which subsequently increases OLC. From Table 6, the indirect effect of DL on OLC of 0.129 is greater than the direct effect of 0.030. This indicates that the influence of DL on OLC is stronger when mediated through KS. This finding supports Yang et al. (2018), which states that the collaborative culture resulting from knowledge sharing strengthens innovation.

The analysis also shows that ITS, similar to a DL, has a positive influence on KS that leads to OLC. ITS also plays a role in promoting a culture of knowledge sharing among employees, which helps foster organizational learning.

Table 6 highlights that the indirect impact of ITS on OLC (0.172) exceeds its direct effect (0.094). These findings align with Azeem et al. (2021), who showed that organizational culture could strengthen competitive advantage indirectly through knowledge sharing. Overall, the research underscores that both DL and ITS contribute to enhancing OLC by establishing a strong organizational culture centered on knowledge sharing.

7. CONCLUSIONS

This study was conducted to determine the extent to which DL and ITS affect KS and OLC. It also investigated the mediating role of KS in the impact of DL and ITS on OLC. The automobile industry was the target area of this research, and the primary objective was to develop effective strategies to enhance OLC. The findings of the study reinforce the strategic importance of DL, ITS, and KS for sustainable innovation and creativity. All hypotheses were accepted except H1 and H3, in which the results were contrary to the expectations of the research. However, the results support the argument that ITS and DL are significant factors in achieving effective knowledge sharing within organizations. These elements allow organizations to develop dynamic capabilities that facilitate the innovation of products and processes and enable them to compete in the international market sustainably. Hence, this study makes a valuable contribution to the literature base of industrial organizations by enhancing managerial competence, improving production strategies, and ensuring a sustained competitive advantage. DL and ITS have strategic significance in shaping the competitive evaluation through knowledge sharing in a dynamic environment.

By emphasizing the importance of DL, ITS, and KS in enhancing OLC, the study extends the theoretical foundation of the RBV, which identifies KS as a core dynamic capability that adds value and strengthens organizational competence such as learning and innovativeness necessary for sustainable competitiveness. Additionally, this research introduces an innovative and flexible conceptual framework that future researchers can adapt and apply across various sectors and geographic contexts for organizational sustainability. To ensure long-term sustainable growth in a competitive market, the study advises senior management to prioritize the development of knowledge-sharing dynamic capabilities as a pathway to enhancing OLC, which can improve creativity, innovation, and a supportive work environment.

7.1. Theoretical Implications

This study provides a substantial theoretical contribution by formulating and empirically validating an updated research model that explores the influence of DL and ITS on OLC, through KS acting as a mediator. The proposed model addresses a significant theoretical gap in existing research by integrating these variables into a unified framework and statistically confirming that KS fully mediates the relationship between DL, ITS, and OLC for organizational competitiveness. Earlier studies that mainly focused on KS dynamics conceptually and concentrated on narrower aspects such as collective responsibility or functional integration. However, this research offers an empirical analysis combining the effect of DL, ITS, and KS on OLC.

Additionally, the study brings attention to the often-overlooked intersection of DL and ITS within the automobile industry, offering a new perspective on how these factors collaboratively strengthen knowledge sharing practices and organizational learning, replacing old and obsolete organizational learning methods. Grounded in the RBV, the findings emphasize the strategic value of fostering a KS culture and effectively utilizing both human and technological resources to achieve sustainable long-term competitive advantages. The model proposed in this study provides theoretical insights that can facilitate industrial firms in adapting to and thriving within dynamic, ever-changing business environments.

7.2. Managerial Implications

The findings of this study have practical implications for business leaders and higher management by emphasizing the essential roles of DL, ITS, and KS in achieving OLC. The study provides valuable empirical validation that DL and ITS positively influence OLC through the mediating effect of KS. Consequently, it is important for managers to adopt and cultivate effective leadership strategies that maximize the practical use of organizational knowledge. In technologically developed countries like South Korea, where business activities are increasingly digitalized, DL and ITS present substantial opportunities to strengthen KS, thereby enhancing OLC. To support digital transformation, leaders should foster a KS environment that reflects core values, encourages collaboration, and strengthens the connection between management and employees. Such an environment supports both the acquisition and practical application of knowledge, facilitating OLC, innovation, and improving operational performance.

Moreover, leaders must dedicate time and resources to creating a culture of knowledge sharing, which is foundational to building a distinctive dynamic capability like OLC. This capability enables firms to absorb expertise from external professionals, respond to complex operational challenges, and gain sustainability in innovation and creativity. In addition, leadership efforts should extend to empowering both mid- and lower-level managers by enhancing their managerial competencies, technical proficiency, and knowledge transfer. This empowerment can motivate frontline staff, ultimately improving operational efficiency and strengthening OLC.

This research also introduces a new business framework developed to help industrial firms navigate immense market competition by cultivating dynamic capabilities that support process improvement, customer engagement innovation, and client retention. The findings reflect an evolving trend within the automobile sector, where learning is increasingly supported by the adoption of KS practices, robust DL, and IT infrastructure all together contributing to improved OLC. South Korea, in particular, continues to face long-standing challenges such as the rapid automation of automobile production and existing shortages of labor. These conditions hinder the country's ability to meet international trade expectations.

Therefore, it is critical for policymakers in the automotive sector to reassess existing frameworks, address these barriers, and develop strategies that encourage a knowledge-based, learning-oriented organizational culture. This study offers new directions for enhancing organizational culture, especially within the automotive industry across Asia and globally.

7.3. Limitations and Recommendations

This study was conducted within the context of the automobile industry in Daegu, South Korea, which may constrain the broader applicability of its findings due to the dynamic nature of the work environment in South Korea characterized by digitalization and digital transformation. To improve generalizability, future research should include diverse geographic regions and industry sectors, both within South Korea and internationally. The study also ignores emotional and cultural aspects of Korean culture, which are unique and closely related to China only to some extent. Additionally, the cross-sectional research design limits the ability to investigate long-term effects; therefore, longitudinal studies and simulation experiments are recommended to capture temporal dynamics more effectively. Incorporating moderating variables such as job satisfaction, organizational agility, organizational diversity, or environmental awareness could also yield deeper insights into the observed relationships. Furthermore, it is expected that the findings and the conceptual model developed in this study could be adapted for use in other sectors of South Korea's economy. However, the reliance on convenience sampling and a relatively modest sample size of 355 participants may limit the representativeness of the results. Future studies should aim for larger and more randomized samples to strengthen external validity. Lastly, since this research did not explore causal relationships, subsequent studies should consider employing experimental or longitudinal methodologies to establish causal inferences.

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Institutional Review Board Statement: The ethical committee of PSTU, Patuakhali Bangladesh has granted approval of the study on 22 December 2024 (Ref No._PSTU/SCI/EC/2024/208). Informed verbal consent was obtained from all participants, and all data were anonymized to protect participant confidentiality.
Transparency: The authors state that the manuscript is honest, truthful, and transparent, that no key aspects of the investigation have been omitted, and that any differences from the study as planned have been clarified. This study followed all writing ethics.
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Appendix A. Instrument of the study.

Constructs	Items	Sources
Digital leadership (DL)	DL1: A Digital Leader (DL) raises employees' awareness of the institution about the risks of information technologies. DL2: A DL raises awareness of the technologies that can be used to improve organizational processes. DL3: A DL determines the ethical behaviors required for informatics practices, together with all its stakeholders. DL4: A DL shares his/her own experiences regarding technological possibilities that assist colleagues in learning about the organization's culture.	Jinkyo et al. (2023)
Information technology support (ITS)	ITS1: My organization provides information technology support for collaborative work regardless of time and place. ITS2: My organization provides information technology support for searching for and accessing necessary information. ITS3: My organization provides information technology support for communication among organization members. ITS4: My organization provides information technology support for systemic storage.	(Curado et al., 2018). And Venkatesh et al. (2003)
Knowledge sharing (KS)	KS1: My organization provides relevant knowledge to our business partners. KS2: My organization has teams up with business partners to enhance interfirm learning. KS3: My organization shares successful experiences with each other. KS4: My organization shares new knowledge and viewpoints with each other.	Azeem et al. (2021) and Venkatesh et al. (2018)
Organizational Learning Capability (OLC)	OLC1: In my organization, people receive support and encouragement when presenting new ideas. OLC2: In my organization, initiatives receive positive responses, so people feel encouraged to generate new ideas. OLC3: In my organization, people are encouraged to take risks. OLC4: In my organization, people often venture into unknown experiences.	(Curado et al., 2018)