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Innovation Capability and Knowledge Sharing: A Driving Model of Innovation Strategy

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Innovation Capability; Knowledge Sharing; Innovation Strategy; Systematic Literature Review

ABSTRACT

In today's dynamic and competitive business environment, organizations are constantly striving to enhance their innovation capabilities to maintain competitiveness. While innovation capability and knowledge sharing have been recognized as key factors, the role of innovation strategy as a moderating variable in the relationship between these two factors remains underexplored. This research aims to develop a model of the connection between innovation capability (*IC*), knowledge sharing (*KS*), and innovation strategy (*IS*), through a systematic literature review. This research employs a systematic literature review method, analyzing articles from *Scopus* and *Web of Science* databases published between 2003 and 2020. Content analysis was conducted on selected articles that met the inclusion criteria. The findings indicate that innovation strategy plays a moderating role in the relationship between innovation capability and knowledge sharing. The integration process between innovation variables and knowledge sharing has the potential to leverage enhancing innovation capability, which ultimately can improve organizational performance. The model developed in this study provides a theoretical contribution to understanding the mechanism of strengthening innovation capability through knowledge sharing practices moderated by innovation strategy. These findings also have practical implications for management in developing effective strategies to enhance organizational innovation capability.

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INTRODUCTION

A dynamic environment characterized by rapid, competitive, and unpredictable environmental changes guides organizations to develop a climate of innovation (*Sethibe & Steyn*, 2016). Organizational development is a form of innovation capability resulting from innovation intentions (*Yang*, 2012). Organizations develop competitive capabilities through appropriate innovation strategies and innovation processes (*Husain, Dayan, & Di Benedetto*, 2016).

Previous researchers have explored innovation capabilities and knowledge management. As *Podrug, Filipović, and Kovač* (2017) identified, a company's innovation capability is influenced by the willingness of employees to gather and share knowledge. *Kocoglu, Imamoglu, Ince, and Keskin* (2012) argue that investment in accommodating both tacit and explicit knowledge leads to the development of recent innovations. Furthermore, *T.-C. Lin, Wu, and Lu* (2012) suggest that employee involvement in social interactions affects knowledge exchange and knowledge sharing. This is in line with *H. F. Lin and Svetlik* (2007), who have identified that the sharing of knowledge influences innovation capability.

The innovation mechanism is influenced by knowledge sharing through innovation strategies that encourage companies to develop innovation capabilities, such as efficiency, technology adoption, cost and time efficiency, as well as reducing risk (*Deck & Erkal*, 2013). Knowledge sharing

practices among employees significantly affect proactive strategy and innovation capability (*Ryszko*, 2016).

Researchers endeavor to develop a framework of interconnection between innovation capability and knowledge sharing at the organizational level. How can a theoretical model of the correlation between innovation capability, sharing of knowledge, and innovation strategy drive innovation? The research objectives are formulated as follows: to explore the potential influence of innovative strategies in the interaction between innovation capability and the sharing of knowledge. The benefits of this research are expected to provide both theoretical and practical contributions. Theoretically, this study attempts to fill the literature gap by proposing and testing a model that positions innovation strategy as a moderating variable in the relationship between knowledge sharing and innovation capability—a relationship that has not been widely explored in previous research. Practically, the findings of this study are expected to provide guidance for managers and practitioners in designing effective strategies to encourage knowledge sharing and enhance organizational innovation capabilities, ultimately improving organizational performance and competitiveness in an increasingly dynamic and competitive business environment.

METHOD

This research uses a systematic literature review (SLR) design by adopting a strict literature review analysis mechanism, following established guidelines(Kitchenham, 2007; Petersen, Vakkalanka, & Kuzniarz, 2015), as shown on Figure 1.

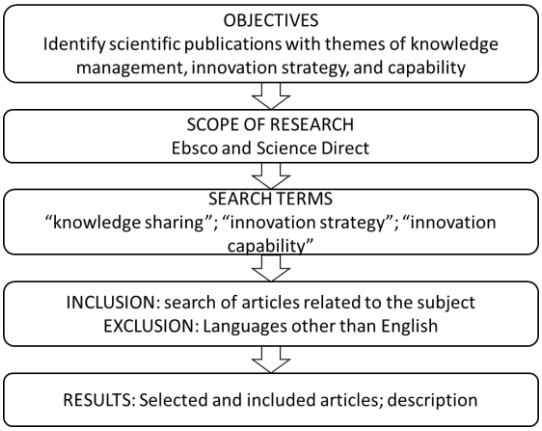


Figure 1. Methodology

Source: Author's analysis, 2023

Figure 2. shows a graph of the growth of publications per year linked to the research object. Papers that are recognized in more detail reveal the dominant (37.89%) in business management, then decision science (21.74%), economics and finance (8.07%), as shown on Figure 3.

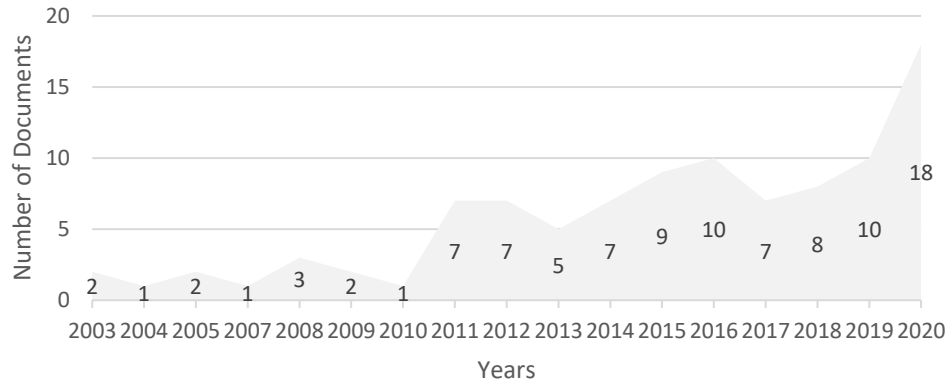


Figure 2. Number of documents issued per year (2003-2020)
Source: Data analyzed from Scopus and Web of Science, 2023

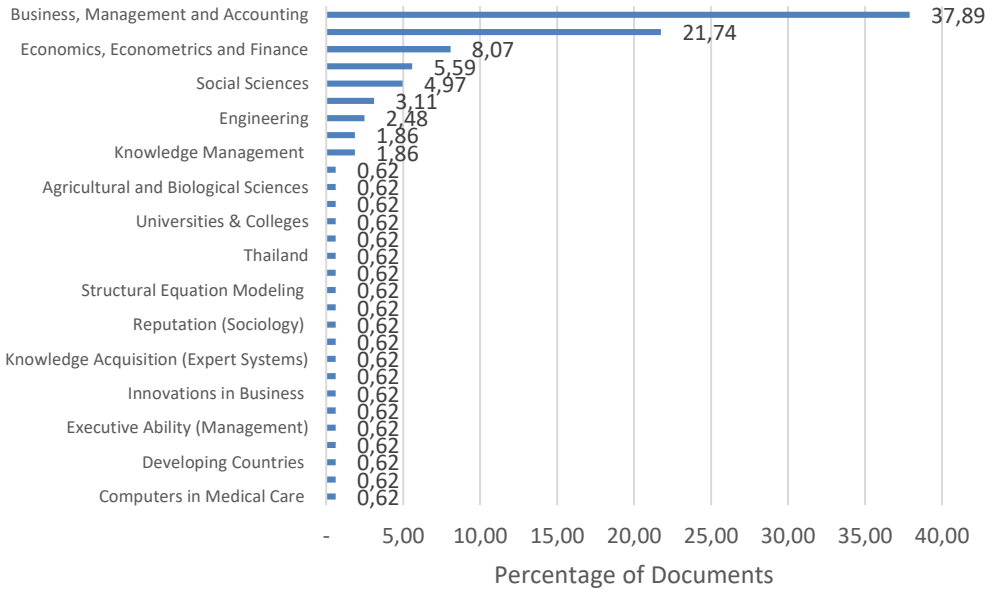


Figure 3. Documents issued by subject per year (2003-2020)
Source: Data analyzed from Scopus, 2023

Figure 4. Describes the percentage of published documents by primary source of publication, with a distribution on Technovation (20%), Business Research, Technological Forecasting and Change (each 19%), Research-Policy (15%), Industrial Marketing Management, and Engineering and TM (each 10%), and Social-Behavioral Science (7%).

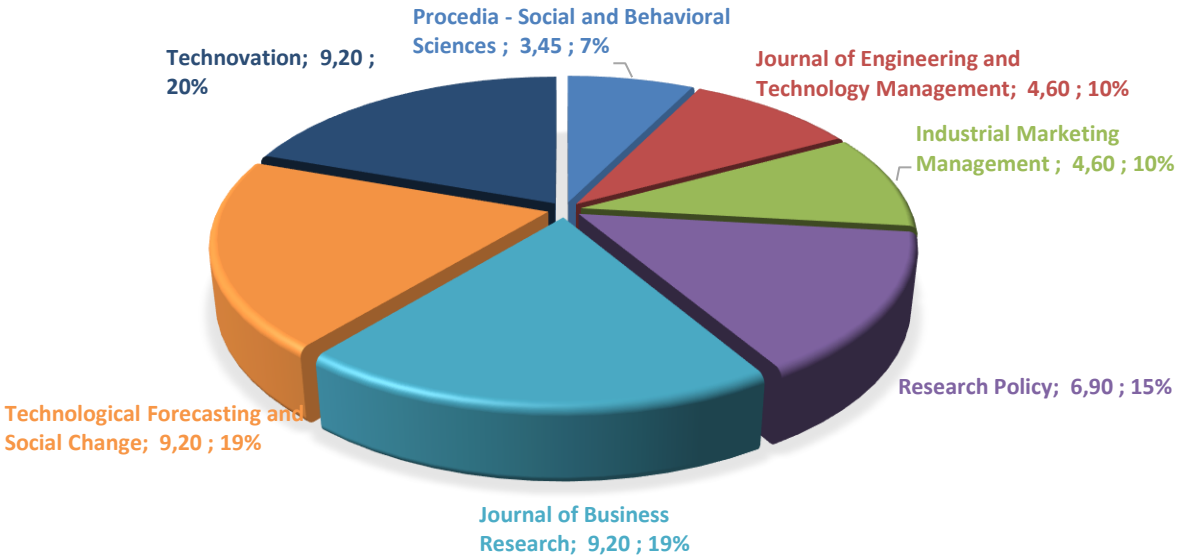


Figure 4. Documents published by primary sources (2003-2020).
Source: Data analyzed from Scopus, 2023

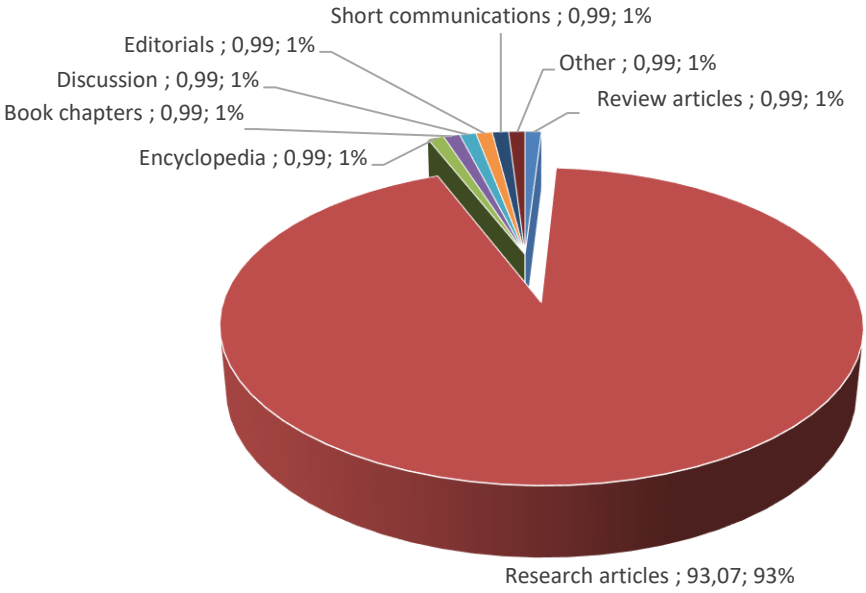


Figure 5. Documents issued by type (2003-2020)
Source: Data analyzed from Scopus, 2023

Furthermore, regarding the classification of documents, and papers published, Figure 5. demonstrates Research Articles are most widely published types of documents, amounting to 93%.

The documents selected in this study are shown in Table 1 which presents a classification based on variables related to the study, including the author's name, title, method and variables. Based on the research article, the three variables IC, IS, KS have not been found to be used together.

Table 1. Variable used: innovation capability (IC), innovation strategy (IS), and knowledge sharing (KS)

			Relevance variable		
Author	**Keywords**	**Methods**	**IC**	**IS**	**KS**
Collinson, Kato, and Yoshihara (2005)	Japanese firms, strategy, intellectual assets.	Mix-methods. 65 questionnaires and 24 interview-based. electronic. Japan.		✓	
H. F. Lin and Svetlik (2007)	Knowledge sharing, Organizational innovation.	Quantitative, SEM. 172 respondents. Taiwan.	✓		✓
C.-h. Wang, Lu, and Chen (2008)	Technological innovation capability.	Mixed methods. Taiwan.	✓		
Hernández-Espallardo et al. (2011)	Innovation, exploitation, exploration, performance.	Quantitative. 201 Companies. Spain.		✓	
Standing and Kiniti (2011)	Innovation, knowledge management.	Review of literature.		✓	
Yam, Lo, Tang, and Lau (2011)	Firm innovation, knowledge, technological innovation capability.	Quantitative. 200 Companies. Hong Kong.	✓		
Sun, Wong, Zhao, and Yam (2012)	Innovation competence, strategic enablers, innovation performance.	Quantitative 7 Companies. Hong Kong.	✓	✓	
Yang (2012)	Innovation capability, knowledge-based view, dynamic capability.	Qualitative. 500 Companies. China.	✓		
Kocoglu et al. (2012)	Learning capability, technological innovation, innovation capability, firm performance.	Conceptual model.	✓	✓	
Deck and Erkal (2013)	Knowledge sharing, cooperative, experiments.	Case study. 96 subjects. Australia.		✓	✓
Jiang, Waller, and Cai (2013)	Knowledge strategy, innovation performance.	Quantitative. 303 Companies. China.		✓	
Hartono and Sheng (2015)	Knowledge sharing, innovation capability, environment-strategy performance.	Qualitative. Systematic literature of review.	✓		✓
Schneckenberg, Truong, and Mazloomi (2015)	Dynamic capability, collaborative technologies, organizational learning, knowledge management.	Mixed method. 28 managers.	✓		✓
Ryszko (2016)	Interorganizational cooperation, knowledge sharing, technological eco-innovation.	Quantitative. 292 companies. Poland.		✓	✓
Chiu and Chen (2016)	Knowledge management capability, organizational effectiveness, organizational commitment.	Quantitative. 302 Companies. Taiwan	✓		
Husain et al. (2016)	Competitiveness, organizational learning, employee innovativeness, innovation process and IT.	Quantitative. 110 Companies. India.	✓	✓	
van Kerkhoff and Szlezak (2016)	Governance, knowledge transfer, science-policy.	Case Study. 28 repondents. China.		✓	✓
Podrug et al. (2017)	KS, firm IC, ICT companies.	Quantitative. 196 respondents, SEM. Croatia.	✓		✓

Author	Keywords	Methods	Relevance variable		
			IC	IS	KS
X. Wang and Dass (2017)	Innovation capability, financial performance.	Quantitative. 335 companies.	✓		
Protogerou, Caloghirou, and Vonortas (2017)	Innovative performance, knowledge sources	Quantitative. 10 countries.	✓		
Mardani, Nikoosokhan, Moradi, and Doustar (2018)	Knowledge management, knowledge integration, innovation performance.	Quantitative. 120 Companies. Iran.	✓		
Rajapathirana and Hui (2018)	Innovation capability, innovation performance, financial performance.	Quantitative. 379 Managers. Sri Lanka.	✓		
Salazar and Lant (2018)	Interdisciplinary teams, team innovation.	Quantitative. 52 team. USA			✓
Or, Tong, Tan, and Chan (2018)	Electronic medical Records, adoption factors.	Qualitative. 23 health providers. Hong Kong.			✓
Gaviria-Marin, Merigó, and Baier-Fuentes (2019)	Knowledge management.	Literature review. Bibliometric, WoS.			✓
Altınay, Altınay, Dagli, and Altınay (2019)	Knowledge management, open data source, higher education.	Qualitative. 35 participants. Turkey.	✓		✓
C. Wang and Hu (2020)	Collaborative innovation, knowledge sharing, innovation performance.	Quantitative. 236 companies. China	✓		✓
Ganguly et al. (2020)	Reputation for Innovation, innovation capability, knowledge sharing.	quantitative. 75 Executives. SEM. India.	✓		✓
Mostofa, Othman, Mukherjee, Hasan, and Society (2020)	KM, design knowledge, knowledge sharing.	Review of literature.			✓
Total			18	10	14

Source: Compiled from the results of an analysis of selected literature, 2023

Correlation analysis and theoretical model discussed in the paper refer to the construction of review of literature and presentation of research propositions. A comprehensive review is presented in Table 2. Knowledge sharing management both tacitly and explicitly correlates closely with innovation ability (Ganguly et al., 2020; H. F. Lin & Svetlik, 2007). Also, innovation capability influences innovation performance, and competitive advantage (Ganguly et al., 2020; Hartono & Sheng, 2015; Mardani et al., 2018; Rajapathirana & Hui, 2018; Schneckenberg et al., 2015; C. Wang & Hu, 2020). In addition, Table 2. shows that proactive environment is correlated with knowledge sharing (Ryszko, 2016), and innovation strategies increase competitiveness (Husain et al., 2016).

RESULTS AND DISCUSSION

Innovation Capability and Knowledge Sharing.

Ryszko (2016) has argues that innovation capabilities and sharing of knowledge have a strong correlation with strategic proactive environment, and knowledge sharing with innovation technology, this is in line with Or et al. (2018) have argued that improvements in social and organizational efficiency and quality are affected by the use of technology and electronic knowledge sharing. Moreover, Hartono and Sheng (2015) have argued that innovation capability moderated by social networks (technology) through innovation sharing, tends to have better innovation performance.

Innovation ability has a relationship with knowledge sharing, where innovation ability is moderately correlated with knowledge sharing both explicitly and implicitly (Ganguly et al., 2020), in which innovation performance improvement is influenced by HRD practices in knowledge sharing (Soto-Acosta, Del Giudice, & Scuotto, 2018).

Ganguly et al. (2020) have argued that an increase in innovation capability is obtained through organizations working in both of explicit and implicit knowledge sharing, this is in line with H. F. Lin and Svetlik (2007) have stated that employee attitudes and behaviors can be changed through a culture of willingness to share knowledge, and ensure sustainable, cross-functional, cross-departmental, and cross-structure innovative capabilities through the use of technological innovation (Schneckenberg et al., 2015).

The growth of innovation capability is driven through knowledge sharing, learning, and system integration for the innovation process, both on implicit and explicit knowledge (Schneckenberg et al., 2015). An exploration of the elements of innovation capability that affects sharing of knowledge has been recommended to gain a broader perspective (Hartono & Sheng, 2015), comprehensive analysis influencing knowledge sharing towards proactive strategy (Ryszko, 2016).

Ganguly et al. (2020) have recommended strategies to create an environment for innovation capability through explicit and implicit knowledge sharing. This shows mediating role of innovation strategy on innovation capability and sharing of knowledge. Furthermore, the proposition is as follows.

Proposition 1. if the intensity of sharing of knowledge is high, then the capacity to generate innovation is higher.

Table 2. Recapitulation of the analyzed literature construct.

Relevance Variable	Main Result	Key Article
Innovation Capability (IC)	Innovation ability influences competitive advantage, organizational performance, and innovation performance.	Hartono and Sheng (2015); Schneckenberg et al. (2015); C. Wang and Hu (2020); Mardani et al. (2018); Rajapathirana and Hui (2018); Ganguly et al. (2020).
	Knowledge capabilities strengthen knowledge strategies.	Chiu and Chen (2016).
	Innovation capability is influenced by human resource innovation and top management innovation.	X. Wang and Dass (2017); Protogerou et al. (2017); Mardani et al. (2018).
Innovation Strategy (IS)	Innovation strategy affects competitiveness.	Husain et al. (2016).
	Proactive environmental strategy correlates with knowledge sharing.	Ryszko (2016).
Knowledge Sharing (KS)	Explicit and tacid knowledge sharing enhances innovative capabilities.	H. F. Lin and Svetlik (2007); Schneckenberg et al. (2015); Ganguly et al. (2020).
	Knowledge sharing requires top management support.	H. F. Lin and Svetlik (2007); Podrug et al. (2017); Salazar and Lant (2018).
	Knowledge sharing is correlated with social networking and a proactive environment.	Hartono and Sheng (2015); Ryszko (2016); Or et al. (2018).
	The role of the individual, mastery of technology and innovation influence knowledge sharing.	Altınay et al. (2019).

Source: Compiled from the results of the synthesis of key findings, 2023

Innovation Capability and Innovation Strategy

Sun et al. (2012) have stated that innovation capability is a strategic element that has an influence on innovation metabolism, measured through measures (innovation matrix) such as innovation performance, innovation management, involvement of universities or expert companies.

Kocoglu et al. (2012) have argued that the development of new ideas, new technologies and new systems is obtained through investment in learning skills that encourage organizational capability, share both explicit and implicit knowledge, absorb and integrate new technologies.

Ryszko (2016) have promoted analysis of the influence between knowledge management, utility, knowledge sharing with proactive strategy. Meanwhile, Husain et al. (2016) have promoted innovation strategy as an innovation capability and a driver of organizational competitiveness through human resource capabilities, and relevant innovation processes. Strong innovation processes involve competitiveness, but innovation strategies cannot mediate innovation and competition processes. This leads to a research niche on the significance role of innovation strategy and innovation capability. Furthermore, the following proposition is proposed.

Proposition 2: If the intension of the innovation strategy is higher, it will have an influence on the higher innovation capability.

Theoretical Model.

Based on the evaluation of theoretical and empirical developments related to innovative capabilities, opportunities were diagnosed to study the influence of knowledge sharing, either implicitly or explicitly in relation to the interaction efforts carried out by the innovation strategy on innovative capabilities. This study opportunity allows a conceptual exploration of the model of the correlation between innovation capability, sharing of knowledge, and innovation strategy, as shown in Figure 5.

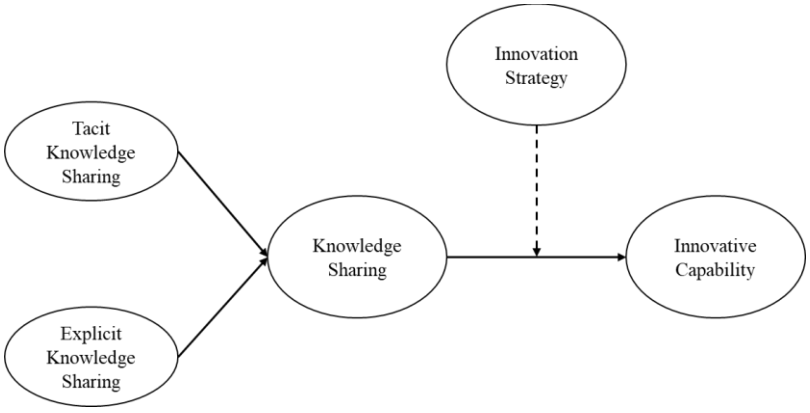


Figure 6. The Model considers the influence of innovation strategies on the relationship between innovative capabilities and sharing of knowledge

Source: Developed by the author based on the results of a literature synthesis, 2023

The study of the relationship between innovation capability, strategic innovation, and sharing of knowledge is an opportunity to understand their direct and indirect effects. The proposed and measured variables represent aspects that have relevance. The scale of knowledge sharing and innovative capabilities is adopted from the scale determined by Ganguly et al. (2020). Knowledge sharing can be defined as the behavior of imparting knowledge within organization, which involves knowledge sharing, skills, and experiences of employees in the organization, which is facilitated through the media of socio-cultural interaction (H. F. Lin & Svetlik, 2007). While innovation capabilities are capacity, competence, and knowledge needed to create or perform new products,

services, and technology. Variable scale of innovation strategy was adapted by Husain et al. (2016). The innovation strategy is based on the competitive advantage that can be provided to improve the position of the company or organization. Vision, mission and appropriate use of short-term and long-term strategies are needed to develop innovation capacity. The implementation of the innovation strategy takes into account the overall environmental aspects, customer needs, as well as the commitment of top management.

A summary of the variable measurements is presented in Table 4. Specific variable scales were adopted to present observed aspects in the documents according to their various conceptual approaches. Ganguly et al. (2020) have developed knowledge sharing studies, emphasizing the fact that organizational culture and philosophy act an important role. Explicit measurement of sharing of knowledge through items sharing reports and documents within the organization, collecting reports and documents within the organization, and facilitating information technology to share knowledge. While the measurement of tacit knowledge through items of people collect knowledge of others based on experience, expertise, and past failures to share learning. Ganguly et al. (2020) have found a correlation of the importance of strengthening structured knowledge systems and organizational culture in tacit and explicit knowledge sharing, and determining that organizations need creativity in their interactions, trying out new ideas, and introducing new products or services on their innovations to build innovative capabilities. Study of Husain et al. (2016) have been measured through clarity of ideas in competing, clear understanding of innovation strategy, structured method of dealing with challenges, shared vision, alignment with business strategy, and supported by top management.

Researchers studied the direct correlation between innovative capabilities and sharing of knowledge, in addition to considering innovation strategies consequences. Recognize to the literature studied, there has been no research on the correlation between sharing of knowledge, innovation strategy and innovation capability, therefore this research is proposed. Both in the form of the effect to innovation strategies and knowledge sharing on innovation capabilities, as well as knowledge sharing on innovation strategies, but to achieve competitive performance based on innovation capabilities, an innovation strategy is needed. This is the background of this research.

Table 3. Variables measured in the literature

Author	Construction	CR	AVE	Measurement Items	Reliability (Cronbach's Alpha (α))
Ganguly et al. (2020)	Innovation Capability	0.922	0.651	- Organizations often try out new ideas. - Organizations are looking for new ways of doing things. - Creative organization in running operations. - Organizations are the first to market new services and products. - The introduction of new products and services increased.	0.781
Husain et al. (2016)	Innovation Strategy	0.72	0.62	- Clarity of ideas about Information Technology (IT) innovations can help competitiveness. - Clear understanding of innovation strategy - Knowledge of specific competencies.	0.72

Author	Construction	CR	AVE	Measurement Items	Reliability (Cronbach's Alpha (α))
				- Competitive advantage through IT System. - Structured methods for facing future challenges in technology and in particular IT. - Shared vision to develop IT innovation. - Top management commitment to using and supporting IT innovation. - Impact of new technology on business. - Relationship between the new project and the overall business strategy.	
Ganguly et al. (2020)	Explicit Knowledge Sharing	0.918	0.663	- People share reports and documents. - People are encouraged to share knowledge mechanisms. - People are offered training and capacity development programs. - People are facilitated by IT system to share knowledge.	0.847
Ganguly et al. (2020)	Tacit Knowledge Sharing	0.930	0.726	- People in the organization share knowledge. - People gather knowledge from others based on experience. - People share knowledge based on expertise. - People gather knowledge from others regarding their expertise. - People share best-practice from past failures	0.891

Source: Adapted from Ganguly et al., (2020); Husain et al., (2016)

CONCLUSION

The model promoted in this study is intended to elaborate on the interaction of the influence of innovation strategy on innovative ability. The relationship between variables in the model was examined to consider the impact of imparted knowledge sharing on innovative ability and to verify the magnitude of the impact of innovation strategy, which acts as a moderating variable in the correlation between sharing of knowledge and innovative capability. Related literature has not been found when discussing direct or indirect relationships in terms of the moderation approach used in this study. The proposed theoretical model can be used to examine the factors that might affect the ability to innovate. Given the dynamics and complexity of the business and organizational environment, it becomes essential to leverage innovative capabilities that enable organizations to respond to and cope with competition, manage needs, and meet customer expectations. This study contributes to the literature related to innovation and knowledge management, particularly regarding actions between knowledge sharing and innovation strategies that can increase innovative capabilities. For managers, the study provides practical implications, offering analytical input on the organizational environment and new correlations with relevant types of variables related to knowledge sharing and innovation strategies. Through this new approach, it can help executives make decisions with greater insight and better chances of success. This conceptual model has not been verified empirically, and the scope of research is limited. For forthcoming research, first, we

recommend validating the proposed model framework with a quantitative and qualitative approach to analyze the correlation between knowledge sharing and innovation capability, which is moderated by innovation strategy. Furthermore, expanding the scope of research could provide a more comprehensive point of view. Then, further research can explore other factors by including variables such as competitive advantage, employee motivation, and sustainable development.

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