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EMPLOYEE-DRIVEN INNOVATION CAPABILITY: THE ROLE OF KNOWLEDGE, CREATIVITY, AND TIME SUFFICIENCY

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Abstract: *Creativity and innovation are fascinating issues in the current literature because they play an essential role in organizational sustainability. Although previous studies found that knowledge and creativity are prominent predictors of innovation, the existing literature regarding the connection between these concepts remains insufficient. The present study investigates how individual creativity and an employee's innovation capability are influenced by different types of knowledge (i.e., knowledge network, knowledge quality, and knowledge sharing). Furthermore, it attempts to amplify the grasp of the pathways and conditions to improve innovation capability by assessing the mediating role of an individual's creativity and the moderating role of time sufficiency. The present study promoted structural equation modelling and cross-sectional design to test the hypotheses, utilizing data collection from 414 full-time employees at 69 SMEs in Indonesia. The findings revealed that creativity mediates the effects of knowledge quality and knowledge sharing on employees' innovation capability. Furthermore, the influences of different types of knowledge on creativity and innovation capability are not alike – time sufficiency plays the role of moderating the relationship between knowledge quality and employees' innovation capability. The present study contributes significantly to helping define how knowledge, creativity, and innovation capability are*

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intertwined by highlighting the vital role of knowledge quality, knowledge sharing stimulation, and time sufficiency enhancement.

Keywords: *knowledge network; knowledge quality; individual creativity; employee's innovation capability; time sufficiency.*

JEL Codes: *D23, D83, M12, O31, O34*

1. Introduction

Massive technological alterations shape today's economic environment and, along with globalization, give birth to innovation as a salient solution for improving performance and achieving sustainable competitive advantage (Haseeb et al., 2019; Hossain et al., 2021; Trachenko et al., 2021). Innovation capability is critical for an organization to succeed in a fast-changing business environment (Arsawan et al., 2022; Ode & Ayavoo, 2020) as it allows companies to be more adaptable and flexible to face changes (Denicolai et al., 2021; Leckel et al., 2020). In addition, innovation enables companies to accommodate consumer needs, stay ahead of their competitors, and consolidate their power by taking advantage of market opportunities (Gavrila Gavrila & de Lucas Ancillo, 2021). Furthermore, innovation is a crucial and decisive factor in national and organizational competition as the principal generator of economic growth (Bodlaj et al., 2020; Westman et al., 2021).

However, most companies in developing nations are categorized as SMEs, with small capital and resources for promoting innovation (Filipishyna et al., 2020). This has prompted researchers and practitioners to explore practical methods to improve the capability of companies in these countries in terms of innovation (Le & Lei, 2019; Parwita et al., 2021).

Knowledge and creativity are unique resources in innovation that serve as important predictors. Organizations may magnify their creativity and transform resources into dynamic competencies through knowledge networks, knowledge quality, and knowledge-sharing processes (Areed et al., 2021; Zhao et al., 2020). Prior research has shown that knowledge has a broad influence on innovation at both the individual and organizational levels (Arsawan et al., 2022; Parwita et al., 2021) or indirectly by fostering an environment that encourages employees' creativity and innovation capability (Ferreira et al., 2020; Lei et al., 2019). Therefore, to offer a solid grasp of the correlation between the type of knowledge, creativity, and innovation, this study investigates how knowledge is associated with innovation capability through mediating and moderating roles. The present study is the latest investigation to contribute significantly to innovation initiatives as follows.

First, creativity and innovation are fascinating issues in recent literature (Jin & Shao, 2022; Le & Lei, 2019; Tsouri et al., 2021; Zhao et al., 2020) because managing and improving innovation capability is increasingly crucial in the knowledge-based economy era (Bhatti et al., 2020; Chaubey et al., 2022; Ferreira et al., 2020). Creativity and innovation play an essential role in organizational sustainability by building a strong culture and climate (Aboramadan et al., 2020; Dabic et al., 2019) and a dynamic capability for competitive advantage (Ferreira et al., 2020; Mady et al., 2022). Although previous studies found that knowledge and creativity are prominent predictors of innovation (Ganguly et al., 2019; Singh et al., 2021), the existing literature regarding the

connection between these concepts remains insufficient (Zhao et al., 2020). In addition, Parwita et al. (2021) argue that creativity is a defining component in modelling innovative companies, but what nurtures or prevents it remains poorly understood and investigated. As a result, we believe that investigating the creative mediation mechanism between knowledge quality, knowledge network, knowledge sharing, and innovation capability is essential. Thus, this study aims to bridge the gap mentioned above and provide a more in-depth understanding of the mediating function of creativity in the relationship between knowledge type and innovation capability.

Second, Migdadi (2020) emphasizes the need to identify the antecedents of the innovation aspect by asking the following question: *Q1. How does the type of knowledge as a driver of organizational resources impact employees' innovation capability?*

Knowledge quality, knowledge network, and knowledge sharing are valuable organizational resources (Phelps et al., 2012; Shi et al., 2019; Wang & Hu, 2020). Therefore, exploring the effects of knowledge quality, knowledge network, and knowledge sharing on creativity will significantly contribute to providing valuable solutions or appropriate pathways to achieve employees' innovation capability. Third, according to De Clercq and Pereira (2020), previous studies have no consensus about the positive influence of type of knowledge on employees' innovation capability. They believe that future studies should confirm the nexus between knowledge quality, knowledge network, knowledge sharing, and innovation, and uncover the moderating role of time sufficiency. Organizations with different climates and support can produce multiple impacts on knowledge sharing and innovation because of their differences in making resources, opportunities, and motivation available for these endeavors. Thus, this effect might inhibit or stimulate the positive influence of knowledge quality, knowledge network, and knowledge sharing on creativity and innovation capability. Therefore, the present study investigated the moderating role of time sufficiency in the interlinkage between creativity and employees' innovation capability, knowledge network and employees' innovation capability, and knowledge sharing and employees' innovation capability to include empirical evidence, a more profound understanding, and an integrated vision of the pathways leading to innovation capability. As a means to bridge the aforementioned theoretical gaps, the current study was designed to answer the subsequent research questions:

RQ1. How do knowledge quality, knowledge network, and knowledge sharing impact creativity and innovation capability?

RQ2. Does creativity mediate the relationship between knowledge quality and innovation capability, knowledge sharing, and innovation?

RQ3. Does time sufficiency moderate the effect of creativity on innovation? What is the relationship between knowledge quality and innovation and between knowledge sharing and innovation?

In order to answer these research questions, the present study developed a series of hypotheses validated by Structural Equation Modelling (SEM) statistical analysis conducted in a series of primary surveys on 414 respondents from 69 export SMEs in Indonesia with three considerations. First, the employee innovation capability of SMEs is not regarded as crucial (Abdul-Halim et al., 2018), even though the findings from Kwarteng et al. (2016) revealed that performance and sustainability are built on creativity and innovation at all levels. Moreover, Indonesia is ranked 87th out of 132 countries in this regard (WIPO, 2021). Consequently, boosting innovation for

competitive advantage at the global level is indispensable (Chang et al., 2017; Tsimoshynska et al., 2021). Second, Indonesia is a developing country with around 64 million SMEs that continue to grow to encourage national economic growth (Arsawan et al., 2022). The general problem of SMEs, mainly export SMEs, is the lack of implementation of employees' knowledge, creativity, and innovation to provide problem-solving in their routine activities. Third, the increase in creativity and innovation capability will strengthen the management process model for small and medium enterprises to strengthen economic growth in Indonesia.

Drawing from job demand resource theory (Bakker & Demerouti, 2007; Demerouti et al., 2001) and the essential role of innovation (Areed et al., 2021; Chaubey et al., 2022; Colclough et al., 2019), the present study is crucial in grasping dynamic scenarios and providing proper examination in explaining employee's innovation capability based on types of knowledge as drivers of creativity.

2. Theoretical background and hypotheses.

2.1. Job demand resource theory.

The theoretical framework underpinning this study is job demands-resources theory (Bakker & Demerouti, 2007; Demerouti et al., 2001), which describes work environments as having respective characteristics and illustrates that wellbeing and efficiency in the workplace could be the result of two types of working situations – job demands and job resources (Bakker & Demerouti, 2017). The interactions between these two components are not merely interactions in welfare development and job performance, but also employee burnout (Signore et al., 2022). Specifically, demands at work involve professional aspects that would result in taxing endeavors if they exceed employees' ability to adapt (Seibert et al., 2017). These endeavors can be physical or cognitive (intense workloads, pressures, emotionally challenging interactions with others), and can lead to physiological and psychological effects (Demerouti et al., 2001).

Demands at work do not necessarily adversely impact employees; however, high demands placed on employees at work can lead to a bottleneck. Consequently, demands at work are conceived as physical, psychological, social, and organizational aspects that entail substantial physical and psychological endeavors and are thus linked with specified costs (Demerouti et al., 2001). The second factor in the JD-R model concerns job resources. These are physical, psychological, social, and organizational features that can be instrumental in achieving goals, reduce physiological and psychological costs that are associated with demands at work, and enhance learning and development abilities (Bakker & Demerouti, 2017). In the existing literature (Bakker & Demerouti, 2007; Burdizuha et al., 2020), job resources entail social support, job autonomy, supervision, performance feedback, coaching, and time control. Job resources are intrinsically and extrinsically motivating because they enable the fulfilment of human needs and the pursuit of growth and autonomy in the workplace (Joo et al., 2014; Llopis & Foss, 2016).

2.2. Knowledge network, knowledge quality, and individual creativity.

Turbulence and challenges in the business environment have forced employees to seek

knowledge from external parties (e.g., consumers, sellers, government, suppliers, or competitors) for novel insights (Nonaka & Takeuchi, 1995). Some employees may not master the skills necessary for job success; thus, an effective knowledge network is crucial. Knowledge networks enable employees to receive valuable contacts, information, and insights from both within and outside the organization (Baldé et al., 2018). Other employees can act as knowledge intermediaries related to their mastery, and can acquire core competencies (Yoo et al., 2011).

Knowledge networks increase the efficiency of employees' roles because they can seek external expertise to cope with the complex and uncertain nature of work. This enables employees and groups to access a more comprehensive external source of knowledge. In addition, the promotion and development of intra- and extra-organizational knowledge networks will promote the communication of essential ideas, views, and points of view to increase employees' creativity (Valaei & Rezaei, 2017). Combining internal and external resources enables employees to obtain helpful knowledge and supplementary skills. Thus, they may improve their knowledge quality through convenient integration, utilizing knowledge networks and enhancing creativity. With increased knowledge, employees have the opportunity to learn to the greatest extent and to develop their own potential (Bakker & Demerouti, 2017). Given the arguments above, we proposed the following hypotheses:

H1. Knowledge networks significantly affect knowledge quality.

H2. Knowledge networks significantly affect individual creativity.

2.3. Knowledge quality, knowledge sharing, creativity, and innovation capability.

Knowledge quality is defined as the acquisition of valuable and solution-oriented knowledge in completing activities (Ganguly et al., 2019), and can be a new alternative for system development, achieving organizational goals or creating innovations (Waheed et al., 2021). The knowledge quality possessed by employees will influence the knowledge quality of the group, unite the common goals and interests of team members, and highlight the importance of sharing knowledge among them, which successively improves the value of knowledge sharing. In addition, knowledge that is of good quality will encourage an increase in the sharing of quality knowledge so that it is truly beneficial at all employee levels (Valaei & Rezaei, 2017; Y. Zhang et al., 2019). Simultaneously, knowledge quality will stimulate dynamic capability (Sabetzadeh & Tsui, 2015) in building employees' creativity because knowledge can be the basis for developing ideas to help complete work (Yoo, 2014).

Furthermore, Yoo et al. (2011) claimed that higher levels of knowledge quality help organizations to be more productive, reduce costs, increase efficiency in their processes, and influence innovation. Therefore, quality knowledge not only has significant meaning to the personal quality of employees, but also provides support for knowledge management in the long term and is a source of innovative ideas (Sabetzadeh & Tsui, 2015). As a result, excellent knowledge provides several opportunities for employees to raise their level of innovation, whether it is connected to process innovation, product innovation, or technique, because the quality of ideas significantly impacts innovation (Migdadi, 2020). Thus, it can increase professional interaction in improving performance (Signore et al., 2022). The use of knowledge quality provides a multi-layered effect on the knowledge-sharing process and stimulates employees' creativity and innovation capability

(Alassaf et al., 2020; Nguyen et al., 2019). Therefore, knowledge quality can prominently impact the decision-making chain and subsequent movements in innovation practice, which may manifest into improvements or development in the organization's innovation capability (Ganguly et al., 2019). In reference to the arguments above, the authors proposed the following hypotheses:

H3. Knowledge quality significantly affects knowledge sharing.

H4. Knowledge quality significantly affects individual creativity.

H5. Knowledge quality significantly affects innovation capability.

2.4. Knowledge sharing, individual creativity, and innovation capability.

Various researchers have examined the notion that facilitating access to the knowledge of colleagues in organizations has encouraged the creative and innovative behavior of individuals (Bhatti et al., 2020; de Clercq & Pereira, 2020; Rese et al., 2020; Zeb et al., 2019; Zhao et al., 2020) and organizational innovation capability (Meyer, in press; Parwita et al., 2021). Employees with a more robust knowledge bond will be more versatile and receptive to new ideas and concepts, allowing them to reunify and reconstruct information to generate more innovative ideas (Bhatti et al., 2020) that progressively improve employees' performance while also benefiting companies. Employee knowledge sharing is critical for developing particular knowledge in the organizational realm (Soda et al., 2019).

Knowledge exchange between employees at various levels results in employees becoming more aware of and motivated by the organization's strategic goals and processes that assist them in increasing capability (Wang & Zatzick, 2019). Employees with access to knowledge will stimulate the emergence of the latest innovative viewpoints and have a high tendency to take advantage of these ideas (Valaei & Rezaei, 2017). A new perspective is the trigger in stimulating responses to think creatively and take advantage of creatives ideas to innovate (Akram et al., 2020). Given the arguments above, the authors proposed the following hypotheses:

H6. Knowledge sharing significantly affects individual creativity.

H7. Knowledge sharing significantly affects innovation capability.

2.5. Individual creativity and innovation capability.

Creativity is generally viewed as the capacity to produce new and valuable work in a particular domain (Ferreira et al., 2020; Phelps et al., 2012). Accordingly, creativity obliges opportunities for new, original, and practical ideas because it is considered an essential element of innovation. For this reason, organizations need a set of processes, methods, and structures that enable timely and efficient performance to achieve innovation. Although creativity and innovation are commonly interchangeable, they are not synonymous (Bhatti et al., 2020). The definition of innovation is described as the deliberate introduction and use of the concept (idea), method (process), products, or procedures that are novel to the job, work team, or organization and are meant to benefit those entities in their work, teamwork, or organization (Ba et al., 2021). Innovation capability permits organizations to attain long-term performance because it can be interpreted as successfully implementing creative concepts where creativity acts as the foundation. Creativity is fundamental to successful innovation (Migdadi, 2020) because it involves complex

processes, such as new product/service development, improvisation, and competence (Ganguly et al., 2019). Based upon the arguments above, the authors proposed the following hypothesis:

H8. Individual creativity significantly affects employee's innovation capability.

2.6. The mediating role of individual creativity.

Creativity is “a novel and appropriate, useful, correct, or valuable response approach to the task at hand, and the task is heuristic rather than algorithmic” (Amabile, 1983). Therefore, creativity is essential for organizations to increase competitiveness in national and global markets. Organizations with excellent innovation capability are generated by creative employees or individuals (Ferreira et al., 2020; Soda et al., 2019), with an emphasis on the notion that research on creativity in large organizations and SMEs is a starting point in building innovation capability. One of the drivers of this is the role of knowledge quality, which may stimulate the emergence of creativity and become the basis for developing ideas to assist in completing tasks and assisting employees to be more productive. This, in turn, increases their level of innovation (Sabetzadeh & Tsui, 2015), whether related to process innovation, product innovation, or methodology, because the quality of ideas has a significant influence on the success of innovation (Migdadi, 2020). Nevertheless, knowledge sharing between employees is critical to developing knowledge (Soda et al., 2019), thereby increasing awareness and motivation, which contributes to capacity building (Wang & Zatzick, 2019). This stimulates the emergence of novel and innovative concepts and encourages the high tendency to take advantage of these ideas (Valaei & Rezaei, 2017) to be more creative. Consequently, employees have a broad horizon for generating concepts, ideas, and creativity, increasing their innovation capability. Based upon the arguments above, the authors proposed the following hypotheses:

H9. Creativity mediates the interlinkage between knowledge quality and innovation capability.

H10. Creativity mediates the interlinkage between knowledge sharing and innovation capability.

2.7. The moderating role of time sufficiency.

Drawing from the theory of resource conservation (Hobfoll, 1989; Hobfoll & Shirom, 2000), the effectiveness of knowledge in promoting positive work behavior depends on the degree to which employees can apply the lessons learned from ancillary resources that create the improvement of practicable activity (de Clercq & Pereira, 2020). When employees have a realistic workload, they will be able to encounter and meet deadlines, and the cognitive ability to assign the knowledge obtained from mutual exchanges to work accomplishments increases because of the incorporation of the expansion of novel concepts (Pooja et al., 2016). Perceived time adequacy can stimulate knowledge-based relational resource application to encourage creative behavior since employees have extra time to advance and preserve their novel concepts (Chen et al., 2015) and generate motivation to become involved in the knowledge-sharing process (Ba et al., 2021).

Furthermore, when employees are not troubled by impractical workloads and have adequate time to complete their tasks, they can expect more support for professionalism and capability enhancement (Migdadi, 2020). This can force the motivation to dedicate knowledge-sharing

to creativity so that the organization can benefit from it (Rese et al., 2020; Zeb et al., 2019). In contrast, when employees are under time constraints, the benefits of employing relational resources to engage in creative tasks may appear minimal because individuals fear failure (Avery et al., 2010). Employees who are under extreme time pressure may lack the incentive to actively seek out novel organizational problem-solving strategies using their knowledge-based relational resources because such knowledge application looks less desirable (de Clercq & Pereira, 2020). Founded on the arguments above, the authors proposed the following hypotheses:

H11. Time sufficiency moderates the relationship between knowledge sharing and innovative capability.

H12. Time sufficiency moderates the relationship between knowledge quality and innovation capability.

H13. Time sufficiency moderates the relationship between employees' creativity and innovation capability.

Therefore, this research examines and explains the direct relationship between knowledge network, knowledge quality, knowledge sharing, individual creativity and employee innovation capability. Furthermore, individual creativity was tested as a mediating variable and time sufficiency as a moderating mechanism among the constructs. The research framework is shown in Figure 1.

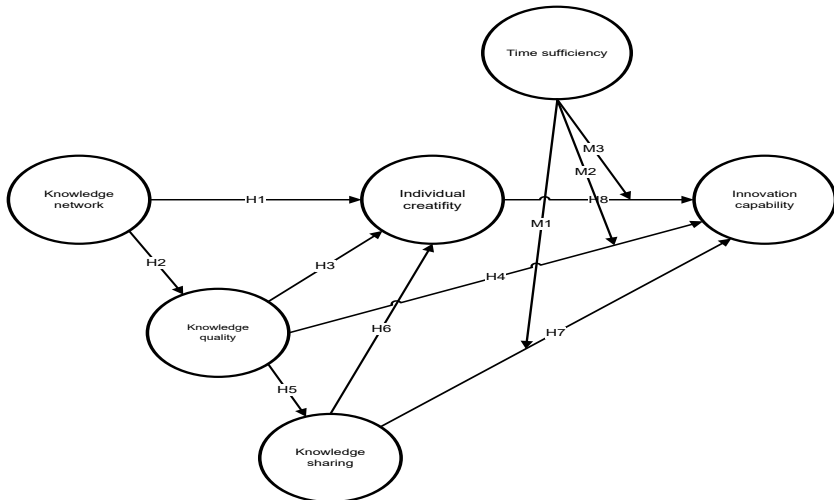


Figure 1. Theoretical framework

3. Methodology.

3.1. Population and sampling procedure.

The population of this study consisted of 8,967 export SMEs in Indonesia registered under the Business and Export Development Organization (BEDO). Within the constraints of costs and the scope of the coverage area of the study, the selected samples were taken only in Bali province using purposive sampling following three criteria. First, export SMEs in Bali covering all of the nine province regencies in the BEDO database. Second, SMEs that were actively conducting export in the past 5 years (2016–2020) and recorded at the department of industry and trade of the regency. Third, the international market requires products and services that have added value, quality, and international standards. Therefore, the operational activities of SMEs require the ability to adapt to market fluctuations and environmental uncertainty by carrying out continuous innovation. Because innovation is based on knowledge and creativity, export SMEs must have had a strategic policy regarding this matter in order to qualify for this study.

The number of samples in this study is 150 export SMEs. Furthermore, to achieve the research objectives, we made phone calls, emails and in-person visits to 150 SME representatives in August–October 2021 to explain the research objectives and request cooperation in filling out the questionnaire. Based on direct visits, emails, and phone calls, we established 69 SMEs who were willing to be subjects of this research. Of the 69 willing SMEs, we distributed a total of 450 questionnaires to respondents from three levels (low, middle and top management), and received 428 responses. Of these responses, 414 were valid, giving a validity level of 96.73 percent. Respondents in this study were vital employees who held leadership positions in teams in their HR, administration, accounting, operations, marketing/sales, and finance departments. This step was taken to ensure that all participants understood and regularly shared strategic information within the organization.

3.2. Measurements.

Variables were measured using items adopted from the existing literature. To measure each construct, a seven-point Likert scale was used – with 1 representing *strongly disagree* and 7 – *strongly agree*. Knowledge network was measured by 5 indicators adapted from (Yoo et al., 2011); knowledge quality was measured by 3 dimensions and 19 indicators adapted from (Yoo et al., 2011); knowledge sharing was adapted from (Bhatti et al., 2020) and (Wu et al., 2007) and included 10 indicators; individual creativity was measured by 4 indicators from (Zhao et al., 2020a); innovation capability was measured by 4 dimensions and 16 indicators from (Migdadi, 2020); and time sufficiency was measured by 3 indicators from (de Clercq & Pereira, 2020).

The Partial Least Square (PLS) is a suitable method for testing research models that validate a theory (Hair et al., 2016). For this reason, this study uses PLS-SEM utilizing SmartPLS 3.2.9 software to test the hypothesized relationships in the research model suggested in this study based on data from 414 respondents in 69 Export SMEs in Indonesia. This method was also used to assess the validity and reliability of the construct by inspecting the measurement model (Hair Jr et al., 2017). As Hair Jr et al. (2017) suggest, PLS-SEM is a powerful method for predicting small samples and there is no assumption of distribution of the collected data (Hair et al., 2016). Furthermore, the PLS-SEM rule-of-thumb for detecting the minimum sample size is to remove

twenty to thirty times the maximum number of arrows pointing to a construct, or independent variable (Hair Jr et al., 2017). Our research sample fully meets these criteria. Finally, this method was also used to assess the moderating role of experience by testing multi-group analysis (Hair Jr et al., 2016). A descriptive analysis was first carried out using the SPSS software before the data were examined using PLS-SEM.

4. Results.

4.1. Respondent profile

This study involved 414 respondents from 69 Export SMEs in 9 districts in Bali, Indonesia. We handed questionnaires to employees to gather data for our research on strategic policies regarding creativity, innovation, and types of knowledge. Export SMEs in Indonesia grow and develop into the backbone of the economy because they create jobs and increase gross domestic product (GDP) and economic growth (Arsawan et al., 2021). Table 1 explains that the most common amount of experience among employees is 11–15 years (30.5%), indicating that employees have a lot of time to absorb knowledge, with the dominant age being 31–40 years (Abualqumboz et al., 2020; Jordão et al., 2019). With an average education level equivalent to a bachelor's degree (92%), the employee's ability to absorb knowledge (Arsawan et al., 2018) and integrate knowledge networks and turn them into knowledge quality is crucial (Abualqumboz et al., 2020; Zhang, 2019). Finally, the dominant level of employees involved in this study was low management (59.67%) because they have routine activities that are directly related to creativity and innovation capability to complete their work.

Table 1. Respondent profiles

Characteristics	Frequency	Percentage
Years of work experience		
<5	41	9.9
6–10	112	27.1
11–15	126	30.5
16–20	103	24.8
>20	32	7.7
Age		
21–30	27	6.50
31–40	194	47.00
41–50	167	40.30
51–60	26	6.20
Educational Level		
Bachelor	381	92.00
Master	29	7.00

Doctor	4	1.00
Gender		
Male	314	75.85
Female	100	24.15
Level of positions		
Top management	70	16.90
Middle management	97	23.43
Low management	247	59.67

4.2. Measurement model

The current research model was founded on 57 items from six variables, as shown in Table 2. The VIF test was used to evaluate the variance of the general method prior to evaluating the model (Kock & Lynn, 2012). The findings revealed that the full collinearity VIF has a value of 2.726, indicating no issue with the common method variance. Therefore, a two-stage check was utilized to evaluate the suggested model. The assessment of construct reliability and validity were the initial step. The average variance extract (AVE), outer loadings, composite reliability (CR), and Cronbach's Alpha were all examined in this study to achieve the goal. According to the findings, all factor loadings were greater than 0.6. Additionally, all CR values were greater than 0.7, and AVE values were more than 0.5, meeting the reliability and validity requirements (Hair et al., 2016).

Table 2. Measurement model of indicators

Variables	Dimensions	Indicators	Loading	CA	CR	AVE
Knowledge network				0.865	0.902	0.649
		Individual-external knowledge	0.784			
		Individual-external resources	0.824			
		Useful contacts outside	0.825			
		Coordinates individual-external	0.766			
		Seeks feedback	0.828			

Knowledge quality	Intrinsic knowledge quality			0.906	0.926	0.645	
		Knowledge accurate	0.871				
		Knowledge reliable	0.864				
		Knowledge objective	0.867				
		Knowledge unbiased	0.615				
		Knowledge believable	0.786				
		Knowledge current	0.802				
		Knowledge updated	0.786				
	Contextual knowledge quality				0.928	0.943	0.735
		Knowledge of decision making	0.808				
		Knowledge of personal operations	0.882				
		Knowledge of competitive advantage	0.834				
		Knowledge of my tasks	0.821				
		Knowledge of our jobs	0.898				
		Knowledge context-specific	0.897				
	Actionable knowledge quality				0.935	0.949	0.758
		Knowledge actionable	0.931				
		Knowledge adaptable	0.919				
		Knowledge expandable	0.911				
		Knowledge applicable	0.815				
		Knowledge effective	0.809				
	Knowledge capacity	0.828					
Knowledge sharing				0.940	0.949	0.654	
	Discussing work-related	0.783					
	Willing to share	0.620					
	Willing to answer	0.788					
	Record a document	0.870					
	Demonstration	0.841					
	Opportunities to perform	0.824					
	Offer information	0.849					
	Look for assistance	0.830					
	I encourage colleagues	0.861					
	Express ideas	0.794					

Individual creativity			0.934	0.953	0.836	
		Finding solutions	0.944			
		New ideas for products	0.907			
		Analytical thinking	0.948			
		Creating new procedures	0.856			
Innovation capability	Product innovation			0.894	0.926	0.757
			Introduces innovative products	0.873		
			Capability for new knowledge	0.831		
			Develop new products	0.909		
			Capability to use new materials	0.866		
	Process innovation			0.919	0.943	0.807
			Pioneer disposition	0.804		
			Capability to adjust the processes at all levels	0.924		
			Displays clever responses	0.926		
			Improves existing machinery and equipment	0.934		
	Marketing innovation			0.917	0.942	0.802
			Close relationship management customers	0.826		
			Good knowledge of different market segments	0.903		
			Highly efficient sales-force	0.923		
			Product distribution is efficient	0.925		
	Organizational innovation			0.857	0.904	0.702
			Coordination and cooperation	0.904		
			Integration and control	0.879		
			Developing and gaining access	0.789		
			The capability of innovative strategy	0.772		

Time sufficiency			0.704	0.834	0.627
	Work too fast	0.788			
	Work under time pressure	0.820			
	Deal with a backlog at work	0.765			

Additionally, we employed the HTMT criteria to examine the discriminant validity; the HTMT ratio value should be <0.85 (Hair Jr et al., 2016). Table 3 showed that all HTMT ratios <0.85 , confirming that the criteria for discriminant validity in this research model have been met.

Table 3. HTMT Heterotrait-Monotrait Ratio (HTMT)

Constructs	Knowledge Network	Knowledge Quality	Knowledge Sharing	Individual Creativity
Knowledge network				
Knowledge quality	0.698			
Knowledge sharing	0.676	0.741		
Individual creativity	0.612	0.673	0.697	
Innovation capability	0.687	0.831	0.779	0.739

4.3. Structural Model

The second stage of the investigation was to evaluate the structural model and hypotheses. A 5000-iteration bootstrap approach was used to evaluate the path coefficients following scientific advice from Chin et al. (2008). These results indicated a goodness of fit value of 0.488, which Tenenhaus et al. (2005) deem adequate for the suggested model. Next, knowledge network, knowledge quality and knowledge sharing were evaluated for their ability to explain variation in creativity, which was 74.8% of the variation in innovation capability ($R^2 = 0.748$). According to Chin et al. (2008), the percentage value of R^2 suggested that the independent variable's explanatory power on employees' innovation capability was reasonable. Finally, the structural model was further evaluated, revealing a mean path coefficient of 0.427 ($p < 0.01$), AVIF 4.335 – below the maximum recommended level of 5 (Hair et al., 2016). These findings indicated that the tested model was fit, had a rational explanatory power, and a path coefficient and variance inflation within acceptable limits.

4.4. Hypothesis testing

As recommended, the present study evaluated the path coefficients using 5,000 bootstrap samples (Hair et al., 2016). As a result, the direct effects of knowledge network and individual creativity ($\beta = 0.168$) and knowledge quality ($\beta = 0.698$) were significant ($p < 0.01$) according to Table 4, supporting hypothesis 1 and hypothesis 2. In addition, hypothesis 3 was supported by the direct impact between knowledge quality and individual creativity ($\beta = 0.402$), which was also

significant ($p < 0.01$). Further, the nexuses between knowledge quality and innovation capability ($\beta = 0.327$) and knowledge quality and knowledge sharing ($\beta = 0.753$) were similarly significant ($p < 0.01$), which supported hypothesis 4 and hypothesis 5.

Table 4. Hypotheses testing

	β	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (O/ST-DEV)	p-value	Decision
KN \rightarrow Individual creativity (H1)	0.168	0.170	0.060	2.778	0.006	Supported
KN \rightarrow KQ (H2)	0.698	0.699	0.029	24.349	0.000	Supported
KQ \rightarrow Individual creativity (H3)	0.402	0.398	0.062	6.505	0.000	Supported
KQ \rightarrow Innovation capability (H4)	0.327	0.324	0.056	5.876	0.000	Supported
KQ \rightarrow KS (H5)	0.753	0.753	0.025	30.461	0.000	Supported
KS \rightarrow Individual creativity (H6)	0.242	0.241	0.063	3.853	0.000	Supported
KS \rightarrow Innovation capability (H7)	0.193	0.191	0.053	3.610	0.000	Supported
Individual creativity \rightarrow Innovation cap. (H8)	0.327	0.325	0.048	6.787	0.000	Supported

The next stage was to test the mediation mechanism once the direct relationship between variables had been established. In the context of the present study, two mediation pathways were examined. Non-parametric bootstrap analysis was performed for evaluation (Hair et al., 2016) using Variance Accounted For (VAF), which classifies data into three categories: no mediation (VAF < 0.20), partial mediation (VAF range 0.20–0.80), and full mediation (VAF > 0.80).

Table 5. Mediation testing

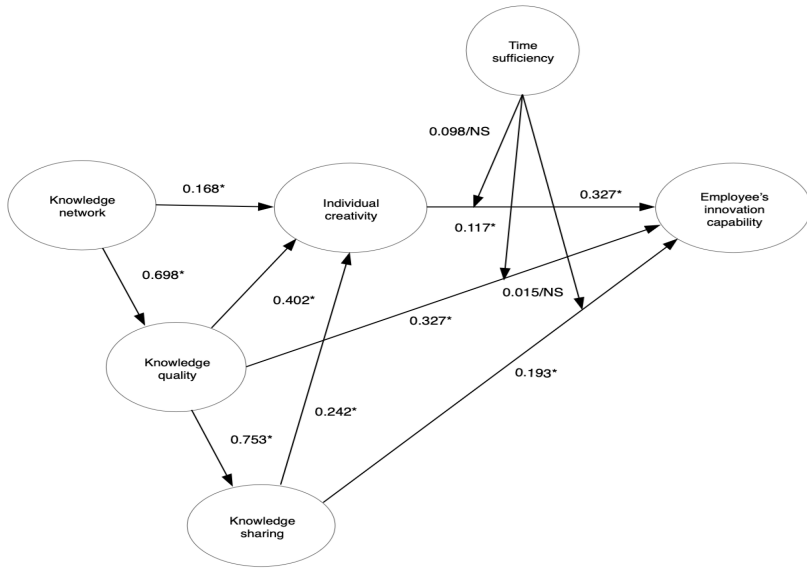
Link*	Mediator*	Independent Variable \rightarrow Mediator	Mediator \rightarrow Dependent Variable	Direct	Indirect	Total effect	VAF (%)	Data interpretations
Knowledge quality \rightarrow innovation capability (H9)	Creativity	0.402	0.327	0.327	0.131	0.458	0.286	Partial mediation
Knowledge sharing \rightarrow innovation capability (H10)	Creativity	0.242	0.327	0.193	0.079	0.272	0.290	Partial mediation

Table 5 presents information suggesting that, with a VAF value of 0.286 (28.6%), individual creativity mediated the interlinkage between knowledge quality and innovation capability, supporting hypothesis 9. Moreover, with a VAF value of 0.290 (29%), individual creativity mediated the interlinkage between knowledge sharing and innovation capability; hence, hypothesis 10 was accepted.

Furthermore, the present study also tested the moderating variable (see Table 6). The moderating role of time sufficiency was examined by using multigroup analysis using PLS (Henseler & Fassott, 2010). Initially, determining whether time sufficiency functions as a moderator variable in the nexus between individual creativity and innovation capability ($\beta = 0.098$, STDEV 0.060, T Statistics $1.621 < 1.96$, PV 0.106) was not proven; thus, hypothesis 11 was rejected. Next, hypothesis 12 was accepted since time sufficiency was a moderator in knowledge quality and innovation capability ($\beta = 0.117$, STDEV 0.051, T Statistics $2.285 > 1.96$, PV 0.023). Finally, evaluating time sufficiency in the nexus between knowledge sharing and innovation capability ($\beta = 0.015$, STDEV 0.061, T Statistics $0.247 < 1.96$, PV 0.805) indicated that it did not act as a moderator, and thus hypothesis 13 was rejected.

Table 6. Moderation testing

	β	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (O/STDEV)	p-value	Decisions
Creativity *TS Innovation capability (H11)	0.098	0.093	0.060	1.621	0.106	No Moderation
KQ*TS Innovation capability (H12)	0.117	0.117	0.051	2.285	0.023	Moderation
KS*TS Innovation capability (H13)	0.015	0.014	0.061	0.247	0.805	No Moderation



Notes: * $p < 0.05$; ** $p < 0.01$; NS: Non-significant

Figure 2. Full model analysis

5. Discussion.

Strengthening innovation capability has been considered a key predictor of organizational success. According to the results of the present study, knowledge network, knowledge quality, and knowledge sharing positively impact creativity, which increases employees' capability for innovation. A significant contribution to theoretical and practical endeavors in the field of innovation and knowledge management was produced in this study. The present study investigated the elements influencing employees' innovation capability, with time sufficiency as a moderating variable. Using PLS-SEM analysis, it discovered that employees' creativity significantly influences innovation capability, followed by knowledge quality and knowledge sharing. These findings support previous studies in the context of SMEs (Ganguly et al., 2019; Le & Lei, 2019; Singh et al., 2021), which discovered the importance of knowledge sharing and knowledge quality in developing innovative capability. These results suggest that knowledge sharing and quality are essential triggers in maximizing knowledge, leading to innovation capability that enhances the company's performance even further. This study supports previous findings on organizations' efforts to improve their innovation (Ferreira et al., 2020; Le & Lei, 2019; Migdadi, 2020). In addition, these results indicate that knowledge quality influences employees' creativity, followed by knowledge networks and knowledge sharing. These findings demonstrate that knowledge quality would support the growth of knowledge networks (Abualqumboz et al., 2020; Shi et al., 2019). These networks would eventually be shared to benefit employees at all levels.

Furthermore, the findings of this study investigate creativity as a mediating variable. Although both mediation relationships evaluated were significant, the relationship between knowledge sharing, creativity, and innovation capability was more significant. These findings show that SMEs prioritize the process of information sharing that is utilized to improve creativity (Cegarra-Navarro & Martelo-Landroguez, 2020; Haider & Kayani, 2021) and innovation capability (Ganguly et al., 2019). They also imply that knowledge sharing is the primary catalyst for SMEs to produce high-quality knowledge (Mao et al., 2015; Ode and Ayavoo, 2020), which then serves as the foundation for how employees become more creative, allowing them to innovate in their regular work (Ko & Choi, 2019; Liu et al., 2017; Nguyen et al., 2019).

Moreover, within this study's three moderation tests, time sufficiency merely modified the relationship between knowledge quality and innovation capability. These results suggest that time sufficiency enhances the quality of knowledge and innovation capabilities. Employees with a realistic workload will be able to meet deadlines and cognitively apply their newly gained information to improve productivity (Pooja et al., 2016). In addition, perceived sufficiency of time would stimulate knowledge-based resources to encourage creative behavior as employees have extra time to enhance their new ideas (Liao & Chen, 2018), motivating them to engage in the knowledge-sharing process (Ba et al., 2021).

This study presented significantly advances theories of innovation and knowledge management in three areas. First, despite knowledge being a crucial organizational resource, researchers have not paid it much attention (Ganguly et al., 2019; Parwita et al., 2021; Singh et al., 2021; Zhao et al., 2020). The present study suggests a research model that connects type of knowledge (knowledge network, knowledge quality, and knowledge sharing) with creativity and innovation capability to close the research gap. Evidence supports the substantial impact of knowledge network, knowledge quality, and knowledge sharing on employees' creativity and innovation capability. The present study suggests that while the type of knowledge enables companies to foster employees' creativity, it is also a powerful approach to promoting innovation capability.

Secondly, research by Anderson et al. (2014) revealed that knowledge is a core component of creativity, but very few empirical studies have examined how this aspect influences creativity and innovation capability in the workplace. Therefore, it was recommended by Parwita et al. (2021) to investigate the individual creativity mechanisms that mediate knowledge sharing and innovation behavior. The present study has established a nexus between knowledge sharing and innovation capability based on the mediating role of creativity in response to this urge. Empirical research has verified that creativity, as a strategic and intangible resource, significantly and positively affects an individual's capacity for innovation. Additionally, creativity serves as a potent mediator between knowledge quality and innovation capability. This provides a definitive answer to Ganguly et al. (2019) and Anderson et al. (2014) regarding the interlinkage between organizational resources and innovation capability. The present study demonstrates the integrative theory of the relationship between knowledge quality and innovation capability through the mediating role of creativity, and highlights the significant direct or indirect effects of knowledge quality and knowledge sharing on innovation capability through their positive effects on creativity. These findings reveal that knowledge quality motivates employees to be more creative and increases innovation capability. Creativity boosts employees' innovation capability by enabling knowledge quality to allow them to rapidly respond to new information and the external environment, com-

plete jobs effectively, and address current problems (Le & Lei, 2019).

Finally, this paper responds to the academic urge for more precise time sufficiency mechanisms to moderate the nexus between knowledge sharing and innovation capability (de Clercq & Pereira, 2020). The three effects of time sufficiency on knowledge quality/innovation, knowledge sharing/innovation, and creativity/innovation were examined in this study. The empirical findings reveal that time sufficiency positively moderates the nexus between knowledge quality and innovation capability. This finding considerably advances knowledge quality by incorporating time sufficiency as a situational variable interacting with knowledge quality to influence innovation capability positively. Furthermore, these results reveal that, according to the degree of employees' time sufficiency, the influence of knowledge quality on creativity and innovation capability might have different effectiveness and outcomes. These results suggest, more particularly, that if knowledge quality was taken into account then creativity would be enhanced and would actively contribute to help improve knowledge quality, competence, and personal competitive advantages (PCAs), thereby increasing the ability for innovation.

5.1. Theoretical implications.

First, this study expands the model of employees' innovation capability in the context of SMEs through knowledge types (i.e., knowledge network, knowledge quality and knowledge sharing). The integration of the knowledge type and innovation capability models based on creativity helps understand SMEs in building performance at the individual level to improve team and organizational performance. The theoretical contribution of this study can be seen in the suitability of the proposed model, where knowledge network, knowledge quality and knowledge sharing are integrated as drivers of employee creativity and innovation ability. From the innovation capability-based creativity model, the suitability of the proposed integrated model offers a significant contribution – something that has never been tested in previous research.

Second, from the perspective of conservation of resource theory (Hobfoll, 1989; Hobfoll & Shirom, 2000), knowledge-based relational resources provide insights into innovative work behavior. When employees have an achievable workload, they will be able to meet work-related deadlines and their cognitive ability will be utilized to allocate insights gained into routine activities. The perception of time sufficiency can stimulate creative behavior because employees have more time to develop and sustain new ideas that trigger motivation to engage in the knowledge sharing process (Ba et al., 2021). Conversely, employees feel burdened when they are burdened by time pressures, and this has an impact on decreasing motivation and creativity. For this reason, the role of communication is very important to reduce social fatigue due to work demands (Signore et al., 2022). Communication can be the foundation in increasing collaboration, building shared knowledge and strengthening social capital (Arsawan et al., 2022).

Third, in the context of the effect of time sufficiency on the relationship between knowledge quality and employees' innovation capability, this study also succeeds in enhancing job resource demand theory (Bakker & Demerouti, 2007, 2017). The moderating role that supports the relationship between these constructs offers support for the time sufficiency proposition, which we believe is a challenge to be explored further in the future. That is, by providing sufficient time to complete work, the knowledge quality that is absorbed can be transformed into a higher innovation capability which ultimately increases innovative work behavior (Kmieciak, 2020; Miller &

Miller, 2020; Phung et al., 2019), productivity and performance (Arsawan et al., 2018). Providing sufficient time for employees to complete work will improve learning abilities and employee self-development processes (Bakker & Demerouti, 2017).

5.2. Managerial implications.

The present study offers a more thorough understanding of the causal nexus between types of knowledge, individual creativity, and employees' innovation capability in terms of empirical analysis and theoretical contributions. As a result, the present study can be utilized by managers of small and medium-sized companies in Indonesia to help them practice organizational support, encourage creativity, and improve innovation capability, especially at the individual level for organizational performance. The specific managerial implications are as follows.

First, the results indicate that information quality is the primary means of encouraging individual creativity, which in turn promotes the capability for innovation. High-quality knowledge is probably the best way to stimulate creativity (Ganguly et al., 2019) by building intense communication (Zhang et al., 2019). This will help cultivate creativity for innovation capability (Ferreira et al., 2020; Liao & Chen, 2018). The present study provides significant implications, practical advice, and an apparent path toward enhancing employees' innovation capability.

Second, the empirical research findings demonstrate the importance of knowledge quality in encouraging employees to share ideas, knowledge and innovation. The impact of knowledge sharing and innovation can be enhanced by high knowledge quality. Our findings add to the body of knowledge by demonstrating how knowledge quality magnifies the impact of knowledge sharing on innovation capability. This result supports the notion that employees' behavior in knowledge sharing and innovation is a long-term task and needs external assistance to be successful (Le & Lei, 2019). We are aware that knowledge quality places a high value on encouraging employees to perform knowledge sharing and actively develop their innovation capability.

Third, Griese et al. (2012) asserted that knowledge activities could generate strategic resources and competencies that enable companies to outperform their competitors and achieve higher innovation outcomes. This finding highlights the importance of knowledge sharing as the catalyst for innovation and the centrality of employees in the knowledge-sharing process. In order to encourage staff to participate positively and actively in the innovation process, managers must focus on identifying efficient pathways and sensible strategies.

5.3. Limitations and further study.

Although the present study has significantly aided the comprehension and value of the existing literature, it has some limitations. First, the cross-sectional approach does not rule out the potential that long-term causal association could develop due to alterations in one's psychology and beliefs. In this study, employees' beliefs about innovation capability are strengthened by time sufficiency, which is very sensitive to employee morale, work demands and self-motivation. This can be addressed by conducting a longitudinal study and consolidating the results into encouraging findings.

Second, although knowledge is universally acknowledged as a fundamental and durable resource that enables companies to innovate and sustain a competitive advantage, the present study solely centers on examining how the type of knowledge affects creativity and innovation

capability. Future research must look at the relationship between psychological change, individual beliefs, and specific characteristics of innovation capability in order to fully comprehend the significant impact that knowledge has on employees' innovation capability. Eventually, further studies should examine the relationship between latent variables in greater detail by evaluating the moderating role that could influence the transformation of knowledge sharing into better innovation. This will assist directors and managers in understanding the factors, processes, and mechanisms influencing innovation.

Third, this study was conducted in Bali, Indonesia, which means that the research results cannot be generalized to other geographic contexts by only involving export SMEs. For this reason, future research can adopt this model in other countries and in other industrial sectors such as hospitality, information technology or innovation-based organizations.

Finally, this study solely uses the SEM-PLS approach to predict the model proposed in the hypothesis. Future research might use a stronger approach in explaining and interpreting research results to produce more realistic theoretical and managerial recommendations.

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