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# WHICH FACTORS HELP SMES' PERFORMANCE RECOVER POST-PANDEMIC? THE ROLE OF LEARNING CAPABILITY, INTELLECTUAL CAPITAL, AND TECHNOLOGICAL INNOVATION

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## **Abstract:**

*SMEs are significantly affected by the COVID-19 pandemic. This study examines how these variables interact to help SMEs recover and develop sustainably. The quantitative method is adopted in this paper. The research data was acquired from 450 SMEs in several industries in Vietnam. Research results show that learning capability improves intellectual capital and SMEs' performance. Next, technological innovation moderated the link between learning capability, intellectual capital, and SMEs performance, suggesting that integration can improve SMEs' recovery and resilience. Driven by research findings, SMEs should develop a learning culture and technological innovation to leverage performance during the turbulent circumstances of COVID-19. Furthermore, managers should invest in intellectual capital to support innovation during recovery and growth. Policymakers may help SMEs by encouraging learning organization, information sharing, and technology adoption. These measures can help SMEs thrive post-pandemic and revitalize local and global economies.*

**Keywords:** *learning capability, technological innovation, intellectual capital, SMEs performance*

## **1. Introduction**

The emergence of the Covid-19 pandemic has disturbed numerous aspects of people's lives and business operations. Several disruptions worldwide in all markets and industries forced businesses to consistently search for and adopt new solutions to ensure ongoing concern.

Small and medium enterprises (SMEs) are vital in the global economy; they account for almost 90% of businesses and nearly 40% of GDP (World Bank, 2019). During the last two years, the pandemic created market shocks and hit SMEs hard

regarding profitability and financial health (Du et al., 2022). In recent systematic reviews of Saad et al. (2021) and Sarka and Clegg (2021), the authors identified that business resilience has gained publication popularity following the pandemic and that business survival can leverage global economic growth. However, few studies targeted this research topic specifically in terms of SMEs; existing publications mainly relate to the Anglo-American culture, while research in developing countries, such as the Confusian-Asia cluster, remains low in numbers (Saad et al., 2021).

Reviewing the literature on pandemic resilience topic, prior studies have focused on two primary levels, being micro-level (e.g., business-related capabilities and actors) and macro-level (cluster, region, or industry) to assess their impact on resilience possibilities (Gianiodis et al., 2022). At the micro-level, scholars focused on business-related abilities such as innovation or digitalization process (Elgazzar et al., 2022), business actors such as owners (Hadjielias et al., 2022), gender (Ma et al., 2022), and stakeholder participation in innovation to sustainability (Matos et al., 2022). At the macro-level, past literature drew attention to some hard-hit clusters such as tourism and hospitality (Ntounis et al., 2022), FMCG-related products (Fan et al., 2021), and regions such as Anglo (Saad et al., 2021). Gianidios et al. (2022) posed potential questions after an intensive systematic review, which are vital research motives for this paper. The focus of future research should address the human-level interaction within an organization towards organizational resilience and performance within uncertain contexts since it provides a long-term guard for firms' growth. Moreover, further moderating effects caused by contextual variables should be explored.

This study investigates the role of Organizational Learning Capability and Intellectual Capital towards SMEs resilience and performance during the COVID-19 pandemic. Moreover, technological innovation was treated as a moderator to examine the impact on the relationships mentioned above.

This research paper has four main sections. First, the authors review the theoretical background to establish the positioning of this study in current literature and to construct a research model of organizational learning capability, intellectual capital, and SMEs' performance, where research hypotheses and arguments are developed. Second, the research design and methodology are then described in detail. Thirdly, data analysis shows the results of collected data from SMEs in Vietnam in response to the research hypotheses. Finally, the conclusion and discussion are critically elaborated to highlight the findings and contributions of this paper.

## **2. Literature Review**

### **2.1 Organizational Learning Capability**

As suggested by the Resources-Based-view (RBV) theory of Barney (1991), knowledge is one of the vital factors in creating competitive advantage, firms' value determination, firm growth, and innovation (Palacios-Marqués et al., 2016). Organizational learning capability (OLC) is the most imperative input to facilitate learning and create new knowledge (Pham & Hoang, 2019). The definition of OLC has evolved

since the 1970s. It was first described as the ability to detect and correct issues in the business operation process (Argyris & Schon, 1978). Later, since the 1990s, scholars believed that OLC could maintain and improve the overall firms' performance by constantly inter-applying all-fit solutions for contemporary problems (Pham & Hoang, 2019). The meaning of OLC has recently been broadened from its precedents. OLC refers to a firm's ability to create, adopt, implement, transfer, and integrate knowledge to foster a learning process and build an organization (Ferreira et al., 2021). It also implies the skills and capabilities needed to apply management practices (Migdadi, 2021) to the current business model.

OLC is a multi-dimensional factor (Jerez-Gómez et al., 2019); however, there is a lack of inclusive findings regarding the number of dimensions. Jerez-Gómez et al. (2019) observed four sub-factors in OLC, including commitment (actively involved and implied learning), system perspective (collective awareness as an organizational culture towards education), openness and experimentation (raising inquiries and implementing changes), and knowledge transfer (dissemination information and new practices). Later, Migdadi (2021) revised and extended this to five dimensions: managerial commitment and empowerment, openness and experimentation, risk-taking, interaction with the external environment, knowledge transfer and integration. Similarities can be observed between the two ideas; however, the latter highlights external inputs and organizational interaction in the learning process.

This study adopts the idea of Migdadi (2021) to examine OLC dimensions for three reasons. First, the learning process and building OLC requires both firm- and individual-level efforts, like interactions and commitment, such as board members' empowerment and employee characteristics. Second, the context of this study was during a pandemic and new normal situation, which caused tragic external pressures and disruptions for firms. Hence, the fourth element of Migdadi (2021) emphasized the power of external inputs towards learning facilitation. Finally, as mentioned, COVID-19 brings a series of disruptions to business operations, and the risk-taking behavior in innovation practices is crucial for survival under uncertainty.

## **2.2 Intellectual capital**

Intellectual Capital (IC) refers to a collection of firms' intangible assets, which can be transferred to organizational value. Under the RBV perspective, Barney (1991) and Nirino et al. (2022) later emphasized IC as a critical resource of assets, knowledge, and capabilities for building competitive advantage. These intangible resources threaten competitors by creating unique and non-imitable attributes to sustain competitiveness (Asif, 2020; Afshari & Nasab, 2021). Therefore, strategist scholars have long explored IC dimensions to enhance firms' growth and sustainability.

Through four phases of research since the 1980s, IC was considered a multiple-dimension factor (Nirino et al., 2022). Following this pathway, three classifications under IC, including human capital, structural capital, and relational capital, have dominated (Wang et al., 2019; Thanh Nhon et al., 2020; Afshari & Nasab, 2021). First, human capital refers to internal human-related resources such as knowledge, qualifications

(Coyte, 2019), abilities (Asif, 2020), experiences, individual creativity, and flexibility (Thanh Nhon et al., 2020) that employees can contribute through business operations. These elements can be categorized into three blocks as follows: skills (e.g., communication, personal), knowledge (e.g., qualifications, experience), and behavior (e.g., flexibility) (Nirino et al., 2022). The second dimension - structural capital (other authors such as Asif (2020) named it as organizational capital) is embedded within organizational structures, processes, and routines (Engelman et al., 2017). These refer to working mechanisms enabling knowledge transfer and integration through the value chain. The final dimension, relational capital, views organizational relationships (internal and external) as a network resource. This dimension is increasingly vital for firms through uncertainty phases since they face a series of disruptions, which need extra support from other stakeholders. Therefore, in the constructed model, authors would like to examine IC with these classifications in the context of SMEs' performance through Covid-19.

### **2.3 Technological innovation**

The mainstream of recent research about business competitiveness agrees that innovation output is a critical factor contributing to overall success and sustainability (Exposito & Sanchis-Llopis, 2018; Allal-Chérif et al., 2023). As a multifaceted construct, widely varying typologies of innovation have been introduced (Damanpour et al., 2009); however, the technological-organizational typology is the most prominent (Azar & Ciabuschi, 2017).

Organizational innovation is a firm-level type of innovation (Anzola-Román et al., 2018) which is the introduction of a new method in business practices (Damanpour et al., 2009), processes, structures, and techniques (Azar and Ciabuschi, 2016). Technological innovation (TI), on the other hand, refers to implementing new ideas, new outcomes such as products or services (Damanpour & Evan, 1984), or new market practices (Azar and Ciabuschi, 2016). The main discrepancy between the two terms lies in their position in the innovation process. Organizational innovation is believed to be an antecedent and precondition of Technological innovation (Anzola-Román et al., 2018) to imply new practices in the business. In this research setting, TI is treated as a moderator construct to examine whether the firms engaged with TI have better impacts on the influence of learning dimensions towards SMEs performance during COVID-19. To further explore, the authors follow the signpost of Chege and Wang (2020), who conceptualized TI into three dimensions: product, process, and market.

#### ***Literature gap***

Based on the above introduction and literature review, authors can summarize four main literature gaps as follows:

- (a) Studies focusing on SMEs are still blurry in numbers.
- (b) Few studies have been conducted in developing countries, especially in the Confucian-Asia culture, for business performance and resilience during the COVID-19 pandemic.

- (c) Human-related factors should be addressed further in the resilience context.
- (d) There is a strong need to examine moderator effects within the organizational survival level during and post-pandemic.

## 2.4 Research model and hypotheses development

Based on the RBV theory, the authors develop the research model in Figure 1 to examine the role of human-related factors in organizational performance, in which learning capability and IC are highlighted. Furthermore, TI is treated as a moderator to assess the influence on the resilience relationship of examined constructs. The authors will elaborate the detailed explanation hereafter in the following sections.

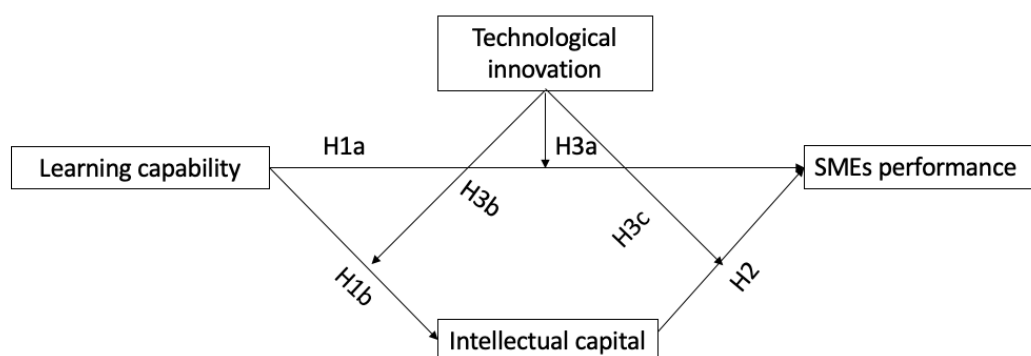


Figure 1. Proposed research model (Source: Research Team, 2023)

### 2.4.1 Organizational Learning capability and Intellectual capital

The literature on OLC and IC reveals sub-sections of each factor. As mentioned, OLC comprises five sub-dimensions, while IC includes three dimensions. *Managerial commitment and empowerment* is the first dimension of OLC. Recognizing the power of organizational learning, business managers are encouraged to build a business model and organizational culture to facilitate learning (Migdadi, 2021) in all functions. Joo and Shim (2010) investigated the role of organizational learning culture in fostering employees' psychological commitment, which further transfers to behavioral commitments such as willingness to accept firms' goals and strong beliefs even in new states of business life cycles. Moreover, employees can generate ideas, engage in these creative behaviors, and convert them into innovation skills (Naqshbandi et al., 2022). With the support of the second dimension, *openness and experimentation* add value to employees and the firm's performance. Thus, both human capital and structural capital are cultivated by OLC.

The next dimension of OLC is *risk-taking*. It refers to the establishment of the 'accepting mistakes' mindset. Notably, the COVID-19 pandemic has turned the business environment into chaos, and firms must continuously search for alternatives to conquer the disruptions. A strong association exists between risk-taking and new ideas output, examined in prior studies such as García-Granero et al. (2015) and Giaccone and

Magnusson (2022). It can be said that the new process and new business structure can be beneficial; hence, authors can predict that risk-taking can improve structural capital.

Next, *interaction with the external environment* is the fourth dimension. It refers to the extension of business relationship scope internally and externally. In prior studies of Yeniyurt et al. (2014), business relationship is one of the central determinants of co-innovation that advances firms' capabilities and knowledge. Co-innovation can shorten the time consumption of the research and development phase; then, firms can commercialize new ideas quicker than single-party innovation. Opportunities for entrepreneurship are then fostered via strong stakeholder connections (Chang et al., 2022). Thence, organizational, human capital, and business performance can be strongly associated with relational capital.

The final dimension of OLC is the *dissemination and integration of new knowledge*. All individuals in an organization can acquire and integrate new knowledge to build human capital resources. Andreeva and Kianto (2011) revealed organizations with new knowledge continuity can stimulate diverse viewpoints and bases, which boost overall performance. On the other hand, several studies highlight OLC and innovation as cause-and-effect relationships (Migdadi, 2021; Alegre & Chiva, 2013). Adopting innovation can drive firms to sustain their competitiveness and business performance through turbulence and uncertainty (Dawson et al., 2014). Taken together, the authors predict two hypotheses as follows.

**Hypothesis 1a:** Learning capability positively impacts Intellectual capital

**Hypothesis 1b:** Learning capability positively impacts SMEs' performance

#### **2.4.2 Intellectual capital and SMEs' performance**

IC is shaped by three blocks, including *human capital*, *structural capital*, and *relational capital* (Wang et al. 2019). Driven by RBV theory, all mentioned blocks are critical resources in creating and sustaining competitive advantages (Ahmed et al., 2020). Firstly, Ahmed et al. (2020) firmly believed that human capital fulfills all assessments of valuable resources in the VRIN model; a pertinent use of human capital leads to business and innovation performance growth. Huang and Huseh (2007) concluded that human capital contributes to structural and relational capital, which determines the increase in business performance later. Secondly, a fit organizational structure and process are necessary to influence business achievements. For instance, centralized working processes have decreased the innovative behavior of businesses (Dedahanov et al., 2017). Other authors emphasized the impact of appropriate structural capital on innovation and business performance in various settings (Ahmed et al., 2020). Recent big data research conducted by Cheema-Fox et al. (2021) showed that positive crisis responses promptly might reduce or prevent negative returns for firms. Relational capital provides enormous network resources for firms to interact internally and externally better to fasten decision-making speed. Upon reviewing the interaction of three blocks in IC, the authors develop the second hypothesis to examine the IC impacts on SMEs' performance within the COVID-19 pandemic setting.

**Hypothesis 2:** Intellectual capital positively impacts SMEs' performance

### **2.4.3 The moderator role of Technological innovation**

Firms that actively implement innovation and generate innovative outputs, ideas, and practices are likely to achieve Technological Innovation. By acquiring real experiences from deploying innovation, employees and managers enrich their critical knowledge about innovative output, such as pros and cons, and further market acceptance. Understanding market and consumer knowledge allows firms to adjust their methods and correct their offers to match users' requirements (Chahal & Bakshi, 2015). Furthermore, based on new knowledge formation, internal stakeholders might promote intensive ideas and transfer them to add value for all parties, such as solving business or market problems (Li & Hsu, 2016). Employees' capabilities to integrate innovation outcomes are vital for business success and survival in a fast-paced environment under the impact of the COVID-19 pandemic.

On the other hand, Verbano and Crema (2016) found that the impact of technological innovation links to IC. Practicing innovation is generally more critical in high-risk contexts to conquer uncertainties and limitations, and firms should select a more contemporary and open approach (Schneckenberg et al., 2017) whereby solutions and knowledge effectively flow in and out, ultimately contributing to improving human capital and relational capital. Based on these considerations, authors develop the following hypotheses to examine the moderating role of TC towards three earlier investigated relationships.

**Hypothesis 3a:** Technological innovation strengthens the relationship between learning capability and SME performance

**Hypothesis 3b:** Technological innovation strengthens the relationship between learning capability and intellectual capital

**Hypothesis 3c:** Technological innovation strengthens the relationship between intellectual capital and SME performance

## **3. Methodology**

### **3.1 Research Design and Data Collection Procedure**

This research adopted a quantitative method to examine the proposed hypotheses. A survey questionnaire was administered to a random sample of SMEs in numerous innovative industries in Vietnam for data collection. Adopting the results of Grinstein and Goldman's (2006) study, the authors focused on businesses that paid significant attention to technological endeavors and technology-based products. The targeted SMEs were chosen based on two criteria: a small business with fewer than 100 employees and annual total revenue under 300 billion Vietnam Dong.

The questionnaire consists of three parts and contains 26 closed-ended questions. In the first section, the survey's objectives were clearly explained, including who the researchers were, how long it would likely take to complete and guarantees about the anonymity of the responses. In the second section, seven questions were used to study the participants. Before data collection, the authors conducted a pilot survey to clear up

any ambiguity and bias in the questionnaire (Churchill, 1979). The survey was first distributed to senior academics in innovation, business performance, and technology. Then, qualitative interviews were conducted with ten department heads of SMEs in Ho Chi Minh City, Vietnam. Required changes were made in response to participants' feedback on the questionnaire's appropriateness and understandability during the interviews. The SMEs in our sample were given access to the final document once it was revised. Several different strategies were used to prevent standard method variance or bias, including (a) using short, simple, specific, and focused questions; (b) explaining ambiguous phrases and avoiding complex syntax (Podsakoff et al., 2012); (c) choosing management or the senior department head of the team in the businesses as informants; and (d) checking each questionnaire for accurate completion. Over 3000 SMEs in Vietnam received questionnaires via email, and 478 of these SMEs responded to the online survey, 28 of which were discarded due to insufficient response quality flagged through a data cleaning process. A total of 450 firms comprised the study's sample size, corresponding to a 15% response rate.

### 3.2 Construct measurement

Our scale was designed to measure learning capability, technological innovation, IC, SMEs performance using 26 items. We adopted a 7-point Likert scale, ranging from 1 to 7, indicating complete non-compliance to full compliance. The learning capability scale was developed by Calantone et al. (2002) and Garcia-Morales et al. (2007) to measure with five items. The scale of IC is based primarily on Bontis' (1998) work, classifying it into three dimensions - human capital, structural capital, and relational capital with four items each. The technological innovation scale is based on the research of six items by Chege and Wang (2020). Finally, to establish the scale for SME performance, we referred to the study of Fan et al. (2021), which primarily examines 7 items.

## 4. Empirical findings

According to Table 1, 54.2% of all respondents were female, representing major of the sample. It is noteworthy that in recent years, Vietnam has seen a significant increase in women holding senior positions and department heads. The study focuses on innovative and technological SMEs in Vietnam, where people not only work but also foster a sense of community similar to that found in their homes. At the same time, heavy industry (54%) and light industry (also referred to as 'service industry') (40.6%) were the main groups represented in the survey.

**Table 1. Demographic of respondents (source: Research Team, 2023)**

| Value                | Number | Percentage (%) |
|----------------------|--------|----------------|
| Female               | 244    | 54.2           |
| Male                 | 206    | 45.8           |
| Total                | 450    | 100            |
| Sector               |        |                |
| Heavy industry       | 243    | 54             |
| Service industry     | 183    | 40.6           |
| Agriculture industry | 24     | 5.4            |



#### 4.1 Reliability and Validity

The study used an exploratory approach to determine the underlying concepts represented by the initial 26 measurement items. The maximum likelihood method was used for parameter estimation due to its consistent methodology that can be applied to various estimated circumstances (Meyers et al., 2013). The variable constructions were reduced via exploratory factor analysis to a single component (Katou & Budhwar, 2008). Cronbach's Alpha will evaluate the variables' validity and reliability. Higher values suggest greater internal consistency among the measurement scale's items. Cronbach's alpha values vary from 0 to 1. It is advised to have an alpha value greater than 0.7 (Hair et al., 2010). The study's findings showed that all variable constructs had alpha values of more than 0.7, indicating sufficient reliability (Hair et al., 2010). The convergent validity test shows all 26 research items showed loadings greater than 0.7, satisfying the predetermined scale criteria (Su et al., 2013).

The composite reliabilities (CRs) were higher than 0.7, regarded as a good standard (Fornell & Larcker, 1981). Additionally, each variable construct's average variance extracted (AVE) was greater than 0.5, indicating good results (Hair et al., 2010). Further, as shown in Table 2, all research dimensions demonstrated strong internal consistency, with Cronbach's alpha values greater than 0.7. The findings were within the acceptable range when the variables' collinearity was assessed using tolerance and variance inflation factor (VIF) (Hair et al., 2010; Pallant, 2007). As a result, all scales showed convergent validity and sufficient differentiation, giving rise to confidence in pursuing a hierarchical regression model.

**Table 2. Reliability and Validity (source: Research Team, 2023)**

|                  | Cronbach's alpha | Composite reliability (rho_a) | Composite reliability (rho_c) | Average variance extracted (AVE) |
|------------------|------------------|-------------------------------|-------------------------------|----------------------------------|
| IC               | 0.900            | 0.901                         | 0.920                         | 0.589                            |
| OLC              | 0.837            | 0.840                         | 0.885                         | 0.606                            |
| SMEs Performance | 0.888            | 0.891                         | 0.912                         | 0.598                            |
| TI               | 0.910            | 0.911                         | 0.930                         | 0.689                            |

Smart-PLS 4.0 was used to test the reliability of sample data, as presented in Table 2. Cronbach's Alpha of each scale was above the critical value of 0.7, indicating adequate reliability (Hair et al., 2010). The results of the convergent validity test showed factor loading higher than 0.8, composite reliability (CR) higher than 0.8, and average variance extracted (AVE) higher than 0.5. which all meet the critical value requirement, indicating good convergent validity across variables (Fornell & Larcker, 1981). The results of the discriminant validity test (Table 3) showed that the square root of the AVE

of any variable was greater than the absolute value of the correlation coefficient between that variable and all other variables, indicating good discriminant validity between variables (Hair et al., 2010).

**Table 3. Discriminant Test (source: Research Team, 2023)**

|                     | IC    | OLC   | SMEs<br>Performance | TI    |
|---------------------|-------|-------|---------------------|-------|
| IC                  | 0.767 |       |                     |       |
| OLC                 | 0.588 | 0.778 |                     |       |
| SMEs<br>Performance | 0.745 | 0.637 | 0.773               |       |
| TI                  | 0.650 | 0.665 | 0.695               | 0.830 |

Additionally, we tested the multicollinearity problem among the variables by observing the variance inflation factor (VIF), and the results showed VIF lower than 5 (Hair et al., 2010; Pallant, 2007), indicating no multicollinearity.

## 4.2 Hypothesis testing

The hypothesis test results are shown in Table 4 by using the bootstrapping method on SmartPLS 4.0. Learning capability and Intellectual capability have a significantly positive impact on SMEs performance ( $b=0,159$ ,  $p<0.001$ ;  $b=0,485$ ,  $p<0.001$ ), supporting H1a and H2. Test results on the relationship between learning and intellectual capability show a strongly positive impact ( $b=0,295$ ,  $p<0.001$ ). We also examined the moderating effect of Technological innovation on both relationships. The results show that Technological innovation moderates the relationship between Learning capability and SMEs performance ( $b=-0.119$ ,  $p<0.005$ ) and the relationship between learning capability and Intellectual capability ( $b=0,088$ ,  $p<0.005$ ). The results indicate that Technological innovation has not influenced the relationship between Intellectual capability and SMEs performance ( $b=0,052$ ,  $p>0.05$ ). Therefore, the H3c hypothesis is rejected.

**Table 4. Hypothesis Test (source: Research Team, 2023)**

|                               | Original<br>sample (O) | Sample<br>mean (M) | Standard<br>deviation<br>(STDEV) | T statistics<br>( O/STDEV ) | P values |
|-------------------------------|------------------------|--------------------|----------------------------------|-----------------------------|----------|
| H1a: OLC→ SMEs<br>Performance | 0.159                  | 0.158              | 0.044                            | 3.591                       | 0.000    |
| H1b: OLC→ IC                  | 0.295                  | 0.296              | 0.050                            | 5.904                       | 0.000    |
| H2: IC→ SMEs                  | 0.485                  | 0.485              | 0.046                            | 10.570                      | 0.000    |

Performance

H3a: TI× OLC→

|                  |        |        |       |       |       |
|------------------|--------|--------|-------|-------|-------|
| SMEs Performance | -0.119 | -0.121 | 0.038 | 3.102 | 0.002 |
|------------------|--------|--------|-------|-------|-------|

H3b: TI× OLC→ IC

|  |       |       |       |       |       |
|--|-------|-------|-------|-------|-------|
|  | 0.088 | 0.088 | 0.031 | 2.860 | 0.004 |
|--|-------|-------|-------|-------|-------|

H3c: TI× IC→ SMEs

|             |       |       |       |       |       |
|-------------|-------|-------|-------|-------|-------|
| Performance | 0.052 | 0.055 | 0.049 | 1.059 | 0.290 |
|-------------|-------|-------|-------|-------|-------|

## 5. Conclusion, Discussion, and Implications

This study aimed to discover how learning capability, intellectual capital, and technological innovations influence the SMEs performance post-pandemic. The results revealed noteworthy findings of how these factors interact and highlighted the moderating role of technological innovation.

The first primary result indicates a positive and significant connection between SMEs' learning capability and SMEs performance. This finding aligns with previous research, which has shown the crucial role of learning organization towards firms' adaptability and fast-changing under uncertainty such as the Covid-19 pandemic (Chege & Wang, 2020). As mentioned earlier, the pandemic caused several supply chain and business model breakdowns. SMEs with a higher learning capability will likely leverage new knowledge, skills, and competencies to handle disruptions. Furthermore, those capabilities provoke quick responses for growth opportunities post-pandemic. Learning capability is an organization's ability to absorb, integrate, and adequately practice innovations. SMEs with those abilities might constantly update market information and cooperate with their stakeholders, which allows them to capture new methods to deliver value better than other players. Hence, shifting the focus on learning encourages SMEs to alter their business models when needed.

The second finding shows that learning capability generates dynamic capabilities. With available resources from the learning process, SMEs can combine, build, and rearrange their resources and skills in reaction to changes in the external environment.

The third finding presents a positive and significant relationship between intellectual capital and the SMEs' performance. Intellectual capital includes human, structural, and relational capital that boost firms' competitiveness and financial outcomes (Yitmen, 2011). The result stresses the vital role of intellectual capital as a strategic resource to improve their performance during uncertain conditions, which later highlights the intense focus on SMEs' investment.

Human capital is considered an essential component indicating firms' efficiency (Lopez-Cabrales et al., 2006) during and post-pandemic. Employees with rich knowledge and skills can handle complex work and even unknowns created by the changing environment (Roos et al., 2001). They can explore various alternative methods to take advantage of new technologies and practices to deliver the expected value for firms and

customers. Furthermore, firms invested in human resources activities such as training and development programs, and talent acquisition are proven to advance human capital and positive performance (Cabello-Medina et al., 2011).

Besides, SMEs with substantial structural capital might switch their processes and models quickly to work-from-home mode, which allows smooth communication within the organization. Efficient and streamlined workflows and flexible processes boost their ability to change compared to firms with weak structural capital. In addition, SMEs with extended relational capital can take advantage to shorten their innovation efforts to conquer disruptions (Agostini et al., 2017). These collaborative networks give SMEs a competitive advantage to adapt and innovate quicker (Lasagni, 2012), especially under turbulent circumstances.

The final finding is the most important takeaway from this research. Technological innovation moderates the relationship between SMEs' learning capability and intellectual capital, and between intellectual capital and organizational performance in new normal circumstances. It can be argued that SMEs' talents are young and fresh. The young generation is more risk-taking and imaginative, leading to higher tendencies towards modern technology use and adoption (University of Cambridge, 2018). Additionally, they can adapt to firms' requirements regarding learning pace, resource extensions or replacement, and change decisions. As a result, through technological innovation, SMEs can use advanced digital tools, processes, and strategies to improve their operational efficiency, customer interaction, and product/service development. In the 'new normal' conditions, technological innovation has been a driving force, which has helped SMEs conquer pandemic disruptions. The positive moderating role of technological innovation shows that SMEs perform better after a pandemic if they combine their learning capability, intellectual capital, and technological advancements. This result acts as an explanation for prior findings of Cugno et al. (2022) showing the relationship between technology and business performance. They found that technology and Industry 4.0 are antecedents of business recovery during and after the pandemic. In this study, researchers found that Technological innovation is an enabler, making it easier for SMEs to use their learning skills and intellectual capital. It gives SMEs the tools and resources they need to capture, process, and use information, speeding up their learning cycles and making it easier to come up with new ideas. Digital technologies enable SMEs to create, store, and share knowledge (Chege et al., 2020). Digital platforms and data analytics also present and analyze customer behavior, which fastens the strategy formation process. Hence, performance, as a consequence, can be boosted and improved under new conditions.

The results of this study are essential for SMEs, policymakers, and academics. First, SMEs should prioritize developing and growing learning capabilities by promoting a culture of continuous learning, training programs, and sharing of knowledge within organizations. Such efforts will help people better manage and recover from crises such as the pandemic and enhance acquiring and using new information. Second, SMEs should understand the importance of intellectual capital and invest accordingly. SMEs can improve their resilience, innovation ability, and general performance in the post-pandemic age by making the most of their human capital, building strong networks, and

creating solid organizational structures. Third, SMEs should see technological advancement as a strategic must-do. They should keep up with technological changes, find appropriate digital solutions, and put money into the infrastructure and skills they need to adopt and use these technologies. To encourage technological innovation, policymakers should give SMEs the money, skills, and infrastructure they need. By making technological advances easy, lawmakers can provide SMEs with the tools and platforms to improve learning abilities, intellectual capital, and performance after a pandemic.

Despite numerous invaluable contributions, this study has limitations that can be further addressed in future research. First, the data used in this study was cross-sectional, which challenges the accurate determination of cause and effect and prevents generalizations to other situations. In future studies, longitudinal designs could be used to better show how the relationships between the factors change over time. A longitudinal study would show how learning capability, intellectual capital, and technological innovation change over time and how they affect how well people perform after a pandemic. Second, as the study focused on SMEs only, it would be helpful to look at bigger firms or different industries to see if the results can be replicated in other situations. Various industries may have different amounts of technological readiness, learning ability, and intellectual capital, which could change the relationships being looked at. Future studies could explore how these variables work in different sectors and organizational settings to learn more about how they affect performance after a pandemic. Third, the study mostly used self-reported measurements, which can be biased among other possible issues. Future studies could use multiple data sources and objective success measures to enhance the reliability of findings. For example, objective financial indicators, customer satisfaction ratings, or market share data could be used to give a more complete picture of success after the pandemic. Fourth, future studies could investigate how technological innovation changes the link between learning ability, intellectual capital, and performance after a pandemic. This could mean looking into the role of certain technological enablers, like artificial intelligence, blockchain, or cloud computing, and seeing how they interact with learning and intellectual capital processes to drive performance results. Lastly, looking into the possible boundary conditions and unplanned events that could affect the connections being studied would be helpful. In the post-pandemic setting, the effectiveness of learning capability, intellectual capital, and technological innovation could be affected by things like the size of the company, the way the industry works, where the company is located, and the rules and regulations in place. Understanding these boundary conditions can help understand environmental factors that affect how SMEs cope in a crisis and help form optimal strategies.

In conclusion, this study contributes to the current literature by showing how learning ability, intellectual capital, and technological innovation play crucial roles in how SMEs post-pandemic performance. The results show how important it is for SMEs in the current business environment to create cultures open to learning, use intellectual capital, and embrace technological innovation. By putting these factors together, SMEs can improve their ability to deal with instability, build resilience, and grow in a way that is sustainable after a pandemic. However, further research must be explored to learn more

about the underlying mechanisms and the factors in the environment that affect these relationships.

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