

## The Existence of SMEs Business Performance During the Covid-19 Pandemic: Analyzing the Contribution of Intellectual Capital and Technological Innovation

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### Abstract

**Purpose** – The rapid and massive development of technology, information, and the internet in various business sectors, including SMEs, has created new changes. This situation provides opportunities and challenges for every business actors. Therefore, this study aims to analyze the effect of human, social, and customer capital, as well as technological innovation, on business performance.

**Methodology** – The library and field design method were adopted with a quantitative approach, involving 180 samples of small and medium business actors. Furthermore, the Partial Least Square (PLS) was used to analyze the data.

**Findings** – The result showed that human, social, and customer capital positively and significantly affected business performance. Similarly, technological innovation has a positive and significant impact on business performance.

**Originality** – Employees who work in the small business sector will be relied upon in the future as agents of change. Many practitioners have expressed this in the field of human capital, which assumes greater responsibility for small company players in terms of the style of consultation.

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## 1. Introduction

Small and Medium Enterprises (SMEs) are one of the pillars of the Indonesian economy and are classified as business groups that play a significant role (Julyanthry et al., 2021). The SMEs sector, which is influenced by the global context and current business environment conditions, is expected to integrate aspects of general knowledge about intellectual capital (Sherly et al., 2020). According to (Hashim et al., 2015), intellectual capital is the delivery of individual workers and organizational knowledge that contributes to sustainable competitive advantage (Sudirman et al., 2021). (Do Rosário Cabrita, 2009), argues that intellectual capital is a set of intangible resources, such as abilities, skills, and competencies, which drive organizational performance and value creation. Efforts are required to improve business excellence and performance integrated with other businesses during the Covid-19 pandemic (Afwā et al., 2021); (Pekkanen et al., 2020). Furthermore, entrepreneurs must pay attention to businesses that the community likes and provide

more value with less investment (Ayesha et al., 2021). (Annur, 2021), showed that several SMEs actors closed their businesses during the Covid-19 pandemic due to factors such as diminishing capital, undeveloped prospects, labor, and others. Consequently, business actors in the SMEs sector must consider factors of intellectual capital to achieve differential effects from team compositions on strategic entrepreneurial activities (Y. Chen et al., 2013).

Undoubtedly, investment in human capital is an absolute requirement for companies in the digital-based economy era (Suroso et al., 2017); (Tjahjadi et al., 2020). Human capital contributes to the creation of economic value, which transforms into organizational knowledge to create a differential advantage that meets customer needs (Absah et al., 2018). Understanding the importance of human capital management is important in increasing workers' productivity, offering professional services, and producing the best solutions for the company based on the knowledge possessed by its employees (Halim et al., 2021). Generally, human capital is the collective intellectual capital represented by a person's competence, knowledge, and skills. It is not tangible because it is owned by individuals, such as human resources, but one of the most important assets or components of intellectual capital that a company must own. Knowledge-based or intangible assets, including human capital, are crucial and can be very important investments now and in the future (Sharabati et al., 2010). Furthermore, strategic readiness refers to the status of intangible assets to support organizational strategy (Ali & Chaudhry, 2017). Human capital is an intangible asset and an important component that contributes to a successful strategy for businesses in ensuring better performance (Fatoki, 2011). (Jayabalan et al., 2020) and (AlQershi, 2021) showed that all aspects of human capital contribute significantly to business performance. Therefore, based on several previous results, this study is carried out to develop hypotheses:

**H<sub>1</sub>:** Human capital affects business performance

The next is social capital, which is the ability of SMEs to build good relationships vertically (suppliers, investors) and horizontally (competitors, associations) to encourage optimal business performance (Jirawuttinunt & Wongsahai, 2021). It is also the ability to access and mobilize resources through social relationships (Aidoo et al., 2020). Furthermore, social capital is not one common entity but distinct with two common characteristics (Easmon et al., 2019). It consists of several social structure aspects comprising cognitive, structural, and relational capital to facilitate the actions of individuals within the structure (Nahapiet & Ghoshal, 1998). From a business perspective, social capital plays an important role in supporting the exchange of ideas concerning marketing (Boohene et al., 2020), operations, and sales, as well as accessing financial resources from individuals or groups to drive optimal business performance (Purwati et al., 2020). In addition, entrepreneurs' capacity for innovation and creativity, as well as the danger of business failure, are bolstered by active social ties that facilitate institutional support (Purwati et al., 2020). Several studies have shown that social capital has a significant positive effect on business performance (Yani et al., 2020); (Jirawuttinunt & Wongsahai, 2021). Therefore, based on previous results, this study is carried out to develop hypotheses:

**H<sub>2</sub>:** Social capital culture affects business performance

The next variable is customer capital, which involves the ability of SMEs to understand marketing channels and strong communication with customers to create sustainable relationships (Absah et al., 2018). An important concept of customer capital is the information acquired through marketing channels and the positive relationships between companies and customers to support development (Juwita & Anggraini, 2007); (Muhammad Khalique et al., 2020). Furthermore, the company needs to adjust its customer capital to maintain market share in the face of threats from

other parties (Yang & Kang, 2008). According to (Hashim et al., 2015), customer capital comprises relationships with customers and suppliers, relevant government or industry associations, brand names, trademarks, and reputation. Its existence is considered capable of encouraging better business performance based on the company's ability to manage strategic marketing channels and maintain customer satisfaction and loyalty (Muhammad Khalique et al., 2011). The results of previous studies showed that customer capital has a significant positive effect on business performance (Muhammad Khalique et al., 2018); (Shaari et al., 2018). Therefore, this study is carried out to develop hypotheses:

**H<sub>3</sub>:** Customer capital business performance

The last variable is technological innovation, which is a process of continuous development, introduction or improving new products/services, processes, or strategies, and the development of an invention into innovation (Nayati Utami et al., 2019). Technology is defined as company-specific information regarding the characteristics of production processes, performance properties, and design (Zhou et al., 2020). According to (Gathogo & Ragui, 2014), technology is part of a company's competitive advantage against rivals and is classified into two interrelated elements, namely, product and process innovation. Therefore, it is imperative for all business actors, especially SMEs, to comprehend technological innovation (Ukpabio et al., 2017) in order to encourage and create marketable product innovations. This is consistent with the reports of (Donbesuur et al., 2020), that small industries failed because of a lack of knowledge related to technological innovation (Mustafa & Jacob, 2018). The results of previous studies showed that technological innovation has a significant positive effect on business performance (Budiartha & Pramudati, 2018); (Haseeb et al., 2019). Therefore, this study is carried out to develop hypotheses:

**H<sub>4</sub>:** Compensation affects business performance

In the field implementation process, SMEs are often faced with several problems. The first problem is the lack of knowledge of SMEs entrepreneurs about good business management. This is because many SMEs players only focus on producing goods, making it difficult to increase their business level. The second problem is that most SMEs only focus on distributing goods to a few known colleagues and collectors. Furthermore, the lack of product innovation causes weak competitiveness. It is believed that the concept of *intellectual capital* can be understood and effectively managed, which will positively impact business progress, especially the performance of the SMEs sector. (AlQershi, 2021), suggests that HRD management can improve individual performance through sustainable human resource management and contributes directly to organizational goals. On the other hand, (Jirawuttinunt & Wongsahai, 2021) confirms that the social capital aspect plays an important role in the progress of an organization or company. This is because it can describe personal relationships within the company that help build trust and respect among employees, resulting in increased business performance.

According to (Muhammad Khalique et al., 2020), the customer capital aspect is an important element to encourage more optimal business performance. This is because it affects the company's connections with suppliers, the government, and other industries as a reflection of the company's reputation. Additionally, the role of technological innovation in today's digital era is fundamental and must be applied by every business actors to achieve excellence by being oriented toward appropriate and innovative technology solutions (Zhou et al., 2020). Next, this study's novelty is the business performance of SMEs as measured by financial and non-financial performance through the concept of intellectual capital. It consists of human, social, and customer capital, as well as technological innovation support. However, only a few studies have analyzed and tested

this model in the SMEs sector. This study aims to analyze the effect of human, social, and customer capital, as well as technological innovations on business performance.

## 2. Research Methods

This study uses the quantitative causality approach to answer the formulation of the study problems and hypotheses. The process and mechanism of data collection were carried out from May to July 2022. Afterward, a questionnaire was directly distributed to the respondents to collect data. The population comprises the total number of SMEs in Pematangsiantar City. Samples were selected using convenience sampling, which is the fastest method due to time constraints. According to (Hair, 2014), the number of samples can be determined from an unknown population by 5-10 times the number of indicators used in a single construct.

This study uses 18 indicators from 5 dimensions of existing variables, hence the sample obtained is  $18 \times 10 = 180$ . Furthermore, the hypothesis was tested using Structural Equation Modeling (SEM) based on a variant called Partial Least Square (PLS) and was analyzed using the SmartPLS version 3.0 application. This tool was used because the assumption of a multinormal distribution in PLS is not needed due to the direct estimation using the bootstrapping technique. The instrument used for this study is an online questionnaire with a Likert scale approach from (1) to (5) representing “strongly disagree” to “strongly agree”. The dependent and independent variables were measured using previous references relevant to the topic and variables, as shown in Table 1.

**Table 1.** Operational Definition of Research Variables

Variable	Code	Items	Adapted From
Human Capital	HC1	Employees' Experience	
	HC2	Employees' Knowledge	(Sweetland, 1996);
	HC3	Employees' Skills	(Sharabati et al., 2010)
	HC4	Employees' Innovation	
Social Capital	SC1	Cognitive Capital	(Nahapiet & Ghoshal, 1998); (Boohene et al., 2020)
	SC2	Structural Capital	
	SC3	Relational Capital	
Customer Capital	CC1	Customer Profile	
	CC2	Customer Duration	(Serenko & Bontis, 2017);
	CC3	Customer Role	(Muhammad Khalique et al., 2020)
	CC4	Customer Support	
	CC5	Customer Satisfaction	
Technological Innovation	TI1	Product Innovation	
	TI2	Process Innovation	(Thi & Mothe, 2010);
	TI3	Relative Advantage	(Chege & Wang, 2020)
	TI4	Complexity & Compatibility	
Business Performance	BP1	Financial Performance	(Gunday et al., 2011); (Felício et al., 2014)

Source: processed data, 2022

## 3. Results and Discussions

Questionnaires were distributed online using google form media as well as on WhatsApp and telegram applications to private junior high school teachers in Pematangsiantar City. The general characteristics of respondents in this study are clearly described in table 2 below:

**Table 2.** General Profile of Respondents

Category	Details	Total	Percentage
Gender	Men	92	42.79%
	Women	123	57.21%
Age	20-29 years	38	17.67%
	30-39 years	95	44.19%
	40-49 years	53	24.65%
	50-59 years	29	13.49%
	20-29 years	38	17.67%
Level of education	High School	7	3.26%
	D1 to D3	54	25.12%
	Bachelor	133	61.86%
	Masters	21	9.76%
Years of service	<1 year	12	5.58%
	1-5 Years	16	7.44%
	6-10 Years	44	20.47%
	> 10 Years	143	66.51%

Source: processed data, 2022

### 3.1 Outer Model Measurement

A convergent validity test in PLS with reflective indicators is assessed based on the loading factor that measures the construct. Individual reflexive measures are highly rated when they correlate more than 0.70 with the measured construct (Hair, 2014). According to (Ghozali, 2014), a loading value measurement scale of 0.5–0.6 can be used for the initial stage of the study. Furthermore, the discriminant validity test is an automatic indicator measurement based on cross-loading with its latent variable.

Another method compares the Square root of the average variance extracted (AVE) for each variable with the correlation between others. Suppose the initial measurement values of the two methods are better than the other variables in the model, then these variables have good discriminant validity or vice versa. Composite reliability measures the actual value of construct reliability. Additionally, the rule of thumb for Cronbach's alpha value and composite reliability must be greater than 0.7, although 0.6 is still acceptable (Hair, 2014). Table 3 explains the measurement of the outer model:

**Table 3.** Outer Model Measurement Results

Variables	Items	Outer Loading	Average Variance Extracted (AVE)	Composite Reliability	Cronbach's Alpha
Human Capital	Employees' Experience (HC1)	0.774	0.632	0.872	0.804
	Employees' Knowledge (HC2)	0.824			
	Employees' Skills (HC3)	0.865			
	Employees' Innovation (HC4)	0.709			
Social Capital	Cognitive Capital (SC1)	0.929	0.780	0.913	0.858
	Structural Capital (SC2)	0.967			
	Relational Capital (SC3)	0.737			
Customer Capital	Customer Profile (CC1)	0.899	0.709	0.924	0.896
	Customer Duration(CC2)	0.813			
	Customer Role(CC3)	0.899			
	Customer Support(CC4)	0.725			
	Customer Satisfaction(CC5)	0.862			

Technological Innovation	Product Innovation (TI1)	0.840			
	Process Innovation (TI2)	0.822	0.667	0.889	0.833
	Relative Advantage (TI3)	0.783			
	Complexity & Compatibility (TI4)	0.820			
Business Performance	Financial Performance (BP1)	0.901	0.823	0.889	0.833
	Non-Financial Performance (BP2)	0.913			
<b>Discriminant Validity</b>					
	<b>Business Performance</b>	<b>Customer Capital</b>	<b>Human Capital</b>	<b>Social Capital</b>	<b>Technological Innovation</b>
Business Performance	0.907				
Customer Capital	0.744	0.842			
Human Capital	0.649	0.632	0.795		
Social Capital	0.428	0.334	0.308	0.883	
Technological Innovation	0.514	0.418	0.549	0.385	0.817

Source: processed data, 2022

The value of each loading factor and AVE on the indicator of the principal's supervision variable, organizational culture, motivation, compensation, and job satisfaction is above 0.7. A value above 0.5 for AVE indicates that all items used in the construct are valid. Furthermore, the principal's supervision variable, organizational culture, motivation, compensation, and job satisfaction have a value above 0.7, indicating excellent reliability.

### 3.2 Inner Model Measurement

The inner model is calculated using SmartPLS 3.2.8 by bootstrapping study data. The first is the importance of the two associated variables and the analysis's R-square. Furthermore, R-square shows the ability of exogenous variables to build endogenous variables (Ghozali, 2014), stated there are three categories of R-square, the first is a value of 0.19, which indicates a weak relationship between exogenous forming endogenous variables. Meanwhile, a value of 0.33 and 0.67 signifies a moderate and strong relationship, respectively. According to (Sarwono, 2016), an R-square value greater than 0.67 denotes a solid relationship.

**Table 4.** Calculation Results of The R-Square Value

<b>Variable Name</b>	<b>R Square</b>	<b>R Square Adjusted</b>
Business Performance	0.644	0.635

Source: processed data, 2022

The R-square value obtained for business performance is 0.644, indicating that the ability of exogenous variables to explain business performance is strong (Ghozali, 2014). To prove the hypothesis, a significance test was carried out to determine the relationship between exogenous and endogenous variables. Based on a significance level of 5%, when the p-value is less than 0.05, the exogenous variable significantly affects the endogenous. However, when the value is greater than 0.05, the exogenous variable has no significant effect. Table 5 presents the results of hypothesis testing:

**Table 5.** Hypotheses Result

<b>Hypotheses</b>	<b>Coefficients</b>	<b><i>t</i>-Statistics</b>	<b><i>P</i>-Value</b>	<b>Result</b>
Human Capital→Business Performance (H1)	0.214	2,634	0.009	<b>Accepted</b>
Social Capital→Business Performance (H2)	0.144	3367	0.001	<b>Accepted</b>
Customer Capital→Business Performance (H3)	0.506	8.204	0.000	<b>Accepted</b>
Technological Innovation→Business Performance (H4)	0.129	2.095	0.037	<b>Accepted</b>

Source: processed data, 2022

The analysis results showed that the four hypotheses, involving human, social, and customer capital, as well as technological innovation, have a significant influence on business performance. Therefore, all the hypotheses are accepted.

### 3.3 Discussion

The study results from the first hypothesis show that human capital positively and significantly affects business performance. This confirms the important role of human capital management because it is a source of innovation and renewal. Furthermore, employees with high human capital are more likely to provide consistent and high-quality services, enabling the companies to retain or attract new customers (López Rodríguez & Serrano Orellana, 2020). Potential customers can also use the quality of human capital from the company's employees as a filter to select the services provided. The contribution of human resources is very important as a valuable asset for the company, which is not easily replaced by human resources (Harris et al., 2012). Therefore, it is very important to obtain, analyze, and present information systems to develop, accelerate, and actualize an efficient and effective business strategy (Ahmed et al., 2020). This indicates that the role of human capital in small and micro businesses is very important to improve business performance (M. Chen & Chang, 2013). All parties must also agree that human resources are one of the most important factors in supporting the operational activities of a business (Inrawan et al., 2022). It is believed that sustainable human capital management can improve the quality of resources, and ultimately, contribute to better business performance (Purba et al., 2022).

The results from the second hypothesis show that social capital positively and significantly affects business performance. These results illustrate the social profile of capital that every SMEs business actors must possess to maximize their potential in interacting with the community, environment, and companies (Mani & Lakhal, 2015). Social capital is a filter through which the flow of human resources and financial capital results must pass to obtain a better level of education. According to (Easmon et al., 2019), low social capital will lead to conflicts of values and low trust. This indicates increasing participation in social relations in transitional countries or regions to produce human resources and achieve better development. Interestingly, it is not just about money or economic activities, but also about relationships, networks, and trust (Hallam et al., 2018). Furthermore, social capital is built on trust between individuals. The formation of mutual trust between fellow SMEs business actors and other stakeholders occurs rapidly and necessitates tortuous social processes (Inrawan et al., 2021). The urgency stems from the fact that when social capital is built on a solid foundation, it will increase customer confidence in the business, resulting in a better performance (Al-Ajlouni & Hakim, 2019).

The results from the third hypothesis show that customer capital positively and significantly affects business performance. Therefore, it is one of the important factors in improving business performance (M. Khaliq et al., 2015). Customer capital also relates to the present value of cash

inflows arising from current and future customers. Therefore, it highly depends on strong marketing and communication channels (Serenko & Bontis, 2017). From the interviews and direct field observations, it appears that some SMEs business actors are concerned with the management of customer capital, as evidenced by their effort to better understand and increase consumer satisfaction. It is also seen in their effort to provide the best service as well as product innovation to meet consumer desires and market demands. However, the organization's existing and future customer bases are very important because current and future cash flows depend on them (Gourio & Rudanko, 2014). The main task of business actors is to increase satisfaction by improving customer service quality. Those who invest significantly in customer capital will become absolute market determinants and can improve their business performance (Ozkan et al., 2017). Therefore, SMEs cannot achieve market value and business performance without customer capital.

The results from the fourth hypothesis show that technological innovation positively and significantly affects business performance. This indicates that every business needs technology-oriented innovation to improve its performance. In reality, technology has become one most influential factors driving change. Therefore, innovation is very much needed for all companies, both large and those that are pioneering well as small-scale businesses (Taghizadeh et al., 2020). The main goal is to remain competitive and relevant in a constantly changing environment. According to (Wang, 2019), technological excellence must be demonstrated regarding business impact or operational excellence. This situation cannot be separated from the role of technology in providing advantages, such as cost savings or operational efficiency. Similarly, technological advantages can be translated into reduced risk potential, increased transactions, or increased income (Garcia-Morales et al., 2018). One of the main goals of innovation is to create something different from competitors in the same field. According to (Lofsten, 2014), every SMEs business actors must be able to develop their products to gain special advantages or specifications that do not currently exist in the market. Consequently, business can have its distinguishing feature in terms of product and identity.

#### **4. Conclusions**

Based on the results of hypothesis tests analysis, this study's conclusions include the following: First, the first hypothesis shows that human capital has a positive and significant effect on business performance. It was also shown that social capital has a positive and significant effect on business performance. Furthermore, the third and fourth hypotheses showed that customer capital and technological innovation positively and significantly affect business performance. For the theoretical implications, it can be explained that good human capital management will optimally improve employee performance. Employees that are satisfied and at ease with their work will automatically affect the progress of the business significantly. Additionally, the innovation indicator of employees used to strengthen the human capital measurement model can assist small and micro business actors with development. The economic value of a company will increase when its employees demonstrate a high level of innovation. Additionally, when every business actors invests more in their employees through business-related training or seminars, they will be more productive at work.

The managerial implication of this study is that employees who work in the small business sector will be relied upon in the future as agents of change. Many practitioners have expressed this in the field of human capital, which assumes greater responsibility for small company players in terms of the style of consultation. They can also function as executive coaches and strengthens the competence of the workforce and the company's leadership. Furthermore, strategic business



partners for small businesses must consider employee welfare policies and new or changing competency requirements when developing the company's strategy. This study is limited by the fact that it was conducted exclusively in Pematangsiantar City and by the small number of predictor variables included. Therefore, it is recommended for future studies to increase the sample size by selecting a wider object. This allows generalizations and the number of predictor variables, such as entrepreneurial orientation, entrepreneurship insight, innovation culture, market orientation, and sustainable competitive advantage, can be determined. Future studies may also employ other mediating variables such as entrepreneurship, innovation, and knowledge management to better explain the relationship between intellectual capital and business performance in the SMEs sector.

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