

## How does intellectual capital affect MSME business resilience during the COVID-19 pandemic?

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### Abstract

Many previous studies examined the relationship between Intellectual Capital (IC) and a firm's performance, whereas most of the time, IC has been shown to affect a firm's performance positively. However, two years during the COVID-19 pandemic differs from the ordinary years. There was a massive change in people's economic activities. Restrictions on people's movement and mobility are needed to prevent the spread of the COVID-19 outbreak. Apart from causing crises in the health sector, this pandemic also causes concerns in the social and economic sectors, including MSMEs. Therefore, this research was conducted to understand the effect of IC, including Human Capital (HC), Structural Capital (SC), and Relational Capital (RC), on MSME resilience during the pandemic period. This information is essential to formulate the best support for MSMEs in the IC context. This research is quantitative research using Ordinary Least Square (OLS). Data were collected by distributing questionnaires to 174 MSMEs in Bandung using the random sampling technique. The type of data used is cross-section data. This study found that HC and RC positively affect MSME resiliency during the pandemic, meanwhile, SC does not. This study suggests that the most appropriate form of support for MSMEs in times of crisis is to provide education and knowledge sharing which can expand the skills and knowledge of MSME businesspeople. And in addition, it is also important to support MSMEs in developing their relationships with various parties to maintain their business during the pandemic.

**Keywords:** *MSME, Resiliency, Intellectual Capital, Pandemic*



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### INTRODUCTION

Many previous studies examined the influence of Intellectual Capital (IC) on a firm's performance. Most of the time, IC has been shown to have a positive effect on entities' performance measured by several indicators such as Return on Assets (ROA), Return on Equity (ROE), Earning per Share (EPS), Annual Share Returns (ASR), economic performance using Operating Income/Sales (OI/S), stock performance using the proxy ratio of the total market capitalisation (Tan et al., 2007) (Nadeem et al., 2017) (Zéghal & Maaloul, 2010). However, for several research, the results could be very different, where IC did not impact on firm's market value and financial performance (Madininos et al., 2011). In Small Medium Enterprises (SME) cases, IC also showed a positive impact on MSME's performance (Cohen & Kaimenakis, 2007; McLarty, 1999), (Agostini et al., 2017; Sardo et al., 2018).

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However, two years during the pandemic COVID-19 is different from the ordinary years. There was a massive change in people's economic activities. Restrictions on people's movement and mobility are needed to prevent the spread of the COVID-19 outbreak. Apart from causing crises in the health sector, this pandemic also causes crises in the social and economic sectors. Research about the effect of IC on firm performance during crises showed various results. A previous study found the effect of IC on entities' performance is inconsistent during financial crises, in this study human capital failed to create value for the entity during the financial crises (Kehelwalatenna, 2016). Meanwhile, another recent study showed a different result, companies with higher intellectual capital had higher profitability values during the COVID-19 pandemic (Papíková & Papík, 2022).

Micro, Small, and Medium Enterprises (MSME) are essential sectors of Indonesia's economy. MSME amount in Indonesia was 64.2 million businesses, with a Gross Domestic Product (GDP) contribution of 61.07% and absorbing 97% of the total workforce (Kemenkopukm, 2019). Unfortunately, for two years during the pandemic, MSMEs have become the most harmed sector. The physical distancing policy has decreased the income of 84% of MSMEs and 62% of MSMEs experience problems related to employees and operations (Mandiri Research Institute, 2022).

MSME's resilience is an essential factor for economic recovery in Indonesia. While most of the research studies about IC's effect on SME performance in normal circumstances. It is essential to know the impact of IC on the resilience of MSMEs during the pandemic. Therefore, this research was conducted to understand the impact of IC, including Human Capital (HC), Structural Capital (SC), and Relational Capital (RC), on MSME resilience during the pandemic period. This information is essential to formulate the best support for MSMEs in the IC context.

This study is structured as follows, after discussing the research background in the first chapter, the second chapter will present the literature review and previous studies on this topic. The third chapter focuses on the research methodology used. The fourth chapter discusses the result and findings, while discussions will be conducted in the final chapter.

## **LITERATURE REVIEW**

### ***1.1. Micro, Small, and Medium Enterprises (MSME) Resilience***

In Indonesia, MSME are classified by its business capital and annual sales results, which are regulated in Government Regulation of the Republic of Indonesia Number 7 of 2021 (*Peraturan Pemerintah RI Nomor 7 Tahun 2021*, 2021), Article 35 paragraph 3. 1).

Resilience refers to the reaction to unexpected or unforeseen changes and disruptions, which is defined as the ability to adapt and respond to such disruptions (Erol et al., 2010). Meanwhile, corporate resilience could be defined as the company's ability to recover from the shock, adapt, and change in response to disturbances (Roundy et al., 2017). A firm's resilience measurement could be addressed in two ways, one way is by measuring the firm's performance e.g., financial performance, volatility, or growth. Another approach is by investigating the company's response to environmental shocks (Xia et al., 2022). Another research considered the level of recovery as an important factor in assessing resilience (Erol et al., 2010). MSME resilience relates to the

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organisation's ability to respond to exogenous volatility pressures by making systematic adjustments to mitigate the impact of the crisis (Supari & Anton, 2022). MSME resiliency was measured by the level of sales and profit which can described MSME durability during the Pandemic COVID-19 (Lee et al., 2022). Meanwhile, the company's response to environmental shocks was measured by the effort exerted by the company to retain employees during the pandemic.

### **1.2. Intellectual Capital (IC)**

Practitioners and researchers in management and accounting mostly believe that a group introduced the emergence of the term Intellectual Capital (IC) in Sweden called Konrad Track which consists of managers. The managers develop a non-financial performance appraisal method emphasising intangible assets. Several methods developed by the group were then recorded in a book "Invisible Balance Sheet" by Sveiby (Sveiby, 1990). Over time, the definitions of IC continue to develop. IC is intellectual materials, including knowledge, information, intellectual property, experience, or anything that can be used to create wealth (Bontis, 1998; Sullivan, 2000). While according to the Organisation for Economic Cooperation and Development (OECD), IC is the economic value of two categories of intangible assets of a company, which are organisational capital and human capital (Miller et al., 1999). However, IC does not include intellectual property such as copyrights, patents, and design rights (Bontis, 1998). IC is considered an essential asset in the company, IC is a list of hidden assets whose value could not be fully captured on the balance sheet (Roos & Roos, n.d.).

There are three categories of IC (Mertins et al., 2006) (Roos & Roos, n.d.), which are human, structural/organisational capital, and customer and relational capital. Human capital is about the skills, abilities, and motivation owned by the human who runs the company. Structural or organisational capital is structures and processes within the organisation, it consists of business process capital and business renewal and development capital (Roos & Roos, n.d.). Business process capital includes the flow of information, the flow of products and services, cash flow, cooperation forms, and strategic processes. Customer and relational capital describe a company's relations with its customers, suppliers, other partners, and the general public involved in company activities.

There are 2 categories of IC performance measurement, monetary and non-monetary valuation methods (Wudhikarn, 2021). Monetary valuation involves the conversion of company intangible assets into monetary term, for example, Tobin's Q, Economic Value Added (EVA), Market Value Added (MVA), Value Added Intellectual Capital (VAIC), etc. There are 2 contentious criticisms of the IC assessment using monetary valuation. Apart from including some financial values that are not part of the IC in the calculations, it also ignores some fundamental IC characteristics (Wudhikarn, 2021). Therefore, IC non-monetary valuation is more desirable than IC monetary valuation.

Non-monetary IC valuation considers some specific aspects that must be owned. Human Capital (HC) refers to the knowledge possessed by each employee (Bontis et al., 2000). It includes

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competence, attitude, and intelligent ability of the human who is engaged in the business (Roos, 2017). Structural or organisational capital are including organisational processes, procedures, technologies, information resources, and intellectual property rights (Gogan et al., 2015). Non-human property or organisational talents are used to meet market demand (Bontis et al., 2000). Meanwhile relational capital describes the relationships between internal and external stakeholders (Roos, 2017). The knowledge contained in organisational relationships that support a firm's activities (Bontis et al., 2000). In MSME, HC is described as employee and management improved competence, enhanced competitiveness, and continuous learning. SC is the firm's performance in lean and productive operations, spirit of trust, and broadly employed digital solutions. RC is how the firm perform their reputation in front of stakeholder, trusted and lasting relationship, and open innovation (Edvinsson et al., 1997).

The research object in this study is MSME, and since the business scale of MSME, it is a challenge to present IC indicator using monetary valuation due to the absence of complete financial statements. Human capital (HC) included the capability of employees to voice their opinion, succession training programs, cooperative capability in the teams, and how the employee could come up with new ideas for the firms (Bontis et al., 2000). Structural capital (SC) was including clear system availability that supports the development of ideas for the company and clarity of employee salary increase procedures (Bontis et al., 2000). Relational capital (RC) indicators could consist of market share improvement and consumer satisfaction.

Table 1. Research Variables and Indicators

VARIABLE	INDICATORS	SCALE
Human capital	<ul style="list-style-type: none"> <li>a. Employees' freedom to speak their opinions, and</li> <li>b. Regular training provided for the employee</li> <li>c. The adaptability of the workers</li> <li>d. Teamwork</li> </ul>	Ordinal
Structural capital	<ul style="list-style-type: none"> <li>a. A clear organisational structure</li> <li>b. Procedures that support the development of ideas for the company</li> </ul>	
Relational capital	<ul style="list-style-type: none"> <li>a. Increase the market share</li> <li>b. Customer satisfaction</li> </ul>	
MSME Resilience	<ul style="list-style-type: none"> <li>a. Profit rate stability</li> <li>b. Sales rate stability</li> <li>c. Retaining employees during the pandemic</li> </ul>	Ordinal

Source: Processed, 2022

**1.3. Proposed Model and Hypothesis Development**

Previous research about IC and firm performances was conducted many times. Most of the time, in the studies, IC has a significant influence on a firm's performance (Tan et al., 2007) (Nadeem et al., 2017) (Zéghal & Maaloul, 2010). Likewise in small business performance, IC also had a positive impact on its performance (Cohen & Kaimenakis, 2007) (McLarty, 1999) (Agostini et al.,

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2017) (Sardo et al., 2018). Previous research suggests that IC and resilience are interrelated concepts, and the IC component contributes to the resilience capacity of entrepreneurs to survive and continue their business in turbulent times (Daou et al., 2019). Moreover, a combination of self-improvement, continuous learning, and digitization prepares MSMEs for what is likely to be a very different future after a crisis such as a pandemic (Csath, 2021).

Another research explained the importance of human capital in the sustainable development of small businesses compared with the other two variables (Gross-Gołacka et al., 2020). Meanwhile, another study highlights that while human, structural, and customer capital are important regardless of the industry type, human capital has a greater impact on non-service industries (Bontis et al., 2000). Research in Indian Bank also showed similar results, human capital has a positive linkage with bank performance (Tiwari & Vidyarthi, 2018). Using Indonesia's listed companies' data, human capital also showed a positive effect on revenue growth (Razafindrambinina & Anggreni, 2011).

Therefore, the first hypothesis constructed from the previous research is:

H<sub>1</sub>: Human Capital (HC) significantly positive affect MSME Resiliency

The previous research explained that structural and relational capital showed a significant effect on SME performance (Khalique et al., 2015). Another research in Indian Bank also showed the same result, structural capital has shown significant linkage with bank performance, on the contrary, relational capital did not have a significant effect on the bank performance (Tiwari & Vidyarthi, 2018). Therefore, based on the previous studies, another 2 hypotheses could be developed as follows:

H<sub>2</sub>: Structural Capital (SC) significantly positive affect MSME Resiliency

H<sub>3</sub>: Relational Capital (RC) significantly positive affect MSME Resiliency

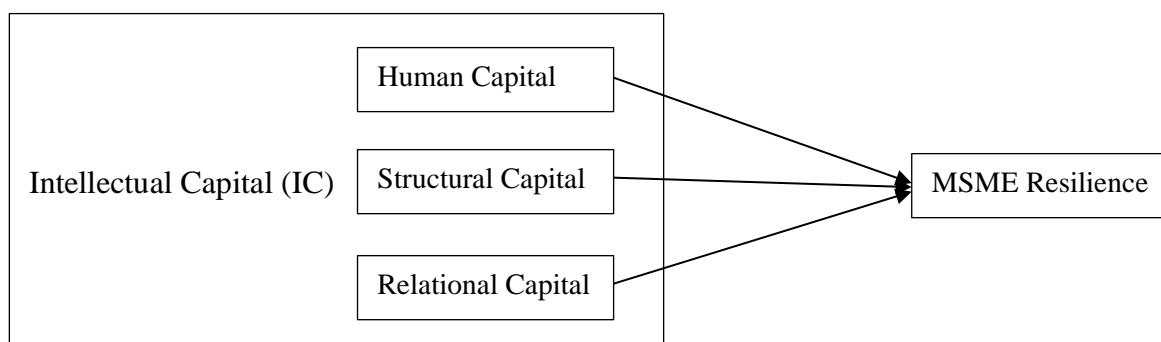


Figure 1. Research Proposed Model, Source: Processed, 2022

**RESEARCH METHOD**

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This research takes MSME in Bandung City as a sampling site, as Bandung is a multicultural city famous for the wide variety of MSME types of business. According to the Department of Cooperatives, Micro, Small and Medium Enterprises (KUMKM) Bandung City, the population of MSMEs in Bandung City reaches 140 thousand MSMEs. Data were collected by distributing questionnaires to 174 MSMEs in Bandung using the random sampling technique. The type of data used is cross-section data. The variable indicators for resilience and IC were measured using the ordinal scale with a 5-point scale which describe how strongly respondents felt about a set of statements ranging from strongly agree to strongly disagree (Table 2).

Table 2. Variable Indicators

VARIABLE	INDICATORS	
Human capital	a. Employees' freedom to speak their opinions	The company provides freedom for employees to voice their opinions.
	b. Regular training provided for the employee	The company conducts regular training for employees to meet the skills needed.
	c. The adaptability of the workers	The company notices that the employees can adapt easily to changes.
Structural capital	a. A clear organisational structure	The company pays attention to the organisational structure and clear division of tasks
	b. Procedures that support the development of ideas for the company	The company develops new ideas and products based on clear business procedures
Relational capital	a. Increase the market share	The company has a clear market share and always tries to increase the company's market share
	b. Customer satisfaction	The company prioritises customer satisfaction in its services
MSME Resilience	a. Profit rate stability	The company has stable or increasing rates of profit during the pandemic.
	b. Sales rate stability	The company has stable or increasing sales levels during the pandemic.
	c. Retaining employees during the pandemic	The company values and tries to retain employees as business assets even though the business is experiencing a decline in profits.

Source: Processed, 2022

This study is categorised as a confirmatory study. To answer the questions explained in chapter 1, this research uses a quantitative approach with a multiple regression model. Based on known values

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of the independent variables, the regression analysis attempts to estimate and/or predict the dependent variable's population mean or mean value (Gujarati & Porter, 2004) using SmartPLS software. The equation model of multiple regression analysis conducted to estimate the influence of IC on MSME resilience was:

$$Y = \alpha_1 HC + \alpha_2 SC + \alpha_3 RC + e$$

**FINDINGS AND DISCUSSION**

***Descriptive Statistics***

Data was gathered from 174 MSMEs in the Bandung city area, the respondent to this questioner the respondent consists of 103 business owners, and 71 employees. The type of respondents' businesses is culinary, sales, services, and fashion (table 3.).

Table 3. Descriptive Statistics of Variable Indicators

Type of Business		Respondent Status	
Categories	Amount	Categories	Amount
Culinary	135	business owners	103
Sales	19	employees	71
Services	18		
Fashion	1		
Agribusiness	1		
Total	174	Total	174

Source: Processed, 2022

The descriptive statistics of variable indicators are presented in table 4., the tendency of answers related to human capital is above 3 or disagree, it is also applied to answers related to RC and SC. Meanwhile, the answer to MSME Resilience tends to be neutral.

Table 4. Descriptive Statistics of Variable Indicators

Variables	Indicators	Mean	Median	Min	Max	Standard Deviation
Human Capital (HC)	HC1	4.155	5.000	1.000	5.000	1.533
	HC2	3.598	4.000	1.000	5.000	1.564
	HC3	4.115	5.000	1.000	5.000	1.493
Relational Capital (RC)	RC1	3.839	5.000	1.000	5.000	1.553
	RC2	4.672	5.000	3.000	5.000	0.617
Structural Capital (SC)	SC1	3.805	4.000	1.000	5.000	1.405
	SC2	3.431	4.000	1.000	5.000	1.301

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Resilience (R)	R1	2.782	3.000	1.000	5.000	1.124
	R2	2.707	3.000	1.000	5.000	1.088
	R3	3.563	4.000	1.000	5.000	1.412

Source: Processed, 2022

**Measurement Evaluation**

A validity test was conducted to understand the degree of confidence the researcher has that a trait is well measured by its indicators. For this criteria, internal consistency validity was shown from the correlation between item/indicator scores and construct scores. The indicator itself is acceptable if the loading factor value is more than 0.7 even though it is also acceptable if the loading factor is more than 0.6 (Hair et al., 2011). Convergent validity was shown by the Average Variant Extracted (AVE) value. AVE compares the level of variance captured by a construct to the level due to measurement error; values above 0.7 are considered very good, while levels below 0.5 are considered acceptable. Relational Capital has the lowest AVE of 0.697 compared with the other variables or more than 0.5, which is still acceptable (Hair et al., 2011). A reliability test was used to test the consistency of the respondent. In this research, the reliability test using the Cronbach alpha test was used. According to the test, all of the indicator variables are reliable. It is shown by the Cronbach alpha value which is greater than 0.6 (Joseph et al., 2010).

Table 5. Measurement Evaluation

Variables	Indicators	Outer loading	AVE	Cronbach Alpha Value	VIF
Human Capital (HC)	HC1	0.968	0.892	0.939	2.242
	HC2	0.899			
	HC3	0.965			
Relational Capital (RC)	RC1	0.980	0.697	0.664	1.012
	RC2	0.658			
Structural Capital (SC)	SC1	0.893	0.826	0.790	2.250
	SC2	0.924			
Resilience (R)	R1	0.859	0.721	0.818	
	R2	0.877			
	R3	0.810			

Source: Processed, 2022

**Empirical Result**



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From the regression analysis conducted, the value of  $R^2$  is 0.505 and  $R^2$  adjusted is 0.496, this number indicates how well the model explains the variation in the dependent variable, in other words, the three independent variables are able to explain 50.5% of the dependent variable, which can be categorised as moderate (Hair et al., 2011).

Individual parameter significance test (t statistical test) results show that human capital and relational capital variables both affect MSME resiliency during the pandemic period, while structural capital variable does not affect the MSME Resiliency during the pandemic. The following model is a mathematical model that explains how the independent variables which are human capital, relational capital, and structural capital influence MSME resiliency during the pandemic:

$$\text{MSME Resiliency} = \alpha_1 \text{HC} + \alpha_2 \text{SC} + \alpha_3 \text{RC} + e$$

$$\text{MSME Resiliency} = 0.484 \text{HC} + 0.180 \text{SC} + 0.223 \text{RC} + e$$

**Table 6. Structural Model**

Dependent Variable: MSME Resiliency					
Total observations: 174					
$R^2 = 0.505$					
Variable	Path Coefficient	Std. deviation	t-statistic	P value	conclusions
Human Capital (HC)	0.515	0.085	6.057	0.000*	Positively Significant
Structural Capital (SC)	0.151	0.082	1.841	0.066*	Insignificant
Relational Capital (RC)	0.261	0.049	5.299	0.000*	Positively Significant
* 5% significance error					

Source: Processed, 2022

**Discussions**

Based on the result in table 6., human capital and relational capital positively affect MSME resiliency during the pandemic, meanwhile structural capital empirically does not affect MSME resiliency. Theoretically, these 3 variables should all positively influence MSME performance. However, in terms of resilience amid anomalous phenomena, namely the pandemic period, it is very different from previous years, human capital and relational capital do affect MSME resiliency, while structural capital does not. The results of this research are in accordance with previous study by Daat et al., which concluded that HC and RC indeed affect the MSMEs performance, meanwhile SC was not (Daat et al., 2021). It is different from the previous research result, which showed that HC,

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RC, and SC influence a firm's performance (Tan et al., 2007) (Nadeem et al., 2017) (Zéghal & Maaloul, 2010) (Cohen & Kaimenakis, 2007) (McLarty, 1999) (Agostini et al., 2017) (Sardo et al., 2018). It is also different from previous research which showed that human capital is unable to affect a firm's performance (Kehelwalatenna, 2016).

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**CONCLUSION AND FURTHER RESEARCH**

The relationship between IC and firm performance is widely known, however during 2 years of the pandemic era, IC could become the most important factor in maintaining a business in an uncertain situation, along with the nature of MSME which is smaller in scale than large companies, both in terms of assets, income, and human resources involved. The purpose of this research is to understand the effect of IC on the resilience of Indonesia's MSMEs during the pandemic.

The majority of Micro, Small and Medium Enterprises (MSMEs) change the type of products and technically try to innovate to survive during the physical distancing policy, which is 85.57% (Mandiri Research Institute, 2021). In this process, of course, MSMEs are very dependent on the ability to exist human capital in developing their products to deal with existing uncertainties, this fact indeed fits the research result which shows that Human Capital (HC) has a positive effect on MSME resiliency during the pandemic.

The Relational Capital (RC) variable, in this research, also showed a positive impact on MSME resilience. In this research, RC is measured by looking at the company's ability to attract new target markets by developing its market share and retaining old customers by focusing on customer satisfaction. These two aspects are important because it is not only old customers that need to be retained but also focuses on the needs of new consumers both in terms of product innovation and distribution carried out to deliver the product.

Meanwhile, the Structural Capital (SC), in this study has no significant effect on MSME resilience during the pandemic. Structural capital which is referenced as structures and processes or in this research measured by the presence of clear organisational structure and procedures within the organisation becomes no longer significant during the pandemic since a quick decision is needed to keep the business running during this period.

These research results, provide recommendations that the most appropriate form of support for MSMEs in times of crisis is to provide education and knowledge sharing which can expand the skills and knowledge of MSME business people. And in addition, it is also important to support MSMEs in developing their relationships with various parties to maintain their business during the pandemic.

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