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## Article

# The value of intellectual capital in improving MSMEs' competitiveness, financial performance, and business sustainability

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# The value of intellectual capital in improving MSMEs' competitiveness, financial performance, and business sustainability

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## ABSTRACT

Intellectual capital is now recognized as a factor influencing organizational progress. However, many Micro, Small and Medium Enterprises (MSME's) in Indonesia still need to understand the importance of intellectual capital to support their organizational performance. This study aims to strengthen intellectual capital succession in MSME's in Indonesia to improve their competitiveness, financial performance, and sustainability. The population of this study is all MSME's players in Indonesia. At the same time, the research sample selection is carried out using the criteria, namely MSME's that have been running their business for at least ten years and use technology in business activities. The calculation of the minimum number of samples was determined from this research method using the SEM (Structural Equation Modeling) analysis test by carrying out several tests, namely composite reliability, coefficient determination, and hypothesis testing. Scientific tests found that human capital affects structural capital, relational capital, and the competitiveness of MSME's in Indonesia. Structural and relational capital mediate the strong relationship between human capital and the competitiveness of MSME's in Indonesia. Structural and relational capital can also mediate the strong relationship between human capital and the continuity of MSME's businesses in Indonesia. Meanwhile, the relationship between human capital and the financial performance of MSME's in Indonesia can only be weakly mediated by structural and relational capital. These findings certainly provide new evidence about the importance of intellectual capital for the sustainability and competitiveness of today's MSME's businesses.

## IMPACT STATEMENT

This study aims to strengthen intellectual capital succession in MSMEs in Indonesia to improve their competitiveness, financial performance, and sustainability. In this study, the authors formulate empirical references and findings related to improving the quality of MSMEs to compete and survive through the influence of human capital on structural capital, relational capital and the competitiveness of MSMEs in Indonesia. Scientific tests found that human capital affects structural capital, relational capital, and the competitiveness of MSMEs in Indonesia. Structural and relational capital mediate the strong relationship between human capital and the competitiveness of MSMEs in Indonesia. Structural and relational capital can also mediate the strong relationship between human capital and the continuity of MSME businesses in Indonesia. Meanwhile, the relationship between human capital and the financial performance of MSMEs in Indonesia can only be weakly mediated by structural and relational capital.

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## Introduction

Many large companies have run knowledge-based businesses. In developed countries like the US, 60% are knowledge workers. It is proven that companies can carry out activities more effectively and efficiently by increasing this knowledge capability (Mills & Smith, 2011; Zaid, 2012). Intellectual capital is

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now recognized as a factor influencing an organization's progress. According to Holland et al. (2012), the fundamental reason for companies in Japan to be successful is not only their skills and experience, but there is knowledge management/creation in organizations where knowledge is the intellectual capital owned by humans as an element of human capital. Likewise, in Micro, Small, and Medium Enterprises (MSME's), intellectual capital is considered very important for business development and ultimately improves welfare. MSME's are a form of business that contributes to regional income and helps improve Indonesia's economy.

Seeing the condition of MSME's in Indonesia, only a few are aware of the importance of knowledge-based business by optimizing their intellectual capital, even though the existence of MSME's is highly expected to grow the economy and have high competitiveness. With MSME's optimizing existing intellectual capital, it is hoped that MSME's can face competition and develop over time along with the development of science and technology. Intellectual capital is increasingly recognized as a strategic asset (investment) and is necessary for companies to increase sustainable company value and profits (Amin & Aslam, 2017; Jordão & Novas, 2017; Matos et al., 2018; Muchran, 2020). MSME's must understand their management strategy as the main asset that can build competitiveness. MSME's need knowledge and information to participate in today's competitive market and improve company performance.

Whilst innovation is critical to success in the face of competition, many companies still need to be more innovative in their production, technology and marketing (Indrawati et al., 2020). The awareness and willingness of entrepreneurs to apply appropriate science and technology in companies still need to be improved. The lack of courage of MSME's to try technological innovations (Caloghirou et al., 2017) weakens human resources quality. Most MSME's grow conventionally and are family businesses passed down from generation to generation. The limited quality of human resources in MSME's, in terms of formal education and knowledge and skills, dramatically affects the management of their business, so the business is challenging to develop optimally. MSME's also need help to adopt new technological developments to increase the competitiveness of their products. As a result, they cannot satisfy the rapidly-changing consumer demands (Caska et al., 2018). Therefore, intellectual capital is one of the causes of MSMEs' lack of technological innovation (Capozza & Divella, 2019).

The lack of information related to the progress of science and technology has resulted in the limited facilities and infrastructure they have and are still conventional. With limited facilities and infrastructure, production is less than optimal because it requires a lot of time and energy, which results in less support for business progress. Lack of guidance and management from relevant agencies, such as from the industry and MSME's services, so that guidance to MSME's is less than optimal, even though some MSME's products in Indonesia have reached outside Java, such as Aceh, Riau, Makassar and even to Malaysia, of course, they have many opportunities to absorb more labour so that it is expected to form a network with other MSME's that are mutually beneficial.

One of the reasons Indonesia's MSME's performance is so much lower than that of developed countries is the need for more development or proficiency in science and technology representing Indonesian MSME's actors' intellectual capital. In the age of free trade and the globalization of the world economy, science and technology and human resources are two significant factors determining products' competitiveness (Ahmed Haji & Mohd Ghazali, 2012; Asuquo, 2012; Razafindrambinina & A, 2014; Sydler et al., 2014). Competing in the domestic and global markets, MSME's is efficient and produces high-quality products. HR and science and technology are unrelated elements, and HR is necessary for knowledge development or absorption of technology. In short, MSME's can develop technology and require the skills and abilities of employees and entrepreneurs. To be able to dispose of knowledge and technology appropriately.

This study aims to find out the importance of intellectual capital for MSME's in Indonesia in terms of increasing their competitiveness, financial performance, and sustainability of these MSME's. This research is essential to do to provide an updated understanding that companies that have higher 'intangibility', then these companies also have higher competitive advantages (Amel-Zadeh et al., 2016; Beattie & Smith, 2013; Bratianu, 2018; Gogan et al., 2016; Manning, 2010; Shih et al., 2010). This is because information on intangible assets significantly influences the company's cash flows from investments, operations and financing.

Intellectual capital is a significant asset in the development of the business world in the future because it is unique and intangible and is recognized as the main driver of business processes. Intellectual capital that is successfully implemented is significant for micro, small and medium enterprises to create products and services that have added value for the organization (Andreeva & Garanina, 2016; Beattie & Smith, 2013; Fontana & Egels-Zandén, 2019; Hidayat et al., 2018; Sardo & Serrasqueiro, 2017). This research was conducted with several formulations and objectives, including determining the effect of Human Capital on the Competitiveness, Structural and Relational Capital of MSME's in Indonesia. It knows the ability of Structural mediation and Relational Capital related between Human Capital and the Competitiveness of MSME's in Indonesia. It knows the ability of Structural mediation and Relational Capital related between Human Capital and the Financial Performance of MSME's in Indonesia. It knows the ability of Structural mediation and Relational Capital related between Human Capital and the Sustainability of MSME's in Indonesia.

## Literature review

The theory of human capital a theory that was initiated by Gary Becker. This theory stems from a research series from Becker, who began developing human resources by publishing the book Human Capital (Becker, 1964). Becker concentrates on the general development of human capital investments and not just assessing the profitability of those investments. Investments in human capital include education, on-the-job training, health care, and research for information on human capital costs and earnings. The theory of human capital also explains that the investment made will provide commensurate returns to the organization (Krasniqi & Topxhiu, 2016). Investment in human capital is an important matter based on human capital theory because formal education possessed by workers is not the only way to invest in human capital (Becker, 1964). Workers need to increase their productivity through new skills learned in the work environment. On-the-job training is a source of increased benefits, and they are more significant with higher work experience. Becker's study shows that workers are willing to ask for common knowledge despite receiving lower benefits.

Human capital theory shows the knowledge, skills, and abilities that can be used to promote economic growth (Andreeva & Garanina, 2016; Jordão & Novas, 2017). In this way, human capital is a human resource inseparable from running a business. Structural capital includes accumulating all inhuman knowledge within an organization, including databases, organizational charts, manual processes, strategies, routines, and others worth more than their substantial value increase (Igielski, 2018). Structural capital is a vital link that enables the measurement of intellectual capital at the level of organizational analysis. Structural capital is defined as the knowledge that remains in the company (Jordão & Novas, 2017). Coexist within the organization together promotes synergies with everything within an organization, including organizational structure, process guidelines, strategies, routines, software, hardware, and everything more valuable to the company than physical value. Structural capital is also used to build systems such as databases that allow people to interact and learn from each other, making it easier to share knowledge with individuals within an organization other than those resulting from working knowledge. Part of the structural capital is protected by law and is an intellectual property right legally owned by the company (Jain et al., 2018; Jordão & Novas, 2017; Suseno et al., 2019). So, based on the description above can be formulated as a research hypothesis as follows.

**H<sub>1</sub>:** Human capital affects increasing the structural capital of MSME's

**H<sub>2</sub>:** Human capital affects increasing MSME relational capital

**H<sub>3</sub>:** Human capital affects increasing the competitiveness of MSME's

Relationship capital is a harmonious relationship between a company and its partners, suppliers, customers, governments, and the surrounding community (Brown-Liburd et al., 2018; Jordão & Novas, 2017). The mutually beneficial relationships between organizations and their stakeholders and social networks' importance are believed to impact SMEs' sustainability positively (Muchran, 2020). Companies are interested in building networking capabilities with outsiders because they expect positive results. Gain access to the valuable resources and knowledge needed to seize opportunities, build competitive

positions and encourage employees and managers to look for new business opportunities and develop business ideas to take advantage of them. Like investing in an organization, related capital can drive entrepreneurial development, emphasizing initiative, autonomy, risk-taking, and innovation (Agostini et al., 2017; Anggraini et al., 2020). As a result, the competitiveness that some companies create is even greater. This also allows you to engage in informative interactions with other major partners in the form of collaboration (Almulhim, 2020; Jordão & Novas, 2017; Moustaghfir et al., 2013). So, based on the description above can be formulated as a research hypothesis as follows.

**H<sub>4</sub>:** Structural capital can mediate the relationship between human capital and the competitiveness of MSME's

**H<sub>5</sub>:** Relational capital can mediate the relationship between human capital and the competitiveness of MSME's

Structural capital can address everyday processes and structures that help employees achieve academic and business outcomes, including operating systems, manufacturing processes, controlled physiology, and corporate intellectual property (Shokri et al., 2017). All individuals have a high level of intelligence, but organizations with inadequate systems and procedures for tracking behaviour affect intellectual capital less than its most tremendous potential. If the intellectual capital obtained is not optimal, it will affect its performance (Serenko et al., 2010).

Human capital is the most critical resource that adds value to business processes, such as skills, knowledge, expertise, abilities, attitudes, and agility. Human capital is the essential element of intellectual capital and influences other factors that affect the performance of an organization (Dwivedi et al., 2021; Shen et al., 2019). The presence of human capital in a business process helps the company sustainably run the business and achieves the desired performance because the knowledge within the company is used to create value for the product or service can provide direction (Deswanto & Siregar, 2018; Hapsoro & Husain, 2019; Jordão & Novas, 2017; Matos et al., 2018; Schneider, 2015). So, based on the description above can be formulated as a research hypothesis as follows.

**H<sub>6</sub>:** Structural capital can mediate the relationship between human capital and the financial performance of MSME's

**H<sub>7</sub>:** Relational capital can mediate the relationship between human capital and the financial performance of MSME's

The significance of 'human capital' in an organization or community, in its that means 'highbrow capital', refers to the information and expertise of a social collectivity. Intellectual capital is parallel to human capital, which incorporates information, skills, and talents that allow human beings to behave in new ways (Jordão & Novas, 2017). Thus, Intellectual capital is a vital resource capable of acting on knowledge (Jordão & Novas, 2017; Lentjušenkova & Lapina, 2016).

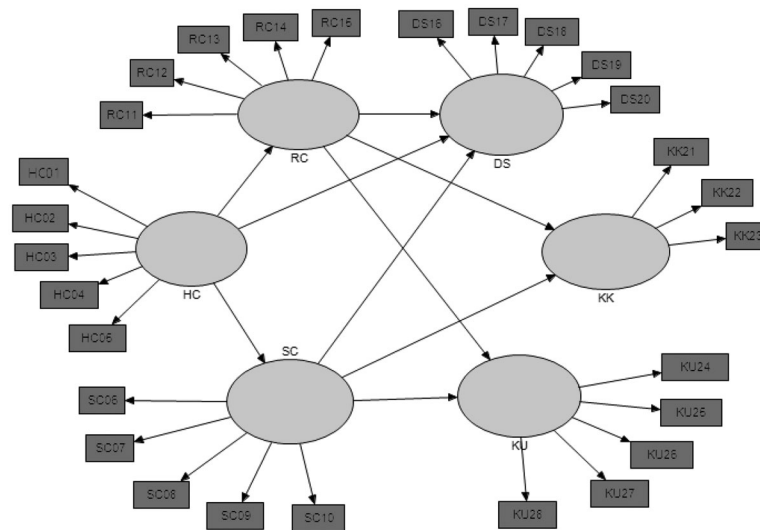
This study explains that intellectual capital is essential in organizational development and corporate sustainability. Economic changes with the characteristics of a science-based economy due to the application of knowledge management drive an increase in intellectual capital. Organizations move their strategies from job-based companies (work-based businesses) to knowledge-based companies (knowledge-related businesses). The parent company will be a science company (Durst & Ferenhof, 2014; Jordão & Novas, 2017; Lentjušenkova & Lapina, 2016). MMSME's abilities, skills, and abilities drive MSME's to carry out production activities to innovate production processes and achieve results effectively and efficiently. Human capital is vital for everyone because it can use, direct, manage, and transform resources to generate value and profit for corporate sustainability (Andreeva & Garanina, 2016; Ardhiani & Nasih, 2019; Durst & Ferenhof, 2014; Igielski, 2018; Suseno et al., 2019). So, based on the description above can be formulated as a research hypothesis as follows.

**H<sub>8</sub>:** Structural capital can mediate the relationship between human capital and the sustainability of MSME's

**H<sub>9</sub>:** Relational capital can mediate the relationship between human capital and the sustainability of MSME's

Figure 1 above shows the model image in this study. The research model was formed based on the development of the hypotheses that have been described previously. The research model in Figure 1 will test the direct effect of the human capital variable on structural capital, relational capital, and competitiveness. In addition, the research model also shows that this study will also examine the mediating





**Figure 1.** Research framework model.

Note.

HC01-HC05: Indicator item number of the human capital variable (see [Appendix](#) for complete information).

SC06-SC10: Indicator item number of the structural capital variable (see [Appendix](#) for complete information).

RC11-RC15: Indicator item number of the relational capital variable (see [Appendix](#) for complete information).

DS16-DS20: Indicator item number of the competitiveness variable (see [Appendix](#) for complete information).

KK21-KK23: Indicator item number of the business continuity (see [Appendix](#) for complete information).

KU24-KU28: Indicator item number of the financial performance variable (see [Appendix](#) for complete information).

effects of structural and relational capital on the influence of human capital on the competitiveness, financial performance, and business sustainability of MSMEs in Indonesia.

## Methods

This study uses a quantitative method. The types of data collected are primary data and secondary data. Primary data comes from survey results and in-depth interviews using questionnaires. Data were collected in questionnaires and literature research. Secondary data was obtained from the website of the local MSME government agency, as well as financial reports voluntarily provided to researchers. Secondary data in the form of financial reports obtained is used to determine the value of the financial performance variables in the form of ROA, ROE, and PER. The population of this study is all Indonesian Micro, Small, Medium Enterprises (MSME's) actors. The scan method was used correctly. Therefore, this method uses several criteria, including:

1. MSME's actors in Indonesia have run their businesses for at least ten years since 2009.
2. MSME's in Indonesia whose daily work activities are supported by technology, such as administrative records using a computerized system or the internet.
3. MSME's actors in Indonesia who during their business have obtained at least ten achievements in their business field

This sample is also determined using the sampling method (Ogston et al., 1991) as follows:

$$n = \frac{z^2 \cdot 1 - \frac{a}{2} \cdot \frac{p}{1-p}}{d^2}$$

Information:

n: number of samples

$z^2 \cdot 1 - \frac{a}{2}$ : average standard value, (if: 0.05, then Z: 1.960)

(1-p): population proportion estimate (if P is 0.5, then P(1-P): 0.25)

d: tolerable deviation (10%)

So that,  $n = \frac{(1,960)^2 \cdot (0,25)^2}{(0,10)^2} = 96,4$

Based on the considerations and results of the above calculations, the sample size given in this survey was 100 respondents. However, we increased the number of respondents to 300 to ensure more reliable results. The description is as follows.

This study used data analysis, namely the SEM (Structural Equation Modeling) analysis test. The SEM analysis carried out in this study was carried out using the help of SmartPLS software which carried out tests including validity, reliability, outer, and inner model tests, and hypothesis testing. The use of SEM in this study is because SEM has several advantages, namely the ability to determine latent variable models that provide separate estimates of the relationship between latent constructs and their manifest indicators (measurement models) and relationships between constructs (structural models), the availability of global fit measures that can provide a summary evaluation of even complex models involving large numbers of linear equations, and SEM is also a comprehensive data analytic framework that is attributed to its unique capabilities relative to statistical procedures traditionally used by scientists (Tomarken & Waller, 2005). In this study using a one-way hypothesis test, thus the alpha value used in this study was 0.025 (Tables 1 and 2).

## Result

The characteristics of the respondents in this study were categorized into several criteria, such as gender, age, education, and length of business for MSME's. The results of the data mapping showed 169 male respondents and 31 female respondents, so that male respondents dominated our respondents by 84.5%. The characteristics of our respondents according to age are categorized into 2, namely the age of 40-43 years and over 43 years. In this study, respondents aged 40-43 years were 96 people, while those over 43 years old were 104. The educational background of our respondents is grouped into two categories of graduates, namely SMK graduates and D3 (Diploma). Our respondents were 182 SMK graduates, while 18 were D3 (Diploma) graduates.

Based on Table 3 shows that all question items have a correlation value ( $r$ ) greater than 0.3, while the alpha coefficient is more significant than 0.6. Thus, all question/statement items for each variable are valid and reliable.

**Table 1.** Likert scale answer criteria weight.

Meaning	Number
Strongly agree	5
Agree	4
Neutral	3
Disagree	2
Strongly Disagree	1

Source: (Likert, 1932).

**Table 2.** Research variable measurement indicators.

No	Variable	Indicator	Measurement
1.	<i>Intellectual Capital</i> (Human Capital-X1)	MSME business actors who have special skills, abilities, competencies, creativity, education, high-quality qualifications, and experience to find practical solutions for every customer's demands (Jordão & Novas, 2017).	Likert scale
2.	<i>Intellectual Capital</i> (Structural Capital-X2)	Indicator <i>structural capital</i> , namely culture, routines, instructions, procedures, systems, and technological and intellectual developments (Agostini et al., 2017).	Likert scale
3.	<i>Intellectual Capital</i> (Relational Capital-X3)	This indicator is observed through the organization's relationships with all relevant parties and stakeholders, including the capacity of employees to develop and maintain connections with affiliated parties such as customers and suppliers (Saunila, 2014).	Likert scale
4.	Competitiveness	1. <i>The Threat of New Entrants</i> 2. <i>The Intensity of Rivalry Competition in an Industry</i> (Hsu & Mykytyn, 2010).	Likert scale
5.	Financial performance	1. <i>ROA</i> 2. <i>ROE</i> 3. <i>PER</i>	Ratio Scale
6.	Business Continuity	1. economic potential, 2. Product quality improvement, 3. Business environment conditions.	Likert scale

Sourced: author's documentation.



**Table 3.** Validity and reliability test results.

Variable	Items	Correlation (r)		Coefficient	
		r	Status	Alpha	Status
<i>Intellectual Capital</i> (Human Capital-X1)	HC01	0.410	Valid	0.815	reliable
	HC02	0.965	Valid		
	HC03	0.965	Valid		
	HC04	0.963	Valid		
	HC05	0.957	Valid		
<i>Intellectual Capital</i> (Structural Capital-X2)	SC06	0.561	Valid	0.793	reliable
	SC07	0.923	Valid		
	SC08	0.923	Valid		
	SC09	0.400	Valid		
	SC10	0.923	Valid		
<i>Intellectual Capital</i> (Relational Capital-X3)	RC11	0.555	Valid	0.775	reliable
	RC12	0.626	Valid		
	RC13	0.780	Valid		
	RC14	0.733	Valid		
	RC15	0.785	Valid		
Competitiveness	DS16	0.596	valid	0.815	reliable
	DS17	0.948	valid		
	DS18	0.752	valid		
	DS19	0.948	valid		
	DS20	0.948	valid		
Financial performance	KK21	0.778	valid	0.617	reliable
	KK22	0.313	valid		
	KK23	0.492	valid		
Business Continuity	KU24	0.689	valid	0.791	reliable
	KU25	0.804	valid		
	KU26	0.779	valid		
	KU27	0.705	valid		
	KU28	0.739	valid		

Source: Data processed, 2021.

Note.

HC01-HC05: Indicator item number of the human capital variable (see [Appendix](#) for complete information).

SC06-SC10: Indicator item number of the structural capital variable (see [Appendix](#) for complete information).

RC11-RC15: Indicator item number of the relational capital variable (see [Appendix](#) for complete information).

DS16-DS20: Indicator item number of the competitiveness variable (see [Appendix](#) for complete information).

KK21-KK23: Indicator item number of the business continuity (see [Appendix](#) for complete information).

KU24-KU28: Indicator item number of the financial performance variable (see [Appendix](#) for complete information).

**Table 4.** Composite reliability calculation results.

Dimension	Composite Reliability
<i>Human Capital</i> -X1	0.946
<i>Structural Capital</i> -X2	0.875
<i>Relational Capital</i> -X3	0.827
Competitiveness_Y1	0.926
Financial Performance_Y2	0.878
Business Continuity_Y3	0.858

Source: Smart PLS, 2021.

The next test is the outer and inner model and hypothesis testing. This outer model test uses Composite reliability indicator block data which measures a construct by evaluating the composite reliability value ( $\rho_c$ ). Dimensions are considered reliable if they have a composite reliability value ( $\rho_c$ ) above 0.7. The following are the results of calculations using composite reliability:

[Table 4](#) it can be seen that the composite reliability output obtained by each latent variable is more significant than 0.7. These results indicate that each latent variable is reliable. The inner structural model is evaluated using R-Square for the dependent construct. Inner model testing aims to test the presence or absence of influence between constructs and R square. The structural model was evaluated using p-value to determine the significance of the structural path parameter coefficients and R Square to determine the effect of the independent latent variable on the latent dependent variable and whether it has a substantive effect. The coefficient of determination is a number that shows the enormous contribution of the influence given by the exogenous latent variable to the endogenous latent variable. Based on the test results using the SmartPLS software, the following results were obtained:

In [Table 5](#) above, it can be seen that the R Square value obtained for each dependent variable is 0.379 or 37.9% for Y1; 0.052 or 5.2% for Y2; and 0.733 or 73.3% for Y3. These results show the

**Table 5.** Coefficient of determination ( $R^2$ ).

	R square
Competitiveness_Y1	0.379
Financial Performance_Y2	0.052
Business Continuity_Y3	0.733

Source: Smart PLS, 2021.

**Table 6.** Hypothesis testing results.

Hypothesis	Path Chart	Path Coefficient	Sig	t count	Information
H1	<i>Human Capital</i> → <i>Structural Capital</i>	0.006	0.000***	150.701	Significant
H2	<i>Human Capital</i> → <i>Relational Capital</i>	0.085	0.043**	6.936	Significant
H3	<i>Human Capital</i> → MSME competitiveness	0.081	0.012**	2.796	Significant
H4	<i>Human Capital</i> → <i>Structural Capital</i> → MSME competitiveness	0.041	0.000***	3.978	Significant
H5	<i>Human Capital</i> → <i>Relational Capital</i> → MSME competitiveness	0.081	0.053*	9.689	Significant
H6	<i>Human Capital</i> → <i>Structural Capital</i> → Financial performance	0.314	0.715	0.954	Not Significant
H7	<i>Human Capital</i> → <i>Relational Capital</i> → Financial performance	0.255	0.877	0.910	Not Significant
H8	<i>Human Capital</i> → <i>Structural Capital</i> → Business Continuity	0.055	0.001***	6.204	Significant
H9	<i>Human Capital</i> → <i>Relational Capital</i> → Business Continuity	0.051	0.000***	20.869	Significant

\*significant at 10% level (p value < 0,1).

\*\*significant at 5% level (p value < 0,05).

\*\*\*significant at 1% level (p value < 0.001).

Source: Data processed, 2021.

magnitude of the influence of the factor *Human Capital*-X1; *Structural Capital*-X2; and *Relational Capital*-X3 on the competitiveness, financial performance and business sustainability of MSMEs.

To conclude that the hypothesis is not rejected or rejected, the test is carried out by comparing the t-count value with the t-table value; if the t-count value is more significant than the t-table, then the relationship between the variables is significant and vice versa if the t-count value is smaller than t-table, then the relationship between insignificant variable (Jaya, 2020). With the amount of data 200, then the value of t table ( $\alpha = 1\%$ ) obtained by 3.300; t table ( $\alpha = 1\%$ ) obtained by 2.345; t table ( $\alpha = 5\%$ ) obtained by 1.652; and the value of t table ( $\alpha = 10\%$ ) of 1.285, in this study using a one-way hypothesis test, thus the alpha value used in this study was 0.025 and 0.05 as follows.

Human Capital influences the *Structural Capital* of MSME's in Indonesia. This result is evidenced by the value of t count > t Table (150.701 > 2.345) and a sig. value of <0.01. The second hypothesis show if human capital influences the relational capital of MSME's in Indonesia. This result is evidenced by the value of t count > t Table (6.936 > 1.652) and a sig. value of 0.043. Next, human capital affects the competitiveness of MSME's in Indonesia. This result is evidenced by the value of t count > t Table (2.796 > 1.652) and a sig. value of 0.012. *Structural* and *relational capital* mediate the strong relationship between human capital and the competitiveness of MSME's in Indonesia. The t count > t table evidences this result (i.e. for structural capital, it is 3.978 > 3.300, while for relational capital, it is 9.689 > 1.285) and sig. value for structural capital is 0.000 and 0.053. Thus, when the structural and relational capital of MSME's are of good quality, it will facilitate the effect of human quality to increase the competitiveness of MSME's.

*Structural Capital* and *relational capital* have a weak mediating effect on the relationship between *Human Capital* and the financial performance of MSME's in Indonesia (Table 6). This result is evidenced by the value of t count < t table (ie for structural capital it is 0.954 < 1.652 while for relational capital it is 0.910 < 1.652) and a sig. value of 0.715 for structural capital and 0.877 for relational capital.

*Structural Capital* and *relational capital* mediate the strong relationship between *Human Capital* and *Business Continuity* of MSME's in Indonesia. This result is evidenced by the t count > t table (ie 6.204 > 3.300 for structural capital and 20.869 > 3.300 for relational capital) and sig. value of 0.001 for structural capital and 0.000 for relational capital. Thus, when the structural and relational capital of MSME's is of good quality, it will facilitate the effect of human quality to increase the business continuity of MSME's. Table 7 below summarises the results of hypothesis testing as follows

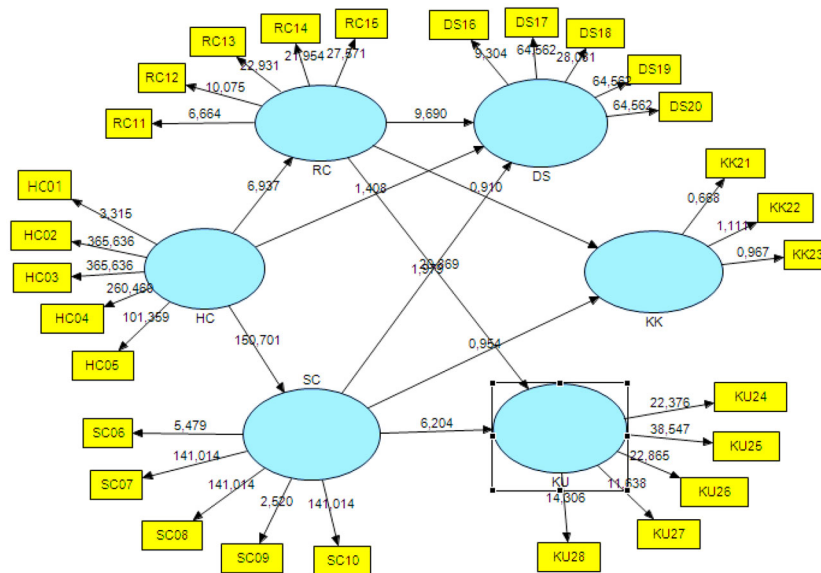
## Discussion

This structural capital includes databases, organizational charts, manual processes, strategies, routines, and anything else whose value to a company is more important than its material value. Structural capital that is

**Table 7.** Summary of hypothesis testing results.

Hypothesis	Relationship	Decision
H1	HC→SC	Not rejected
H2	HC→RC	Not rejected
H3	HC→competitiveness	Not rejected
H4	HC→SC→competitiveness	Not rejected
H5	HC→RC→competitiveness	Not rejected
H6	HC→SC→financial performance	Not rejected
H7	HC→RC→financial performance	Rejected
H8	HC→SC→sustainability	Not rejected
H9	HC→RC→sustainability	Not rejected

Source: data processed.

**Figure 2.** Data test results.

Source: Smart PLS, 2021.

Note.

HC01-HC05: Indicator item number of the human capital variable (see [Appendix](#) for complete information).SC06-SC10: Indicator item number of the structural capital variable (see [Appendix](#) for complete information).RC11-RC15: Indicator item number of the relational capital variable (see [Appendix](#) for complete information).DS16-DS20: Indicator item number of the competitiveness variable (see [Appendix](#) for complete information).KK21-KK23: Indikator item number of the business continuity (see [Appendix](#) for complete information).KU24-KU28: Indicator item number of the finansial performance variable (see [Appendix](#) for complete information).

well connected with human capital can build the creation of systems that enable people to interact and learn from each other, thereby fostering synergies due to the ease of sharing knowledge and collaborating between individuals in organizations (Durst & Ferenhof, 2014; Jordão & Novas, 2017; Lentjušenkova & Lapina, 2016). Meanwhile, relational capital is a harmonious relationship between a company and its partners, both suppliers, customers, the government and the surrounding community (Agostini et al., 2017; Andreeva & Garanina, 2016; Asiaei & Jusoh, 2015; Brown-Liburd et al., 2018; Jordão & Novas, 2017). The importance of mutually beneficial relationships and social networks between organizations and their stakeholders is believed to affect entrepreneurial orientation in small and medium enterprises positively. Furthermore, competitiveness is also a concept that refers to a company's ability to compete with other companies to create value (Beattie & Smith, 2013; Ruiz-Real et al., 2020). Competitiveness can be created or enhanced by implementing the right competitive strategy, one of which is managing resources effectively and efficiently.

The results of this study indicate that human capital can increase structural capital, relational capital, and competitiveness in SMEs (Figure 2). Good human capital in an organization will be able to produce good structural capital and relational capital because of the ability to exist human resources in an organization to create databases, organizational charts, manual processes, strategies, routines, and anything that can generate processes, good business, to be able to provide the maximum quality of service and

products following customer needs. In addition, good human capital will be able to create harmonious relationships between the company and its partners, from suppliers, customers, the government and the surrounding community.

Human capital represents individual knowledge stock or an organization represented by its employees (Amin et al., 2018; Mention & Bontis, 2013; Sari, 2020; Widyatini, 2019; Zhicheng et al., 2016). In addition, resourced-based theory explains that resources and capabilities are internal to the company, which is used as strategy development in the external environment, such as customers, suppliers, new entrants, products or services, and competition between companies (Nemati et al., 2010). The existence of quality services, products, and good relationships will ultimately create higher competitiveness compared to other businesses. Gocejna (2016) explains that stakeholder theory explains that a corporation has parties that are the responsibility of the company other than shareholders, namely stakeholders such as employees, customers, suppliers, creditors, and the community. This theory helps management to understand the stakeholder environment by exploiting the potential that generates added value (Bukair & Abdul Rahman, 2015; Ismail et al., 2015; Sakr, 2017; Schneider, 2015; Soewarno & Tjahjadi, 2020; Thijssens et al., 2015). Thus, human capital is needed to create structural capital, relational capital, and competitiveness in MSMEs.

Empirical evidence shows that good human capital in organizations is able to create competitiveness by increasing the quality of structural and relational capital in organizations as evidenced in the results of this study. The ability of a person (human capital) who already has specific skills, abilities, competencies, creativity, high-quality education and qualifications, as well as experience to find practical solutions to every customer's demands are certainly very beneficial for stakeholders because they can easily monitor and control the operations of their organization without having to go down to the organization. This condition is expected by many stakeholders so that the organization's goals can be achieved properly. Organizations with good relational capital can quickly achieve company goals (Durst & Ferenhof, 2014; Malesev & Cherry, 2021).

This indicates that the human capital that MSME actors in Indonesia have formed is currently good so that it can create business competitiveness. It should be noted that human capital needs to be updated every period because the economic situation and conditions that arise are constantly changing, so MSME actors are also required to always actively observe the human capital needs that they need each period (Durst & Ferenhof, 2014; Gomes & Wojahn, 2017; Malesev & Cherry, 2021; Singh et al., 2016). These results indicate that an organization that is structured or has good structural capital includes: databases, organizational charts, manual processes, strategies, routines, and everything whose value to the company is more significant than its material value can facilitate its human capital to carry out its organizational activities, so this factor will significantly contribute to increasing the competitiveness of the MSME business in the future. This result also indicates that the fourth hypothesis is not rejected. (Agostini et al., 2017; Chang & Cheng, 2019; Jordão & Novas, 2017; Singh et al., 2016). The relational capital in an organization is significant to direct its human capital to run according to its strategy to increase its competitiveness (Chang & Cheng, 2019; Singh et al., 2016).

The new results found in this study are that structural capital and relational capital do not mediate the influence of human capital on the financial performance of MSMEs in Indonesia. These results indicate that the capture of intellectual capital in an organization emphasizes creating the strength of its organizational culture and increasing the strategic value of an entity rather than the value of accounting profit and its financial performance (Gogan et al., 2016). Another argument from the results of this study is the impact of the business environment, which can also strengthen or weaken the influence of human capital on organizational performance. This is because the business environment is believed to influence business decision-making related to business strategy planning (Acmaad & Djaslim, 2010). The organizational environment can be divided into internal and external (T. Wheelen & Hunger, 2012). The environment contains the environment that exists outside the organization that can be used to analyze the opportunities and threats faced by the company (Zulaikha & Fredianto, 2003), while the internal environment is related to the external environment within the company consisting of organizational structure, culture, and resources used to analyze strengths and weaknesses (Wheelen & Hunger, 2012). Hidayat et al. (2015) and Adeoye & Elegunde (2012) found that the internal and external environments significantly influence corporate strategy. This argument is supported by the results of this study and previous research, which found that organizations with structural capital that can direct all of their human capital activities can contribute to business sustainability (Chang & Cheng, 2019; Durst & Ferenhof, 2014; Singh et al., 2016). In addition, the results of this study also show that

good relational capital can create solid human capital to encourage the sustainability of MSME businesses in Indonesia. This certainly contributes significantly to stakeholders so that the objectives are also achieved. (Chang & Cheng, 2019; Costa et al., 2016; Singh et al., 2016).

## Conclusions

This study aims to find up-to-date on the importance of intellectual capital for MSME's in Indonesia to increase their competitiveness, financial performance, and sustainability. This research is vital to do to provide an up-to-date understanding that companies that have a higher 'intangibility' than the company also have a higher competitive advantage. This is because information on intangible assets significantly influences the company's cash flows from investments, operations, and funding.

The study's results generally concluded that human capital could affect relational capital, structural capital, and competitiveness of MSMEs in Indonesia. Another conclusion from the research results is that human capital can also increase the competitiveness and sustainability of MSME businesses through the positive impact created by increasing relational capital and structural capital. However, human capital has yet to be found to increase the financial performance of MSMEs through a positive impact on relational and structural capital.

The implications of these findings certainly contribute to the existence of new evidence about the importance of intellectual capital for the sustainability and competitiveness of today's MSME's businesses. Based on the results of this study, MSME's actors are expected to understand more and more the importance of human capital to increase the competitiveness, performance and sustainability of MSME businesses. This is because the existence of good human capital from MSMEs will improve the quality of relational and structural capital, which will ultimately positively impact competitiveness, performance and business continuity (Igielski, 2018).

The results of this study can be a source of reference and reference for conducting similar research in the future while still considering the limitations of this study. The first limitation is the theoretical concept that explains general nature rather than specifically intellectual capital and financial performance because the two have different theoretical foundations. Hence, the authors suggest further research to provide the latest theory linking intellectual capital with financial company performance. With the recognition of older literature to corroborate new theories. The following limitation is that this research has not been able to prove the existence of a mediating effect of relational capital and structural capital on the influence of human capital on financial performance, so further research is expected to be able to add business environment variables as moderating variables that can weaken or strengthen the effect of human capital on financial performance following the argument described in the previous discussion section. An organization of the course.

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## Authors' contributions

Anwar Hariyono and I Made Narsa: Conceptualization. Anwar Hariyono: Data Curation. Anwar Hariyono and I Made Narsa: Formal Analysis. Anwar Hariyono: Investigation. Anwar Hariyono and I Made Narsa: Methodology. I Made Narsa: Validation. Anwar Hariyono: Visualization. Anwar Hariyono and I Made Narsa: Writing original draft. Anwar Hariyono and I Made Narsa: Writing-review & editing.

## Ethical approval

1. We abide by the Economic and Social research Council's Framework for Research Ethics
2. We keep all information gathered on individual posts confidential on secure password protected servers
3. In research outputs we never directly quote *individual* posters without their informed consent. We use opt-in consent for posts that are deemed sensitive and/or users that are deemed vulnerable. Opt-out consent is used for all other posts and users. Where consent cannot be obtained we represent the content of posts in

aggregate form (e.g. topic clustering, wordclouds) and themes (decontextualised examples and descriptions of the meaning or tone of tweet content). These forms of representation preclude the identification of individual Twitter users, preserving anonymity and confidentiality

4. In research outputs we do directly quote from online accounts maintained by *organisations* (e.g. government departments, law enforcement, local authorities, companies) and *public* Figures (e.g. politicians) without seeking prior informed consent
5. We follow a risk assessment ahead of publishing online data, and use the decision flow chart found here as part of this process.

## Ethical considerations

All participants provided informed consent before participating in this study. The confidentiality of my research data as a doctoral student at my university (Universitas Airlangga) is maintained throughout the research process, and the data is only used for academic research purposes.

## Disclosure statement

No potential conflict of interest was reported by the authors.

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## Data availability statement

The data that support the findings of this study are available from the corresponding author, [author initials], upon reasonable request.

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## Appendix. List of questions/research questionnaires

No	Code	Statement
<i>Intellectual Capital - Human Capital (X1)</i>		
1.	HC01	I as well as my employees, have knowledge and experience about the job/task and do it according to predetermined standards .
2.	HC02	I and my employees, have creativity in completing work by applying effective and efficient work methods.
3.	HC03	I and my employees have the ability to complete large or large numbers of jobs/tasks
4.	HC04	I always have a positive attitude and try to do activities to be able to give maximum results.
5.	HC05	I communicate with anyone to understand each other's problems and help each other solve the problem.
<i>Intellectual Capital - Structural Capital (X2)</i>		
6.	SC06	There is the availability of a combination of computers, applications, and data (database) that is able to support each job.
7.	SC07	The existence of an organizational structure that divides, groups, and coordinates tasks or work.
8.	SC08	There is a corporate culture that supports the performance of MSME owners and employees.
9.	SC09	Implement business strategies to compete and improve performance.
10.	SC10	Have machine-like technology to increase the productivity of owners and employees
<i>Intellectual Capital - Relational Capital (X3)</i>		
11.	RC11	I am able to coordinate all activities well.
12.	RC12	I am able to complete every job quickly and correctly.
13.	RC13	I always use technological devices to facilitate the completion of daily work.
14.	RC14	I quickly learn to use technology.
15.	RC15	I have a very adaptive strategic plan with development technology moment this.
<i>Superiority Competitive (Y<sub>1</sub>)</i>		
16.	DS16	Our company always offers competitive prices compared to competitors
17.	DS17	Our company has product innovation that is different from competitors.
18.	DS18	Our company always delivers goods to consumers on time compared to competitors.
19.	DS19	Our company moves quickly in developing new products compared to competitors
20.	DS20	Our company always provides products with new advantages (features) compared to competitors.
<i>Company/UMKM Performance (Y<sub>2</sub>)</i>		
21.	KK21	The business I live in has increased sales every month
22.	KK22	The business capital that I have is always increasing.
23.	KK23	Profits/profits from the business that I do every month always increase.
<i>Sustainability effort (Y<sub>3</sub>)</i>		
24.	KU24	Funding went smoothly without any problems
25.	KU25	The company keeps saving even a little for future business development
26.	KU26	Building a marketing network in maximizing revenue
27.	KU27	Maintaining the existence of the workforce for quality production results
28.	KU28	There is an increase in income from time to time, although slightly