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What is the Most Critical Element of Intellectual Capital that Influences Business Performance?

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Abstract

This research aims to analyze all elements of intellectual property that influence business outcomes. This empirical study employed a survey approach, utilizing structured questionnaires to gather primary data. A total of one hundred forty-five completed survey questionnaire forms were received. Six hypotheses were developed to meet the objectives of this study. The hypotheses suggested are evaluated utilizing Smart Partial Least Square (PLS) 4. The results confirm that three of the six hypotheses are substantiated. Specifically, human assets have emerged as a critical element of intellectual investment. The results indicate that human capital significantly contributes to both financial and non-financial dimensions of business success. However, within the financial framework, relational capital emerges as the most critical factor. The research findings provide a more profound comprehension of the effect of intellectual assets components on corporate success, explicitly focusing on manufacturing industries in the Riau Islands. This investigation is restricted to the economic conditions of the COVID-19 period in the Riau Islands, specifically to large and medium-sized enterprises in the manufacturing sector. Data were gathered through questionnaires that primarily employed subjective metrics. Additionally, the results may not be appropriate for other sectors. This research encourages the advancement of intellectual asset literature that emphasizes financial and other aspects of business performance in developing countries. Future research must examine the impact of intangible assets on business outcomes, transcending existing limitations. The present research elucidates the importance of intellectual capital and its implications for business achievement across financial and other aspects. This study assesses the extent and quantification of all three elements of intellectual assets, allowing professionals to formulate effective management strategies.

Keywords: Business Performance, Human Capital, Structural Capital, Relational Capital.

Introduction

Every day, the competitiveness of companies in the business environment is challenged by competitors. Company workers are faced with new challenges to improve their performance. Company workers must be creative and innovative (Pedroso et al., 2020). The practice that occurs, whether or not it is possible to achieve business performance, can be influenced by many determinants of success. To guarantee efficient performance and sustainable profitability, forward-thinking business entities evaluate all financial and non-financial factors alongside the national economy's and globalization's effects on their operational efficacy (Oladokun, Timothy Tunde; Ogunbiyi, 2018).

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The growth of the industry in the Riau Islands cannot be separated from the contribution of entrepreneurs in progressing the commercial sector. The role of business actors is manifested in the form of investment in the Riau Islands. Riau Islands is one of the maritime regions that has economic potential. This potential can be seen in the increase in foreign investment (PMA) and domestic investment (PMDN) in the Riau Islands. The table presented here illustrates the amount of foreign and domestic investment.

With the investment made in the Riau Islands, many companies were established and grew in advancing development and the economy. The company's goal in investing is to seek maximum profit and expand its business. Companies must have dynamic capabilities to obtain these goals. Dynamic capacities encompass skills, processes, procedures, organizational structures, regulations, decisions, and discipline. (Ginesti et al., 2012).

Year	Number of Projects	Investments (in thousands)	State Budget Exchange Rate	Value (in Rupiah)
2019	1279	\$ 1.363.365	IDR 15,000	IDR 20,450,475,000,000
2020	2268	\$ 1.649.365,20	IDR 14,400	IDR 23,750,858,888,000
2021	2383	\$ 1.043.685,50	IDR 14,600	IDR 15,237,808,300,000

Table 1. Development of FDI Investment Data

Source: Ministry of Investment/BKPM

Year	Number of Projects	Investment (in IDR)
2019	759	IDR 5,656,425,300,000
2020	2294	IDR 14,249,025,600,000
2021	5007	IDR 9,768,685,700,000

Table 2. Development of Foreign Direct Investment Data

Source: Ministry of Investment/BKPM

Dynamic capabilities are not only about managerial decision-making but also about the optimization of business by "feeling" and "seizing" something in the competitive business world. Dynamic capabilities are explained in the "Theory of the Firm," which states that a company can compete if it can manage and empower its resources. These resources must have their uniqueness. Uniqueness can be obtained and developed through learning, research, and development. The role of managers is to find the uniqueness of the resources owned by the company. Companies that have unique resources have a competitive advantage over other companies. Acquiring knowledge through management is a challenging endeavour. Managers must ensure the dissemination of information externally to inhibit the fortification of competitors, while knowledge should be propagated internally across various organizational

units (Ginesti et al., 2012)

A well-known investment in the notion of knowledge-based economics is intellectual capital. Maintaining a competitive edge over the long run depends on a company's knowledge assets and value creation. Intellectual capital is vital for corporate innovation and human development through knowledge sharing (Sardo & Serrasqueiro, 2017). Intellectual capital has potential benefits that cannot be taken by others or imitated by competitors. Having an edge over the competition means more value for customers and better results for the bottom line.

Management accountants and financial analysts avoid an organization's intellectual capital. The rationale behind this is that intellectuals present complexities in measurement and pose significant challenges in evaluation. When the company can conquer this challenge in the organizational structure, it can become a sustainable primary value and determine the organization's profitability in the future. Many prior studies have examined the impact of intellectual wealth on organizational performance. This previous research was executed by (Asiaei et al., 2018); (Bontis et al., 2018); (Ginesti et al., 2018); (Dzenopoljac et al., 2017); (Scafarto et al., 2016); (Mention & Bontis, 2013); (Ginesti et al., 2012); (Komnenic & Pokrajčić, 2012)); (Mehralian al., 2012alet (Maditinos et al., 2010); (Sharabati et al., 2010).

Research findings (Abdulaali & Abdulaali, 2018) indicate that intellectual capital influences business organizations by enhancing competitive advantage, fostering innovation, augmenting employee competency, and boosting organizational performance. According to studies by Nick Bontis et al. (2018), human capital impacts both objective-based performance and relational capital's impact on mission-based performance. The viability of social cooperatives is not influenced by structural capital. The research's findings (Ginesti et al., 2018) showed that intellectual capital strongly and positively correlates with most financial success metrics. Organizations that uphold their reputation typically utilize intellectual capital effectively. The research by Dzenopoljac et al. (2017) produced inconclusive results. Structure and physical capital have a substantial impact on earnings and profitability. The primary factor is physical capital in determining efficiency, and human capital is the primary factor in determining market performance.

The investigation findings (Scafarto et al., 2016) signify that humans and innovation capital should be regarded as complementary resources, enabling a coordinated investment plan to yield diverse resources that will positively influence firm performance. Research conducted by Mention & Bontis (2013) concluded that the financial industry's business operations are profoundly and indirectly influenced by human resources. Structured and relational resources are unrelated to corporate execution

Theoretical and Conceptual Framework

Intellectual Capital and Business Performance

"Theory of the Firm" is a framework designed to address various issues encountered within a firm (Teece, 2016). The dynamic capabilities framework arises from firms that leverage complementarities. Assimilation, development, and reorganization of internal and external resources are examples of dynamic capacities. The dynamic capacities framework has not been thoroughly developed as a theory of the enterprise. The dynamic capacities framework integrates transaction costs, resources, and knowledge to elucidate the existence of enterprises and their scope, sustainable expansion, and financial success (competitive edge).

The framework of dynamic capacities delineates a firm theory that circumvents the limitations of the principal-agent model by highlighting the significance of managers in cultivating and maintaining organizational competencies and enabling continuous revitalization (Teece, 2016). The dynamic capability framework hypothesis discovers opportunities, recognizes complementarities, secures asset combinations that enable the firm to satisfy customer wants, and builds business models that are challenging to copy, all of which are essential for the firm's growth and survival. These activities encompass managers and the overall competencies of the organization (Teece, 2014).

Intellectual capital denotes intellectual assets comprising the capital of people, systems, and relationships/clients that may be leveraged to generate wealth. Human capital denotes the skills of workers that can enhance the organization's efficiency in delivering services to clients.

Employee competencies and capabilities can be attained through instruction and study. Structural capital denotes the understanding retained within the organization, persisting beyond staff departures. Structural capital encompasses databases, operational procedures, and additional components. Relationship/customer capital pertains to the company's engagement with its clientele. An effective rapport with clients can assist the organization in meeting consumer demand. Relationship capital seeks to sustain income and profitability (Hammad Ahmad Khan et al., 2016).

A company can generate a competitive edge by adhering to resource-based theory by acquiring strategic resources. Valuable resources help firms create unique strategies that capitalize on opportunities and mitigate threats. Resources cannot be substituted when alternative ways of obtaining the benefits provided by the resource are not possible. Scarce resources provide a strategic advantage to the firm that possesses them. When it comes to the reproduction of resources that are difficult to copy, competitors face a severe challenge. In addition to copyrights, trademarks, and patents, there are a few of them that are protected by a variety of legal mechanisms.

Intellectual capital signifies the company's riches in invention, which will dictate its long-term viability. The company's longevity is attributable to the advantages of intellectual capital, which is more likely to generate competitive gains. Moreover, it enhanced the corporation's value. The firm's long-term sustainability is contingent upon intellectual capital (Sharabati et al., 2010). Recognizing the notion that intellectual investment is tangible and adds value is crucial (Andreou & Bontis, 2007).

Handy (1989) declares that intellectual property constitutes three to four times a corporation's tangible value of a book. While Osborne (1998) claims that eighty per cent of a firm's worth is intangible, Van Burren (1999) contends that intangible assets make up more than two-thirds. Conventional accounting metrics are insufficient to ascertain the actual value of the enterprise. The evaluation of intellectual capital is crucial for firms to recognize their actual value (Maditinos et al., 2010).

Investigation conducted by Asiaei et al. (2018) indicates that firms with elevated intellectual capital employ performance-measuring methods in a balanced manner, utilizing both diagnostic and interactive techniques. Research by Nick Bontis et al. (2018) indicates that human capital affects both aspects of a company's success, whereas relational capital only affects performance related to the mission. Social cooperative performance is unaffected by structural capital. Study results (Ginesti et al., 2018) indicated that intellectual capital exhibits a robust and affirmative

correlation with most financial performance metrics. Organizations that uphold their reputation typically utilize intellectual capital effectively. The study conducted by Dzenopoljac et al. (2017) yielded inconclusive findings. Earnings and profitability are profoundly influenced by structural and physical assets; efficacy is mostly dictated by physical capital, while market results are predominantly impacted by human resources. Scafarto et al. (2016) assert that innovative thinking and human resources ought to be regarded as complementary resources, enabling a coordinated investment plan that produces diverse resources and enhances firm performance. Research (Mention & Bontis, 2013) concluded business performance in the finance sector is directly and indirectly influenced by human capital. The value of relationships and structures has a positive correlation with corporate performance, albeit the results lack statistical significance.

Research by Komnenic and Pokrajčić (2012) reveals that only human resources exhibit a positive correlation with all three markers of corporate performance. The research conducted by Mehralian et al. (2012) concluded that the relationship between a corporation's cognitive assets and its monetary performance is inconsistent. Research by Maditinos et al. (2010) demonstrated that human assets enhance customer capital in both service and non-service sectors; customer capital affects capital structure in the non-service sector; breakthrough innovation positively affects structural capital across all industries; and structural capital correlates positively with business performance in both sectors, particularly in the non-service sector. Research by Sharabati et al. (2010) indicates that solely social capital exerts a favourable influence on corporate performance.

Human Capital and Business Performance

Human asset implies employees' skills to apply their accumulated knowledge to business problems (Örnek & Ayas, 2015). Human capital has been proposed as a prospective way to gain an edge in competition and a crucial component elucidating performance disparities among organizations. Human resources is typically defined as the knowledge, skills, and employee capabilities that generate economic value for the organization (Scafarto & Dimitropoulos, 2018).

In the contemporary business landscape, ongoing investment in human resources is essential to augment talents and maintain a competitive edge, particularly in understanding-driven environments (Chatterjee, 2017). Nonetheless, this expenditure represents a significant financial burden for the corporation. This encompasses the replacement expenses spent when employees depart the organization (Olander et al., 2015).

Numerous studies regard human assets as the essential component of cognitive capital infrastructure development. Research findings from Chen et al. (2005), Bharathi Kamath (2008), Ting and Lean (2009), Maditinos et al. (2011), Clarke et al. (2011), and Nimtrakoon (2015) have repeatedly indicated a favourable influence of human capital on financial performance. Simultaneously, research by Firer & Mitchell Williams (2003), Chan (2009), and Shiu (2006) has identified a substantial adverse effect of the impact of human resources on overall business efficiency and the stock market's results (Scafarto & Dimitropoulos, 2018).

H1a: Human capital positively influences financial performance

H1b: Human capital positively influences non-financial performance

Structural Capital and Business Performance

An organizational asset is an intangible asset that represents the organizational and structural

framework of unique processes and organizations that yield sustained competitive advantage. It includes the skills and knowledge employed to merge human abilities with physical assets. Venieris et al. (2015) contend that in scenarios of diminishing sales, firms with more outstanding capital undertake organizational measures to optimize the utilization of surplus resources (Mohammadi & Taherkhani, 2017).

N. Bontis (1998) asserts that inadequate processes and procedures inside an organization will prevent its intellectual capital from achieving its maximum potential. Organizations that possess substantial structural capital will foster an environment that encourages individuals to experiment, which includes the acceptance of failure and the pursuit of knowledge. Structural capital is a crucial element for quantifying intellectual capital at the organizational level of analysis. Structural capital serves as the framework of the organization. It guarantees that the firm sustains itself and achieves its objectives (Örnek & Ayas, 2015). Capital structure refers to the assets that remain within the corporation as employees depart for the day. Structural capital originates from organizational procedures and values that embody the company's exterior and internal aspects and the critical role of creativity and advancement in the years ahead.

If the company gathers efforts to structure organizational knowledge, it will further develop structural capital. Structural capital that is increasingly developed will gain a competitive advantage. This competitive advantage turns into business performance, and the company has a higher value (Bontis et al., 2000); (Meditinos et al., 2010).

The research by Mohammadi and Taherkhani (2017) demonstrates a substantial correlation between organizational capital and cost rigidity. Companies possessing substantial organizational capital, administrative expenses, general costs, and development-related sales charges experience an augmentation in intangible resources and capabilities due to their investments. Research by Sharabati et al. (2010) indicates robust and affirmative evidence that pharmaceutical businesses in Jordan efficiently manage intellectual investment—comprising human resources, structural assets, and relational assets—which positively influences business performance. The findings of Komnenic and Pokrajčić (2012) indicated that structural capital alone positively influences the performance metric of return on equity. Mention and Bontis (2013) show that structural and relational capital positively correlates with business performance.

H2a: Structural capital positively influences financial performance

H2b: Structural capital positively influences non-financial performance

Relational Capital and Business Performance

Miller (1999) stated that establishing relational capital metrics enables precise organizational comparisons. Duffy (2000) delineates the assessment of relational capital as the influence of consumers on an organization's present and prospective revenues, highlighting the demands of the evolving economic landscape and the transition from a product-centric to a customer-centric economy (Hosseini & Owlia, 2016).

Customer assets constitute the foremost element of intellectual property. Customer capital can be followed quickly, thanks to financial indicators. This component is regarded as the most detrimental within intellectual capital. The efficient administration of customer capital is intricately linked to precise and nuanced assessment of information, customer connections, and the values they convey (Örnek & Ayas, 2015).

All enterprises with clientele possess customer capital. It functions as a conduit between human capital and structural capital. Customer asset pertains to the likelihood of customers engaging in transactions with the company. Customer assets are based on the information derived from the company's external interactions, encompassing relationships with clients, vendors, and government agencies, among other industries (Örnek & Ayas, 2015). The key subjects of customer value are competence, advertising methods, and client encounters. (Bontis, 1998).

The literature review and empirical proof confirm the importance of intellectual assets for relational capital in creating a viable competitive edge, improved performance, and heightened yield from investment (Hosseini & Owlia, 2016). This is consistent with the tenets of resource-driven thinking. This theory elucidates the significance of company-specific resources, particularly those that retain value within the company's market setting and resources that are challenging for competitors to copy. These resources encompass managerial competencies, customer interactions, brand equity, and specialized expertise about particular industrial processes (Lowe & Teece, 2001).

The study by Hosseini and Owlia (2016) seeks to identify markers of relationship capital. Comprehending the measurement of relational capital significantly influences its management. A corporation that recognizes and quantifies indicators of its relational capital faces a significantly reduced risk of competitors undermining its influence with stakeholders.

Research findings (Thi Mai Anh, Hui, Khoa, & Mehmood, 2019) indicate that Relational capital might improve the dissemination of data and the allocation of benefits and threats when companies collaborate to foster innovation. Research (Mubarik, 2016) demonstrated that the quality of relational capital is crucial for client loyalty in Pakistan's pharmaceutical business. Client pleasure was determined to exert the most significant influence on their attitudinal and behavioural loyalty.

Research by Nick Bontis et al. (2018) indicates that human resources and relational resources clarify mission-oriented outcomes, which are positively impacted by annual learning, the value generated per employee, and the quality of customer interactions.

H3a: Relational capital positively influences financial performance.

H3b: Relational capital positively influences non-financial performance

Research Methodology

Sample size and data acquisition

The current research utilizes a non-probability sampling method. This type of sampling is a methodology that does not utilize random selection techniques for sample acquisition (Sugiarto., 2022).

The subjects of this study were manufacturing firms situated within the Riau Archipelago. A total of 179 manufacturers were located along the Riau Archipelago. The subjects of the present research were Chief Financial Officers and managers. The data table below illustrates the distribution of companies across the Riau Islands.

No.	Location	Amount
1.	Karimun	1
2.	Bintan	10

3.	Batam	166
4.	Tanjungpinang	2
Total		179

Table 3 Manufacturing Firms in Riau Islands

Source: bps.go.id

This study employed the Partial Least Squares (PLS) method for data analysis. PLS is a component-based equation model utilized in Structural Equation Modeling (SEM) (Erlina et al., 2018; Astrachan et al., 2014).

The path or inner model coefficient value denotes the degree of significance in hypothesis testing. In the context of a two-tailed hypothesis, the T-statistic value associated with the path or inner model coefficient should exceed 1.96. Conversely, for a one-tailed hypothesis, it needs to surpass 1.64, with the alpha level set at five percent.

Measurement of research variables

This study model comprises dependent latent variables represented by Y, which signifies Business Performance. This construct encompasses two aspects, financial achievement and non-monetary achievement, with nine statements utilizing a Likert scale. All three forms of capital—human, structural, and relational—make up intellectual capital. Human resources encompass aspects of the acquisition of knowledge and skills, practical involvement and competence, breakthroughs, new ideas, plus creativity, represented by a total of 19 statements utilizing a Likert scale. Structural capital encompasses the aspects of software and hardware, scientific inquiry and development, and proprietary information and rights (HAKI), with sixteen assertions assessed via a Likert scale. Relational capital encompasses the aspects of strategic alliances, licenses, agreements, customer and supplier relationships, and customer knowledge, comprising a total of eighteen assertions measured on a Likert scale. The following is the outcome of the measurement model processed with SmartPLS.

Results

The purpose of this research project is to delineate the attributes of the respondents within the chosen sample. Respondent characteristics are categorized by gender, educational attainment, and age. The questionnaire was sent through a Google Form, Electronic mail, personal WhatsApp, and organizational groups. The questionnaire garnered a total of 145 replies, specifically from Chief Financial Officers and Managers

Measurement Model

Measurement models are frequently utilized to assess the dependability and accuracy of source data. The minimum threshold for factor loading should exceed 0.70 (Hair et al., 2011, 2012). While a loading parameter of 0.5 is acceptable, products with a loading factor less than

0.5 ought to be thrown out (Khalique et al., 2020). This analysis establishes that the minimum criterion for factor loading is set at 0.70. The reliability of latent variables is fundamentally dependent on both convergent and discriminant validity.

Convergent Validity

Examination of whether the average variance extracted (AVE) is larger than 0.5 and whether the composite reliability (CR) reaches or surpasses 0.70, which is regarded acceptable, are the two

factors that are used to establish whether or not convergent validity exists (Khalique et al., 2020). The findings confirmed that every item had a score greater than 0.70. However, several items were removed because the loading value was less than 0.70. The total number of items below the loading value is 18, consisting of seven items of human capital, four of structural capital, and seven of relationship capital. The table below contains the AVE and CR values of each construct.

Construct	AVE	Composite Reliability	Cronbach Alpha
Financial Performance	0,899	0,947	0,889
Non-Financial Performance	0,620	0,919	0,946
Human Capital	0,626	0,952	0,898
Structure Capital	0,655	0,958	0,931
Relational Capital	0,593	0,941	0,953

Table 4. Convergent Validity Results

Discriminant Validity

Discriminant validity describes how far the built variables or constructs are statistically different from other variables/constructs. Both the variable and indicator levels are utilized in the process of conducting discriminant validity testing. The Fornell_Larcker criterion is the benchmark for discriminant validity in this investigation. A measure of statistical significance, the Fornell-Larcker criterion considers the AVE squared against the links among variables (Evi Tiolina & Rachbini Widarto, 2023). The shared variance associated with the latent factor and its indicators should exceed the shared variance found among other latent variables. The table below presents the findings on discriminant validity.

Construct	FP	NFP	HC	SC	RC
FP	0.948				
NFP	0,757	0.787	0.680		
HC	0,484		0.791		
SC	0,364	0,572	0.775	0.809	0.773
RC	0,464	0,571	0.766		0.770

Table 5. Fornell_Larcker criterion

Structural Model

In general, the research hypothesis is approved if the absolute superiority of the t-table >1.96 with the suggested research hypothesis following the sign of the coefficient (positive or negative). The t-test strives to determine if the independent variable has a significant partial bearing on the dependent variable. The results of the assumed model are in Table 6.

Hypotheses	Path relationship	Std. Beta	t-values	Supported
H1a	HC -> FP	0.381	2.721	Yes
H1b	HC -> NFP	0.556	5.516	Yes
H2a	SC -> FP	-0.159	1.277	No.

H2b	SC -> NFP	0.072	0.803	No.
H3a	RC -> FP	0.295	2.034	Yes
H3b	RC -> NFP	0.090	0.815	No.

Table 6. Synopsis of Inner Model Outcomes

The table above elucidates the impact of the included variables. A human asset has a considerable impact on business outcomes, as evidenced by a p-value of 0.007 and a t-statistic of 2.721, which is higher than the crucial value of 1.96, below the 0.05 threshold. The results indicate that human assets exert a substantial and favourable impact on the financial aspect, thereby confirming Hypothesis 1a. The findings of human capital research regarding non-financial performance reveal a t-statistic value of 5.516, which surpasses 1.96, alongside a p-value of 0.000, falling below 0.05. Hypothesis 1b is valid.

The research findings reveal that the t-statistic for the influence of capital structure on financial outcomes is 1.277, which is below 1.96, and the p-value is 0.202, beyond 0.05. According to this score, structural capital has no bearing on financial success. The structural capital investigation findings related to non-financial performance reveal a t-statistic of 0.803, which is below 1.96, and a p-value of 0.422, surpassing the 0.05 threshold. The hypotheses 2a and 2b in this study are not viable.

The financial outcomes are influenced by relational assets, as evidenced by a t-statistic of 2.034, which exceeds the critical value of 1.96 and a p-value of 0.042, which is below the 0.05 significance threshold. According to the results of this investigation, financial performance is dependent on relationship assets. The t-statistic value of 0.815, which is below the threshold of 1.96, and the p-value of 0.415, which exceeds the 0.05 mark, are the study's findings concerning the influence of relationship capital on other facets of performance. The final assessment indicates that relationship capital does not influence non-financial performance, resulting in the hypothesis being rejected. The architectural framework can be illustrated in the graph below.

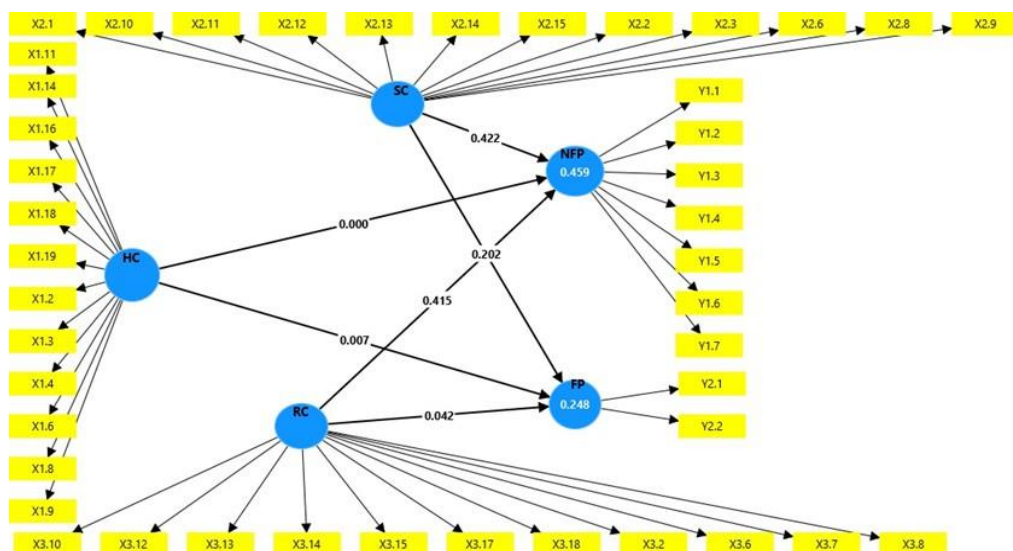


Figure 1. Measurement Model

The extent to which the exogenous construct explains the coefficient of determination (R Square) quantifies the endogenous construct. According to the results of this investigation, 24.8% of monetary performance is influenced by human capital, structural capital, and relational capital. Non-financial performance is simultaneously affected by human capital, structural capital, and relational capital to a degree of 45.9%. R-squared and adjusted R-squared values are presented in Table 7 below.

	R-square	Adjusted R-square
FP	0.263	0.248
NFP	0.470	0.459

Table 7. R-Square and Adjusted R-Square

Discussion

The research aims to analyze the impact of each facet of intellectual capital on organizational performance. Intellectual capital is considered to have potential benefits that cannot be taken by others or imitated by competitors. A corporation with a competitive edge possesses added value that enhances business performance. This study shows that several dimensions of intellectual capital contribute to the business performance of medium and large- scale manufacturing industries in the Riau Islands. The findings are derived from a questionnaire survey that included 145 participants. The conclusions of this study indicate that intellectual capital substantially improves business success. This study produced inconclusive results on the independent influence of intellectual capital components on business success.

The research undertaken by Chen et al. (2005), Bharathi Kamath (2008), Ting & Lean (2009), Clarke et al. (2011), Maditinos et al. (2011), and Nimtrakoon (2015) repeatedly demonstrate the favourable influence of human capital on financial performance. Research by Komnenic and Pokrajčić (2012) indicates that only human capital is favourably correlated with all three company performance metrics. The knowledge-based resource-based view emphasizes the significance of investing in intellectual capital, as knowledge assets influence a firm's sustained competitive advantage and value generation. Intellectual capital is crucial for company innovation and human growth via knowledge exchange (Sardo & Serrasqueiro, 2017). The United Nations (UN), via the United Nations Development Programme (UNDP), formulates a standard metric for human development known as the Human Development Index (HDI). This index comprises three fundamental dimensions: longevity and health, education, and an adequate standard of living. The Solow Model illustrates that human capital is a crucial element in the economic growth process. High-quality human capital is thought to enhance economic success. The calibre of human capital can be assessed using education, health, and poverty metrics. Consequently, a governmental policy is required to enhance human resource quality. Currently, the local government's attention seems centred on human development issues. This is indicated by the inclusion of HDI as one of the general allocation fund (DAU) allocators to overcome the regional financial gap (fiscal gap). Riau Islands' human development during the 2015-2021 period is getting better. BPS recorded the Riau Islands HDI figure in 2015 at 73.75 and continues to experience an increase every year. The latest position of the Riau Islands HDI figure in 2021 reached 75.79. The HDI figure, which continues to increase from time to time, indicates that human development in the Riau Islands in terms of health, education, and economy is improving.

The knowledge dimension concerning the HDI calculation is approached by the Average Years of Schooling (RLS) and Expected Years of Schooling (HLS) indicators. The higher the RLS and HLS figures, the better human development in terms of knowledge (bps.go.id). In today's business knowledge era, continuous investment in human capital is required to improve capabilities and maintain competitive advantage, especially in knowledge-based settings (Chatterjee, 2017). However, such investment is also a huge cost imposed on the company. This includes replacement costs incurred every time a worker leaves the company (Olander et al., 2015). Based on the results of this study, it can be seen from the learning and education indicator that the Company devotes a lot of time and effort to updating and developing the knowledge and skills of its workers. This can be seen as an effect on company productivity.

The findings of the structural capital study do not influence financial or non-financial performance. The findings of this study align with the research by Nick Bontis et al. (2018), indicating that structural capital does not influence the performance of social cooperatives. The research findings by (Mention & Bontis, 2013) revealed that structural and relational capital do not correlate with business performance. Based on the results of research conducted for each indicator, it is found that the company's recruitment programme is less comprehensive in recruiting the best candidates, and the company has problems determining the appropriate budget for research and development. This is due to the unfavourable economic conditions in Indonesia, especially the Riau Islands in 2020, due to the COVID-19 outbreak, which has had an impact on all of the company's business activities.

Subsequent research indicates that relationship capital positively influences financial performance, although it has little impact on non-financial performance. This study aligns with the findings of research by (Mention & Bontis, 2013), which indicated that human capital directly and indirectly influences business success in the banking sector. Structural and relational capital are unrelated to corporate performance. Research by Komnenic and Pokrajčić (2012) indicates that only human capital exhibits a positive correlation with all three metrics of company performance. The conditions of the COVID-19 pandemic cause companies to temporarily stop or limit companies to work on joint projects with companies/partners. Companies also limit diverse alliances in areas such as R&D, marketing, and distribution. This is due to government regulations regarding health protocols that must be implemented by every Indonesian citizen, especially in the Riau Islands.

Implications

The manufacturing industry in Riau Islands contributes greatly to market performance. The growth of the manufacturing industry is increasing, which is marked by a lot of foreign investment. Investments made in Riau Islands can be seen with many companies that stand and grow in advancing development and the economy. The purpose of a company in carrying out its business activities is to seek maximum profit and expand and sustain the business. The theory of knowledge-based companies posits that knowledge-based resources, specifically intellectual capital, are primary contributors to sustainable competitive advantage through reduced costs, innovation, creativity, efficiency, and customer relations, thereby enhancing overall organizational performance (Kengatharan, 2019).

Intellectual capital is broadly acknowledged to encompass structural, relational, and human capital, and it significantly influences corporate performance. Intellectual capital is a crucial determinant that positively impacts corporate performance and enhances competitiveness. The objective of this competitive advantage is to enhance the company's competitiveness and

establish product uniqueness as a commercial performance. Intellectual capital is considered to have potential benefits that cannot be taken by others or imitated by competitors.

The empirical findings of this study indicate that structural or organizational capital does not enhance business success in financial or non-financial dimensions. Structural capital includes innovation capital, such as patents, and process capital, which consists of organizational procedures and processes. The research findings indicate that the company's recruitment program lacks comprehensiveness in attracting optimal people, and the organization may face challenges in establishing an adequate budget for research and development. This may be due to the poor economic conditions in Indonesia, especially the Riau Islands, due to the COVID-19 outbreak, which has an impact on all business activities of the company. However, as the economy improves, it is expected that structural capital will contribute to business performance. The company will continue to innovate the products produced so that the company can compete with its business competitors.

Conclusion

This study aims to investigate the influence of intellectual capital on the business performance of manufacturing industries in the Riau Islands region. The findings indicated that intellectual capital positively influences corporate performance. This study offers insights into managerial implications within the modern business landscape and firms' sustainability through the utilization of their intellectual capital. Due to the voluntary nature of intellectual capital declaration in Indonesia (PSAK No. 19), numerous corporations refrain from providing such information. Numerous firms fail to recognize that intellectual capital significantly contributes to competitive advantage and the sustainability of corporate success.

A plethora of literature reviews on the elements of intellectual capital substantially enhance business performance, competitive advantage, and sustainability. This research yields empirical findings and highlights essential subjects. There is a considerable demand for recruiting educated, skilled, and professional business graduates, together with improving organizational frameworks. Customer, social, technological, and spiritual capital must be effectively managed, requiring targeted training programs, workshops, seminars, and conferences to augment their knowledge and attract potential clients. To achieve excellence and improve performance in a competitive business environment, SMEs must carefully integrate and align the many components of intellectual capital into their operations. Secondly, our analysis suggests that governments should undertake significant measures to strengthen this lucrative sector.

Limitations and Recommendations

The limitation of this study is that researchers only use the dimensions of financial and non-financial performance to measure business performance. Many measurements can be used for business performance, such as balance scorecard, Total Quality Management (TQM) and others.

This study was also conducted during the COVID-19 pandemic, so most companies experienced difficult conditions in their business. These conditions cause the research results to under-represent the actual state of business performance.

This situation is an opportunity for other researchers to research business performance again when the economy is stable. The research results conducted during a stable economy are likely to describe the actual business performance. Other researchers can conduct business performance research that focuses on sustainability business performance.

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