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THE INFLUENCE OF INTELLECTUAL CAPITAL ON FIRM VALUE THROUGH DIGITAL TRANSFORMATION IN BANKING

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Abstract

Digital transformation is vital in enabling companies to optimize intellectual capital and enhance firm value. Intellectual capital, consisting of human, structural, and relational resources, serves as a key asset for competitiveness and sustainability. This study investigates the influence of intellectual capital on firm value with digital transformation as an intervening variable, utilizing secondary data from 30 banks' 2020–2024 annual reports that are listed on the Indonesia Stock Exchange (IDX). Documentation was used to gather data, and SPSS version 25 was used for path analytic analysis. The results show that firm value is highly impacted by intellectual capital, while digital transformation shows a positive but insignificant effect, both directly and indirectly. These results emphasize the importance of managing intellectual capital effectively while aligning digital initiatives to support sustainable value creation.

Keywords: *Intellectual Capital, Digital Transformation, Firm Value.*

A. INTRODUCTION

The evolution of business during the globalization period and rapid technological advancement requires companies to continuously innovate in order to maintain competitiveness (Rhoma & Subowo, 2016). This condition was further reinforced by the COVID-19 pandemic, which not only disrupted global economic stability but also encouraged investors to be more selective in assessing companies with strong prospects and value (Abrari *et al.,* 2020). In this context, firm value serves as an important benchmark to evaluate both performance and long-term prospects, particularly in the banking industry, which plays a strategic role in maintaining

national financial stability and is strongly influenced by technological dynamics (Duha & Satiman, 2022). To capture how well company performance and prospects are perceived by investors, an objective measure of firm value is required. One widely used indicator is the Price to Book Value (PBV), where a PBV greater than 1 reflects market confidence, while a PBV below 1 indicates lower investor trust (Awaliyah & Safriliana, 2016). Recent data reveal that the average PBV of the banking industry during 2020–2024 experienced fluctuations and even declined in 2024 due to the weakening stock prices of several major banks (Kompas.id, 2024). This phenomenon highlights the importance of considering non-financial factors, such as Human capital, structural capital, and utilized capital are all examples of intellectual capital. as intangible assets that can strengthen competitiveness and attract investor interest (Fauzia & Amanah, 2016).

Knowledge is an example of an intangible asset known as intellectual capital that influences corporate decision-making, both in the present and future (Abrari *et al.,* 2020). It consists of intangible resources such as employee skills, brand value, and knowledge management systems, which are considered essential for enhancing firm value (Asriani *et al.,* 2024). In Indonesia, intellectual capital is recognized in the Statement of Financial Accounting Standards (PSAK) 19 (revised 2010) regarding intangible assets (Rasendriya *et al.,* 2024). More specifically, Human capital, structural capital, and employed capital are all included in intellectual capital, and they are all essential for increasing business value, especially in the banking sector (Lestari & Sapitri, 2016). Companies that effectively manage these aspects are more likely to gain investor trust due to their long-term potential (Wulandari & Purbawati, 2019). For instance, Bank Mandiri (Persero) Tbk consistently increased its employee training budget from IDR 210 billion in 2020 to IDR 312 billion in 2023, demonstrating its investment in human capital. This initiative supports efficiency and long-term performance, further evidenced by the bank's achievement of international certifications ISO 21001:2018 and ISO 30422:2022 in employee education and development. Such efforts indicate that greater investment in intellectual capital can enhance firm value (Fauzia & Amanah, 2016). Conversely, smaller banks

with less than IDR 1 trillion in core capital (BUKU 1) face significant challenges, as shown in Q1 2024 when their net income declined by 14.29% year-on-year to IDR 3.35 trillion, while larger banks (BUKU IV) recorded IDR 42.51 trillion, growing 3.47% (Kontan.co.id, 2024). This disparity illustrates that strong intellectual capital management, especially through human capital development, contributes substantially to competitiveness and long-term performance (Fristiani *et al.,* 2020).

Amid the rapid advancement of technology, digital transformation has become a vital component of corporate strategy, particularly in the banking industry (Siswanti et al., 2024). The financial sector, especially banking, is among the fastest-evolving industries, consistently enhancing its services through the adoption of digital technologies to sustain continuous transformation (Kurniawan *et al.,* 2021). Digitalization is not merely a modernization of services but also a strategic instrument to improve efficiency, strengthen competitiveness, and foster customer trust. Furthermore, companies are required to adapt swiftly to the accelerating pace of technological development (Abrari *et al.,* 2020). Currently, digital applications are widely integrated into financial services and transactions, such as mobile payments, online banking, e-commerce, and automated payment systems across various platforms (Dhipa & Darmawan, 2022). These advancements indicate that digital transformation can function as an intervening element, strengthening the connection between increasing business value and intellectual capital.The acceleration of digitalization is necessary as widespread smartphone use has shifted people from manual to digital transactions. Digitalization also enables faster banking services and improves efficiency for both banks and customers (Ronggo *et al.,* 2022).

LITERATURE REVIEW

Resource-Based View (RBV) Theory

Based on the resource-based view theory, companies can create value when they successfully maximize the utilization of their resources, both tangible and intangible such as intellectual capital, through effective management (Adilia & Suwandi, 2023).

Signalling Theory

Signaling theory describes the efforts of managers in conveying information through financial reports to reduce information asymmetry, encourage positive market responses, and build investor trust through the disclosure of performance and intellectual capital (Sherlianti & Suhendro, 2023).

Firm Value

Investors' assessment of a company's performance is reflected in its firm value, generally reflected in its stock price, where an increase in the stock price can provide benefits and financial gains for investors (Gantino & Alam, 2020). The formula used to measure firm value (Gantino & Alam, 2020) is as follows:

$$\textbf{PBV} = \frac{\textit{Price Pershare}}{\textit{Book Value Pershare}}$$

Intellectual Capital

Intellectual Capital (IC) is a concept that describes knowledge-based resources and intangible assets, which, when optimally utilized, can help companies implement their strategies effectively and efficiently (Audria & Fathimah, 2024). The formula used to measure intellectual capital (Abrari *et al.,* 2020) is as follows:

$$\textbf{VAIC} = \textbf{VACA} + \textbf{VAHU} + \textbf{STVA}$$

Digital Transformation

Digital transformation is a strategy implemented by companies by utilizing digital technology to enhance operational efficiency, competitiveness, and the ability to adapt to market changes and stakeholder demands (Yoo et al., 2024). The formula used to measure digital transformation (Yoo et al., 2024) is as follows:

$$\textbf{DTN} = \textit{ln}\ (\textit{total number of analysis} + 1)$$

B. METODE

This approach is designed not only to measure but also to analyze how Digital transformation acts as an intervening variable in the relationship between intellectual capital and business value. This research adopts an associative quantitative approach, which utilizes numerical data to investigate the relationships and effects between variables. The study relies on secondary data gathered from the 2020–2024 financial statements and annual reports of banking firms registered on the Indonesia Stock Exchange. Multiple linear regression and path analysis were used to examine the data using SPSS version 25. The population comprises 47 banking companies, from which a sample of 30 banks was selected over five years through purposive sampling. This method is employed not only to measure but also to investigate the relationship between business value and intellectual capital, using digital transformation as a mediating factor.

C. RESULTS AND DISCUSSIONS

Descriptive Statistics

Table 1.1 Descriptive Statistic
Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Ic	150	1.17	5.99	3.4268	1.45420
Pbv	150	.15	5.98	1.6309	1.39485
Dtn	150	2.08	4.29	2.9473	.35236
Valid N (listwise)	150				

Source: SPSS Output, 2025

The descriptive statistics indicate that the variable Intellectual Capital (IC) ranges from 1.17 to 5.99, with an average of 3.43 and a standard deviation of 1.45. The Price to Book Value (PBV) variable has a range of 0.15 to 5.98, with an average of 1.63 and a standard deviation of 1.39. Meanwhile, Digital Transformation (DTN) has an average of 2.95 with a relatively low standard deviation of 0.35, within the range of 2.08 to 4.29. These results reflect that IC and PBV have relatively wider variations, while DTN is more stable across the observed data.

Normality Test

Table 1.2 Normality Test Result

One-Sample Kolmogorov-Smirnov Test

		Unstandardized Residual
N		150
Normal Parameters[a,b]	Mean	.0000000
	Std. Deviation	.74968916
Most Extreme Differences	Absolute	.071
	Positive	.071
	Negative	-.058
Test Statistic		.071
Asymp. Sig. (2-tailed)		.065[c]

Source: SPSS Output, 2025

According to the One-Sample Kolmogorov-Smirnov test results, the significance level of 0.05 was exceeded by the Asymp. Sig. (2-tailed) value of 0.065. The normality assumption is met since this shows that the residuals are normally distributed in the regression analysis has been fulfilled. Therefore, the regression model used can be considered valid, and its results can be further interpreted statistically (Ghozali, 2018).

Path Analysis Test

Table 1.3 Path Analysis Test Result

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	-.443	.604		-.733	.465
	x1_ic	.423	.142	.240	2.975	.003
	z_dtn	.113	.560	.016	.202	.840

Source : SPSS Output, 2025

Based on the results of the path analysis, the following equation is obtained:

$$y_{pbv} = -0.443 + 0.423(x1_{ic}) + 0.113\ (z_{dtn})$$

Based on the path analysis results, Intellectual Capital (IC) has a positive and significant impact on Price to Book Value (PBV), with a significance level of 0.003 and a coefficient of 0.423,

indicating that an increase in IC can enhance firm value. Meanwhile, Digital Transformation (DTN) shows a positive but non-significant effect on PBV, has a significance value of 0.840 and a coefficient of 0.113, indicating thatt an increase in DTN does not significantly impact firm value. The regression equation obtained is y_pbv = -0.443 + 0.423(IC) + 0.113(DTN), illustrating that IC plays the main role in influencing firm value in this model.

Uji Hipotesis

T-Test

Table 1.4 T-Test Result

Model		T	Sig.
1	(Constant)	-.733	.465
	x1_ic	2.975	.003
	z_dtn	.202	.840

Source : SPSS Output, 2025

The following presents the results of the T-test:

1. Intellectual Capital (IC) has a positive and significant effect on firm value (PBV), with t = 2.975 and p = 0.003. This indicates that the better the management and utilization of IC, including human resources, internal systems, and physical capital, the higher the firm value that can be accomplished. These findings support the Resource-Based View paradigm, which contends that intangible assets like IC can draw in investors and give businesses a competitive edge.
2. Digital Transformation (DTN) has a positive but not significant effect on firm value (PBV), with t = 0.202 and p = 0.840. Although DTN can enhance efficiency and enable companies to adapt to technological developments, these results suggest that its direct effect on PBV is not yet strong or clearly reflected in the analyzed company data. Additionally, there is no discernible indirect impact of intellectual capital on business value through digital transformation.

3. Although the effect of Digital Transformation (DTN) on firm value (PBV) is not statistically significant, the influence remains positive. This indicates that DTN still serves as a pathway through which Intellectual Capital can affect firm value, even though the mediating effect is not strong enough to achieve statistical significance. In other words, IC remains the primary contributor to firm value, while DTN has the potential to strengthen this relationship in the future if its implementation is optimized.

Coefficient of Determination

Table 1.5 Coefficient of Determination

Model Summary[b]				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.243[a]	.059	.046	.79050

Source : SPSS Output, 2025

Price to Book Value (PBV) and the independent variables have a weakly positive association, as indicated by the model summary's correlation coefficient (R) of 0.243. Five percent of the variation in PBV can be explained by the coefficient of determination (R2), which is 0.059. Intellectual Capital (IC) and Digital Transformation (DTN). The adjusted R^2 is 0.046, which slightly corrects R^2 94.1% of the variation in PBV is caused by factors outside the model, according to the number of predictors in the model.

D. CONCLUSIONS

In light of this study's findings, it can be said that Intellectual Capital plays a crucial role in enhancing firm value. Companies that effectively manage and utilize their intellectual resources, including human capital, internal systems, and physical assets, are more likely to achieve higher firm value. Digital Transformation, while showing a positive influence, does not currently significantly impact business value directly. Hhowever, it may serve as a supporting pathway through which Intellectual Capital can further strengthen firm performance. This

suggests that firms should continue to invest in intellectual resources while gradually optimizing digital initiatives to maximize long-term value.

This study is constrained by the scope of its data, as it only covers banking firms that are listed on the Indonesia Stock Exchange, and the time frame examined might not accurately represent the long-term impacts of digital transformation. Future research is suggested to include other sectors, extend the observation period, and examine additional factors that could affect firm value, in order to obtain a more thorough comprehension of the function of Intellectual Capital and Digital Transformation.

E. SUGGESTIONS

For future studies, it is advisable to broaden the scope by including companies from various industries to obtain a more thorough comprehension of the elements influencing business value. Additionally, researchers are urged to include other factors including company governance and financial success, or market conditions, which could offer deeper insights into the role of Intellectual Capital and Digital Transformation. Furthermore, extending the observation period may help capture the effect of digital activities on business value over the long run. This method would increase the results' richness and generalizability, providing more practical implications for managers and policymakers.

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