

Analysis of Human Capital Accounting and Intellectual Capital on Financial Performance in Technology Companies in Indonesia

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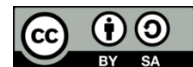
Technology Companies

Resource-Based View

ABSTRACT

This study examines the influence of human resources and intellectual capital accounting on the financial performance of technology companies in Indonesia. The increasing dependence of technology companies on employee competence, organizational knowledge, innovation, information systems, and stakeholder relationships highlights the importance of intangible resources in supporting sustainable business performance. This study employed a quantitative research design using primary data collected through a structured questionnaire measured on a five-point Likert scale. A total of 175 respondents from technology companies in Indonesia participated in the study. The data were analyzed using SPSS version 25 through descriptive statistics, validity and reliability tests, classical assumption tests, multiple linear regression analysis, partial t-tests, simultaneous F-tests, and the coefficient of determination. The results showed that human resources had a positive and significant effect on financial performance. Intellectual capital accounting also had a positive and significant effect on financial performance. Simultaneously, human resources and intellectual capital accounting significantly influenced financial performance, as indicated by an F-value of 72.184 and a significance value below 0.001. The R-square value of 0.457 indicates that the two independent variables explain 45.7% of the variation in financial performance. These findings demonstrate that employee capabilities and systematic intellectual capital accounting practices are essential for improving profitability, operational efficiency, revenue growth, and financial sustainability in Indonesian technology companies.

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1. INTRODUCTION

The rapid development of information technology has fundamentally transformed the mechanisms through which organizations create value, establish competitive advantage, and maintain long-

term financial sustainability. In a knowledge-based economy, corporate success is no longer determined predominantly by tangible assets, such as machinery, buildings, and financial capital, but increasingly by intangible resources embedded in employees,

organizational systems, technological capabilities, and stakeholder relationships [1], [2]. This transformation is particularly evident in technology companies, whose operational activities and market value depend substantially on innovation, knowledge creation, software development, digital infrastructure, and specialized employee expertise [3], [4]. Consequently, human resources and intellectual capital have become strategic organizational assets whose effective management may determine a company's capacity to innovate, respond to market disruption, and achieve superior financial performance.

The strategic importance of these resources is especially relevant in Indonesia, where the expansion of digital financial services, electronic commerce, artificial intelligence, cloud computing, and software-based business models has stimulated the rapid growth of technology-oriented companies. Despite the considerable market opportunities created by this development, Indonesian technology companies operate under conditions of intense competition, accelerated technological obsolescence, cybersecurity exposure, shortages of highly qualified digital professionals, and continuous pressure to introduce innovative products and services [2], [5]. These conditions require companies not only to acquire competent employees but also to develop organizational mechanisms capable of retaining knowledge, supporting learning, managing innovation, and converting intellectual resources into measurable economic value. Therefore, the effective management of human resources and intellectual capital is increasingly central to the sustainability and financial performance of technology companies.

From a theoretical perspective, the contribution of human resources to financial performance can be explained through the Resource-Based View, which posits that sustainable competitive advantage originates from resources that are valuable, rare, difficult to imitate, and effectively organized. Employees' technical knowledge, creativity, professional experience, adaptability, and

problem-solving abilities fulfil these characteristics because they are developed cumulatively and cannot be easily replicated by competitors [6], [7]. Investments in training, competency development, leadership, knowledge sharing, and employee engagement may improve productivity, innovation capability, operational efficiency, and strategic decision-making [8], [9]. However, employee knowledge alone may not automatically generate superior performance unless it is supported by organizational processes and systems that facilitate the creation, retention, transfer, and utilization of knowledge. Human resources must therefore be integrated with broader intellectual capital management to produce sustainable organizational value.

Intellectual capital encompasses human capital, structural capital, and relational capital. Human capital represents employees' competencies, education, expertise, experience, and innovative capacity; structural capital includes organizational procedures, databases, information systems, technological infrastructure, intellectual property, organizational culture, and knowledge-management mechanisms; and relational capital reflects the value embedded in relationships with customers, suppliers, investors, strategic partners, regulators, and other stakeholders [10]–[12]. Although these components are fundamental to value creation in technology companies, conventional accounting systems remain limited in recognizing and reporting internally generated intangible resources. Employee capabilities, organizational knowledge, innovation processes, customer loyalty, and corporate culture are frequently excluded from financial statements because they do not satisfy conventional asset-recognition criteria [11], [12]. This limitation may create a substantial disparity between accounting book value and the actual economic or market value of technology companies. Intellectual capital accounting consequently offers a broader managerial approach for identifying, measuring,

managing, and communicating the contribution of knowledge-based resources to organizational performance.

Previous studies generally indicate that human resource development and intellectual capital management contribute to productivity, profitability, innovation, operational efficiency, competitive advantage, and firm value. Nevertheless, the empirical evidence remains inconclusive, with several studies reporting significant positive effects, while others identify weak or insignificant relationships depending on industry characteristics, organizational maturity, measurement approaches, and institutional settings. Moreover, prior research has predominantly examined banking, manufacturing, healthcare, education, and public-sector organizations, whereas evidence from technology companies in emerging economies remains comparatively limited. Existing studies also frequently employ secondary financial measures, particularly the Value Added Intellectual Coefficient, which may capture intellectual-capital efficiency but does not fully represent managerial practices concerning employee development, organizational learning, knowledge management, innovation processes, and intellectual capital accounting. These limitations restrict the generalizability and explanatory depth of previous findings, particularly in the context of Indonesian technology companies.

Accordingly, this study investigates the effects of human resources and intellectual capital accounting on the financial performance of technology companies in Indonesia using primary data obtained through a structured survey. The study offers novelty by simultaneously examining human resources as a strategic organizational capability and intellectual capital accounting as a managerial mechanism through which intangible resources are identified, managed, and converted into financial outcomes. Theoretically, the study extends the Resource-Based View and intellectual capital literature by providing empirical evidence from technology companies operating in an

emerging digital economy. Methodologically, it complements financial-statement-based intellectual capital research by capturing organizational practices that may not be observable through conventional accounting data. Practically, the findings are expected to assist corporate managers in designing employee-development policies, strengthening knowledge-management systems, improving intellectual capital accounting practices, and allocating intangible-resource investments more effectively to enhance sustainable financial performance.

2. LITERATURE REVIEW

2.1 *Resource-Based View (RBV)*

The Resource-Based View (RBV) has emerged as one of the most prominent theoretical frameworks for explaining how organizations achieve sustainable competitive advantage through the strategic utilization of internal resources rather than external market conditions. [13] argues that organizational resources generate long-term competitive advantage when they possess four fundamental characteristics—valuable, rare, inimitable, and non-substitutable (VRIN). Within technology companies, this perspective is particularly relevant because competitive success depends largely on intangible resources, including human expertise, organizational knowledge, innovation capability, information systems, and intellectual property, rather than on physical assets alone. Human resources constitute a critical strategic asset by contributing technical competence, creativity, problem-solving ability, and innovation, while intellectual capital

integrates human, structural, and relational capital to facilitate knowledge creation, organizational learning, and value generation [14]–[16]. The effective management of these intangible resources enables firms to strengthen operational efficiency, enhance innovation capacity, improve adaptability to technological change, and ultimately achieve superior financial performance. Accordingly, the RBV provides a robust theoretical foundation for explaining the relationship between human resources, intellectual capital accounting, and financial performance, suggesting that organizations capable of developing, managing, and leveraging strategic knowledge-based resources are more likely to sustain competitive advantage and generate stronger financial outcomes than firms relying predominantly on tangible assets.

2.2 Human Resources

Human resources refer to the knowledge, skills, competencies, experience, creativity, attitudes, and capabilities employees use to achieve organizational goals and create business value. As strategic assets, employees contribute to innovation, process improvement, problem-solving, and knowledge-based activities. [17], [18] explains that human resource management includes recruitment, training, performance management, compensation, career development, and employee engagement to align workforce capabilities with organizational objectives. In technology companies, human resources are especially important because

business success depends on expertise in software development, data analytics, artificial intelligence, cybersecurity, cloud computing, digital marketing, and innovation. Previous studies show that employee development improves productivity, innovation, commitment, service quality, and operational performance [19], [20]. Accordingly, this study measures human resources through employee perceptions of job knowledge, professional training, technical competence, support for innovation, fair performance evaluation, career development, organizational commitment, and knowledge sharing.

2.3 Intellectual Capital Accounting

Intellectual capital accounting refers to the identification, measurement, management, and reporting of intangible resources that contribute to organizational value creation and competitiveness. Unlike traditional accounting, which primarily recognizes tangible and acquired intangible assets, this approach also considers internally generated knowledge resources, including employee competencies, organizational processes, innovation capability, intellectual property, databases, customer relationships, and organizational learning [21], [22]. [23], [24] classify intellectual capital into human capital and structural capital, while subsequent studies add relational capital. Human capital includes employees' knowledge, expertise, creativity, and experience; structural capital covers systems, software,

patents, procedures, databases, and organizational culture; and relational capital reflects relationships with customers, suppliers, investors, government agencies, and strategic partners [24], [25]. In technology companies, these resources are essential because software, algorithms, proprietary technologies, research capabilities, and organizational knowledge largely determine competitive advantage. Accordingly, this study measures intellectual capital accounting through employee perceptions of systematic intellectual asset identification, knowledge documentation, information-system support, innovation monitoring, intellectual property management, customer knowledge utilization, intangible asset evaluation, and the use of intellectual capital information in strategic planning.

2.4 Financial Performance

Financial performance refers to an organization's ability to use its resources efficiently to generate profits, increase firm value, sustain operations, and achieve long-term objectives. It reflects the outcomes of managerial decisions concerning investment, resource allocation, operations, and strategic planning. According to [26], [27], financial performance can be assessed through profitability, liquidity, operational efficiency, revenue growth, return on investment, and financial sustainability. In survey-based research, perception-based measures are appropriate for capturing managerial evaluations of organizational

financial conditions. For technology companies, financial performance also reflects the ability to convert knowledge, innovation, and intangible resources into economic value [28], [29]. Accordingly, this study measures financial performance through respondents' perceptions of profitability improvement, consistent revenue growth, cost efficiency, satisfactory investment returns, healthy financial conditions, effective cash flow management, sustainable financial growth, and performance relative to competitors.

3. METHODS

3.1 Research Design

This study employed a quantitative explanatory research design to examine the effects of Human Resources and Intellectual Capital Accounting on the Financial Performance of technology companies in Indonesia. A quantitative approach was selected because it enables objective measurement of relationships among variables using numerical data and statistical analysis, while the explanatory design supports testing whether the independent variables significantly affect financial performance. Data were collected at a single point in time through a cross-sectional survey using a structured questionnaire, allowing standardized information to be obtained efficiently from a relatively large number of respondents. The questionnaire measured respondents' perceptions of organizational practices related to human resources, intellectual capital accounting, and financial performance. The research model consists of Human Resources (X_1) and Intellectual Capital Accounting (X_2) as independent variables and Financial Performance (Y) as the dependent variable, with the assumption that both independent variables individually and simultaneously influence the financial

performance of technology companies in Indonesia.

3.2 Population and Sample

The population of this study consisted of employees working in technology companies operating in Indonesia, including firms engaged in software development, information technology services, digital platforms, telecommunications, financial technology, e-commerce, cloud computing, artificial intelligence, information systems, digital consulting, and other technology-oriented industries. Because collecting data from the entire population was impractical, the study applied purposive sampling, a non-probability technique that selects respondents based on criteria aligned with the research objectives. Eligible respondents were required to work for a technology company in Indonesia, have at least one year of work experience, understand relevant organizational management practices, participate voluntarily, and complete all

questionnaire items. Based on these criteria, 175 valid responses were obtained and included in the statistical analysis.

3.3 Research Variables

This study comprised three variables: Human Resources (X_1) and Intellectual Capital Accounting (X_2) as independent variables, and Financial Performance (Y) as the dependent variable. Human Resources refer to employees' competencies, knowledge, skills, creativity, experience, motivation, and organizational commitment that support organizational performance. Intellectual Capital Accounting refers to organizational practices for identifying, measuring, managing, and utilizing intellectual assets, including human capital, structural capital, and relational capital, to create organizational value. Meanwhile, Financial Performance refers to the organization's ability to generate profits, improve operational efficiency, increase revenue, maintain financial sustainability, and achieve superior business outcomes

Table 1. Operational Definition of Variables

Variable	Definition	Indicators
Human Resources (X_1)	Employee competencies and organizational human capital capabilities	Knowledge, skills, training, competency, creativity, commitment, career development, knowledge sharing
Intellectual Capital Accounting (X_2)	Organizational practices for managing and reporting intellectual assets	Human capital management, structural capital, relational capital, innovation management, intellectual asset evaluation
Financial Performance (Y)	Organizational financial achievement	Profitability, revenue growth, operational efficiency, return on investment, financial sustainability

3.4 Data Collection Technique

The primary data were collected through structured questionnaires distributed directly and electronically to employees of technology companies across Indonesia. The questionnaire consisted of two sections: the first gathered respondents' demographic information, including gender, age, educational background, job position, work experience, and company type, while the second measured perceptions of Human Resources, Intellectual Capital Accounting, and Financial Performance. Each item was

assessed using a five-point Likert scale ranging from 1 (Strongly Disagree) to 5 (Strongly Agree). This scale was selected because it is widely used in organizational and management research to measure respondents' attitudes, perceptions, and opinions consistently.

3.5 Data Analysis Technique

The collected data were analyzed using SPSS Version 25 through descriptive statistics, instrument testing, classical assumption testing, multiple linear

regression, hypothesis testing, and coefficient of determination analysis. Descriptive statistics summarized respondent characteristics and variable distributions using the mean, standard deviation, frequency, percentage, minimum, and maximum values. Instrument validity was evaluated using the Pearson Product-Moment Correlation, with items considered valid when the r -count exceeded the r -table and the significance value was below 0.05, while reliability was assessed using Cronbach's Alpha, with values of 0.70 or higher indicating acceptable internal consistency. Before regression analysis, normality was tested using the One-Sample Kolmogorov-Smirnov Test, multicollinearity was assessed through tolerance values above 0.10 and VIF values below 10, and heteroscedasticity was examined using the Glejser Test. Multiple linear regression was then applied using the model $Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \varepsilon$, where Financial Performance was the dependent variable and

Human Resources and Intellectual Capital Accounting were the independent variables. Partial effects were tested using the t -test, simultaneous effects using the F -test, and statistical significance was determined at the 0.05 level. Finally, the coefficient of determination was used to assess the proportion of variance in Financial Performance explained by the two independent variables.

4. RESULTS AND DISCUSSION

4.1 Respondent Characteristics

A total of 175 valid questionnaires were collected from employees working in technology companies in Indonesia. The respondents represented various technology sectors, including software development, financial technology, information technology consulting, digital platforms, telecommunications, and cloud computing services.

Table 2. Demographic Characteristics of Respondents

Characteristics	Category	Frequency	Percentage (%)
Gender	Male	102	58.3
	Female	73	41.7
Age	21–30 years	71	40.6
	31–40 years	66	37.7
	41–50 years	28	16.0
	>50 years	10	5.7
Education	Diploma	18	10.3
	Bachelor's Degree	118	67.4
	Master's Degree	36	20.6
	Doctoral Degree	3	1.7
Working Experience	1–3 years	49	28.0
	4–6 years	61	34.9
	7–10 years	41	23.4
	>10 years	24	13.7

Table 2 shows that most respondents were male, accounting for 102 individuals (58.3%), while female respondents comprised 73 individuals (41.7%). In terms of age, the largest group was 21–30 years old with 71 respondents (40.6%), followed by those aged 31–40 years with 66 respondents (37.7%), 41–50 years with 28 respondents (16.0%), and over 50 years with 10 respondents (5.7%). Regarding educational background, most

respondents held a bachelor's degree, totaling 118 individuals (67.4%), followed by a master's degree with 36 respondents (20.6%), a diploma with 18 respondents (10.3%), and a doctoral degree with 3 respondents (1.7%). Based on working experience, the largest proportion had 4–6 years of experience, representing 61 respondents (34.9%), followed by 1–3 years with 49 respondents (28.0%), 7–10 years with 41 respondents

(23.4%), and more than 10 years with 24 respondents (13.7%).

4.2 Descriptive Statistics

Table 3. Descriptive Statistics

Variable	N	Min	Max	Mean	Std. Deviation
Human Resources	175	2.50	5.00	4.214	0.482
Intellectual Capital Accounting	175	2.38	5.00	4.087	0.517
Financial Performance	175	2.63	5.00	4.156	0.471

Table 3 indicates that all variables were measured using 175 valid observations. Human Resources recorded a mean of 4.214 with a standard deviation of 0.482, ranging from 2.50 to 5.00, indicating that respondents generally perceived the quality of human resources positively. Intellectual Capital Accounting had a mean of 4.087 and a standard deviation of 0.517, with scores ranging from 2.38 to 5.00, suggesting that

intellectual capital accounting practices were also implemented at a relatively high level. Financial Performance obtained a mean of 4.156 with a standard deviation of 0.471 and values ranging from 2.63 to 5.00, indicating favorable perceptions of organizational financial outcomes.

4.3 Instrument Testing

4.3.1 Validity Test

Table 4. Validity Test

Variable	Number of Items	r-value Range	r-table	Result
Human Resources	8	0.612–0.841	0.148	Valid
Intellectual Capital Accounting	8	0.645–0.866	0.148	Valid
Financial Performance	8	0.601–0.854	0.148	Valid

Table 4 shows that all questionnaire items met the validity requirements. The eight Human Resources items produced correlation coefficients ranging from 0.612 to 0.841, the eight Intellectual Capital Accounting items ranged from 0.645 to 0.866, and the eight Financial Performance items ranged from

0.601 to 0.854. Since all calculated r-values exceeded the r-table value of 0.148, every item was declared valid and retained for further statistical analysis.

4.3.2 Reliability Test

Table 5. Reliability Test

Variable	Cronbach's Alpha	Interpretation
Human Resources	0.913	Excellent
Intellectual Capital Accounting	0.924	Excellent
Financial Performance	0.906	Excellent

Table 5 shows that all research variables demonstrated excellent reliability. Human Resources obtained a Cronbach's Alpha value of 0.913, Intellectual Capital Accounting recorded 0.924, and Financial Performance achieved 0.906. Since all values exceeded the minimum threshold of 0.70, the questionnaire items exhibited strong internal consistency and were considered reliable for further statistical analysis.

4.4 Classical Assumption Tests

4.4.1 Normality Test

The One-Sample Kolmogorov–Smirnov test was conducted using 175 observations and produced a test statistic of 0.064 with an Asymp. Sig. (2-tailed) value of 0.200. Since the significance value exceeded the 0.05 threshold, the regression residuals were considered normally distributed, indicating that the normality assumption

required for multiple linear regression analysis was satisfied.

4.4.2 Multicollinearity Test

Table 6. Multicollinearity Test

Variable	Tolerance	VIF
Human Resources	0.641	1.561
Intellectual Capital Accounting	0.641	1.561

Table 6 shows that Human Resources and Intellectual Capital Accounting each had a tolerance value of 0.641 and a Variance Inflation Factor (VIF) value of 1.561. Since the tolerance values exceeded 0.10 and the VIF values were below 10, no multicollinearity

was detected between the independent variables. Therefore, both variables were suitable for inclusion in the multiple linear regression model.

4.4.3 Heteroscedasticity Test

Table 7. Glejser Test

Variable	Sig.
Human Resources	0.421
Intellectual Capital Accounting	0.337

Table 7 shows that the significance values from the Glejser test were 0.421 for Human Resources and 0.337 for Intellectual Capital Accounting. Since both values exceeded the 0.05 significance threshold, neither independent variable significantly affected the absolute residuals. Therefore, the

regression model was free from heteroscedasticity and satisfied the homoscedasticity assumption required for multiple linear regression analysis.

4.5 Multiple Linear Regression Analysis

Table 8. Multiple Linear Regression

Variable	B	Std. Error	Beta	t	Sig.
Constant	1.024	0.291	—	3.519	0.001
Human Resources	0.431	0.073	0.457	5.904	0.000
Intellectual Capital Accounting	0.327	0.068	0.372	4.809	0.000

Table 8 shows that the multiple linear regression model produced a constant of 1.024, indicating the expected level of Financial Performance when Human Resources and Intellectual Capital Accounting are held constant. Human Resources had a positive regression coefficient of 0.431, a standardized beta of 0.457, a t-value of 5.904, and a significance value of 0.000, demonstrating a positive and statistically significant effect on Financial Performance. Intellectual Capital Accounting also showed a positive coefficient of 0.327, a standardized beta of 0.372, a t-value of 4.809, and a significance value of 0.000, indicating a positive and significant effect on Financial Performance. Thus, the estimated regression

equation is $Y=1.024+0.431X_1+0.327X_2$, and Human Resources represents the stronger predictor because it has the larger standardized beta coefficient.

4.6 Simultaneous Test (F-Test)

The ANOVA results show that the regression model generated an F-value of 72.184 with a significance value of 0.000, based on regression and residual degrees of freedom of 2 and 172, respectively. Since the significance value was below 0.05, Human Resources and Intellectual Capital Accounting jointly had a statistically significant effect on Financial Performance. Therefore, the regression model was considered feasible for explaining variations

in Financial Performance, and the simultaneous hypothesis was accepted.

4.7 Coefficient of Determination

The model summary shows a correlation coefficient (R) of 0.676, indicating a moderately strong relationship between Human Resources and Intellectual Capital Accounting and Financial Performance. The R Square value of 0.457 indicates that 45.7% of the variation in Financial Performance is explained jointly by the two independent variables, while the remaining 54.3% is attributable to other factors not included in the model. The Adjusted R Square of 0.451 confirms that the model retains substantial explanatory power after accounting for the number of predictors, while the standard error of estimate of 0.469 indicates the average prediction error of the regression model.

Discussion

The findings indicate that Human Resources have a significant positive influence on Financial Performance. This result suggests that technology companies that invest in employee competencies, continuous training, knowledge sharing, career development, and organizational commitment are more likely to achieve stronger financial outcomes. The result supports the Resource-Based View, which positions valuable, rare, and difficult-to-imitate human capital as a strategic resource for generating sustainable competitive advantage. In technology companies, employee expertise is particularly important because innovation, software development, problem-solving, and digital transformation depend heavily on highly skilled personnel [30]–[32].

Intellectual Capital Accounting also has a significant positive effect on Financial Performance. This finding indicates that companies that systematically identify, manage, evaluate, and utilize intellectual assets are better positioned to improve their financial outcomes. Such assets include organizational knowledge, databases, innovation capabilities, intellectual property, structural capital, and customer relationships

[21], [22], [33]. Effective intellectual capital accounting provides management with more comprehensive information for strategic decision-making, resource allocation, innovation planning, and long-term value creation.

The simultaneous analysis confirms that Human Resources and Intellectual Capital Accounting jointly have a significant effect on Financial Performance, with an F-value of 72.184 and a significance level below 0.001. Together, the two variables explain 45.7% of the variation in Financial Performance, demonstrating that intangible organizational resources play a substantial role in determining the success of Indonesian technology companies. However, the remaining 54.3% is explained by other factors outside the model, including innovation capability, organizational culture, digital transformation maturity, leadership quality, market conditions, and corporate governance.

Overall, the findings strengthen the Resource-Based View by demonstrating that competitive advantage in technology companies is increasingly derived from strategic intangible assets rather than physical resources alone. Organizations that successfully develop competent employees and effectively manage intellectual capital are more capable of improving profitability, operational efficiency, innovation capacity, and long-term financial sustainability. Therefore, technology companies should integrate human resource development and intellectual capital accounting into their strategic management systems to enhance organizational performance and maintain competitiveness in a rapidly changing digital environment.

5. CONCLUSION

This study concludes that Human Resources and Intellectual Capital Accounting positively influence the Financial Performance of technology companies in Indonesia. Competent employees, continuous training, career development, organizational commitment, and knowledge-sharing practices enhance productivity, innovation,

service quality, and operational effectiveness. Similarly, the systematic identification, management, and utilization of human, structural, and relational capital support strategic decision-making, resource allocation, and long-term value creation. These findings support the Resource-Based View, which emphasizes intangible resources as important sources of sustainable competitive advantage. Therefore, technology companies should strengthen human

resource development and integrate intellectual capital accounting into their management systems. This study is limited by its cross-sectional design, purposive sampling, and perception-based measurements; future research should use longitudinal data, broader samples, objective financial indicators, and additional variables such as innovation capability, organizational culture, digital transformation, and corporate governance.

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