

# INTELLECTUAL CAPITAL AS THE DRIVER OF COMPANY PERFORMANCE AT THE MOST ADMIRABLE KNOWLEDGE ENTERPRISE

Sumiati, University of Brawijaya

## ABSTRACT

*This research aim is to examine the effect of intellectual capital on company performance. This research reveals a hidden factor to causes a gap between market value and book value. The hidden factor is identified as intellectual capital measured by value added intellectual coefficient. The independent variables are human capital efficiency, structural capital efficiency, and capital employed efficiency as the proxy of intellectual value added. Company performance is the dependent variable, proxied by asset. The study population are companies nominated as Most Admired Knowledge Enterprises and listed on Indonesia Stock Exchange. Based on target population, there are 64 samples. The result found that human capital efficiency and capital employed efficiency affects company performance. Adversely, structural capital efficiency does not affect company performance.*

**Keywords:** Intellectual Capital, Value Added Intellectual Coefficient, Company Performance.

## INTRODUCTION

The economy is dominated by creation and capitalization of knowledge, the role of intellectual capital cannot be separated. Recent issue regarding the different characteristics between tangible goods and intangible service becomes sharper due to technological advancement. It makes company increasingly more emphasize on importance of knowledge as an intangible asset. A major change in economic science takes place when intellectual resources tend to replace traditional resources and financial resource to become main contributors to get value and organizational competitiveness (Dalkir, 2005; Chen et al., 2005).

Intellectual capital study historically was popular in early 1990s (Stewart, 1997). Intellectual capital receives greater attention from scholars, companies, and investor. Intellectual capital can be viewed as knowledge, creation work, intellectual property and experience used to create wealth (Stewart, 1997). Early definition of intellectual capital was difficult. The 1980s shown a significant gap between the market value of firm and book value. This phenomenon creates some interest to investigate the “*Hidden factor*” to causes the discrepancy since traditional accounting system was failed to explain accurately (Edvinsson, 1997; Maji & Goswami, 2016).

More researchers started to investigate the “*Hidden factor*” to cause the higher gap between stock market value and book value. Furthermore, those researchers tried to correlate the “*Hidden factor*” to intellectual capital. The intellectual capital is determined as capital consisting of human capital (for instance: skills, experience, and training), structural capital (for instance: corporate culture, work environment, system, intellectual property, etc.), and relation capital (for instance: customers and stakeholders) (Andriessen, 2004; Petty et al., 2009).

Some researchers had attempted to find the way to measure the intellectual capital. Pulic (2000) proposed the measurement to assess the efficiency of added value as a result from Value added intellectual coefficient. It consists of two main components of human capital and structural capital. Pulic (2000) said that the main objective of economy based on knowledge is to create Value Added. The Value added intellectual coefficient (VAIC) is the sum the three ratios including Human Capital Efficiency (HCE), Structural Capital Efficiency (SCE), and Capital Employed Efficiency (CEE). VAIC is total efficiency or company intellectual ability. High VAIC indicator reflects company's ability to manage the potential intellectual capital to get value added (Booker et al., 2008).

The previous research had been widely studied this, not just abroad (Chen et al., 2004; Abdel et al., 2010; Rehman et al., 2011; Silvia, 2013; Sumedrea, 2013; Maji & Goswami, 2016) but also in domestic scope (Ulum, 2008; Putra, 2012; Santoso, 2012). The result of previous research focused on correlation of intellectual capital and company performance. However, the findings were diverse due to different measurement the operational definition of intellectual capital. The aim of this research is to examine the effect of intellectual capital on company performance since former empirical results are not consistent. This research examines business performance of Most Admired Knowledge Enterprise in Indonesia. Most Admired Knowledge Enterprise is an achievement given to company that is considered to have the best practice in knowledge management, including some issues such as innovation, collaboration, intellectual capital management, and organizational learning.

## LITERATURE REVIEW

One measurement tools to calculate intellectual capital with non-monetary valuation is Balanced Scorecard by Kaplan and Norton, while the measurement of intellectual capital with monetary valuation is the Pulic's model known as VAIC<sup>TM</sup>. Pulic (1998) suggested Value added intellectual coefficient (VAIC) to provide the information about efficiency of value creation from both tangible and intangible assets owned by corporate. Some main reasons to support the VAIC usage are this tool provides standardized and consistent basic measurement, presenting the standardized financial measure in financial statement. Therefore, it is possible to achieve greater effectiveness of measurement to arrange international comparative analysis by a large of sample in various industrial sectors. Next, all of data on VAIC are based on audited information so that the measurement is considered objective and verifiable (Pulic, 1998, 2000). VAIC is an analytical procedure to enable the management, shareholders, and other relevant stakeholders to monitor and evaluate the Value Added (VA) with total resource of company and each of major resource components. Value Added (VA) is a distinction between revenue and cost. VAIC method quantifies efficiency of three input in company related to human capital, structural capital, as well as physical and financial capitals.

Empirical study on intellectual capital was focused on knowledge sector, such as pharmaceuticals (Abdul et al., 2010), Islamic financial institutions (Rehman et al., 2011) banking (Son, 2012); while some other researchers had examined the companies listed on multi-sectors (Maji & Goswami, 2014; Sumedrea, 2013). The result of previous research verified the effect of intellectual capital on corporate performance from variety of industry sectors includes pharmaceuticals (Rehman et al., 2011), Islamic finance (Rehman et al., 2011), banking (Son, 2012); steel (Maji & Goswami, 2016) heavy equipments (Maji & Goswami, 2016) and agribusiness (Scafarto, 2016) that confirmed the significant effect of intellectual capital on company performance by Value added intellectual coefficient measurement in business sector.

## METHODOLOGY

The research population is 43 companies that received Most Admired Knowledge Enterprise (MAKE) 2016. The samples are 16 go-public companies in Indonesia Stock Exchange. This research uses panel data. The duration of analysis is four years, therefore total item for analysis are  $16 \times 4 = 64$  samples. The independent variable is intellectual capital as a concept to involve information and knowledge implemented to create the value (Purnomosidhi, 2006).

The effort to use intellectual capital is substantial. Pulic (1998) proposed the Value Added Intellectual Coefficient/VAIC to provide the information about value creation efficiency of tangible assets and intangible assets. VAIC is an analytical procedure design to allow the management, shareholders, and other relevant stakeholders to monitor and evaluate value added compared with company resources and main resources. The value added is generated by company resources for a certain period of time.

1. Human Capital/HC refers to collective value from intellectual capital of company i.e. competence, knowledge, and skills (Pulic, 1998; Firer dan Williams, 2003) measured by Human Capital Efficiency (HCE) as the value added indicator of human capital. The formula to calculate HCE is:  $HCE = VA / HC$  (Maji and Goswami 2016). HC means salary and employee benefits.
2. Structural Capital/SC is defined as competitive intelligence, formulas, information systems, patents, policies, processes, etc., resulting from product or company system created (Pulic, 1998; Firer and Williams, 2003) measured by Structural Capital Efficiency (SCE) as Value-added efficiency indicators of structural capital. The formula of SCE equals to  $VA - HC / VA$  (Maji dan Goswami 2016).
3. Capital Employed/CE is defined as total capital utilized in fixed and current assets of an company (Pulic, 1998; Firer and Williams, 2003) measured by Capital Employed Efficiency (CEE) as the value-added efficiency indicators of capital used. The formula to calculate CEE is  $VA / CE$  (Maji and Goswami 2016), as CE means net book value.

The dependent variable of this research is company's financial performance. Two financial performance variables showing the efficiency of company to total assets are defined as follows: Return on total asset (ROA) is the one of profitability ratios measuring the effectiveness company in generating profits by utilizing its assets. ROA refers to business profit and company efficiency in utilization of total assets (Chen et al., 2005).

The dependent variable is affected by independent variable (Uyanto, 2009: 243). The multiple regression analysis is utilized to examine the effect of Human Capital Efficiency (HCE), Structural Capital Efficiency (SCE), and Capital Employment Efficiency (CEE) on company performance. The model of multiple regression analysis in this research is derived as follows:

$$ROA = \alpha + \beta_1 HCE + \beta_2 SCE + \beta_3 CEE + e$$

## DISCUSSION

### The Result of Descriptive Statistic

Company performance is used as a dependent variable and measured by return on asset. The independent variable is intellectual capital to include human capital efficiency, structural capital efficiency, and capital employed efficiency. This research select 16 companies grouped in Most Admired Knowledge Enterprise and registered in Indonesia Stock Exchange over the last 4

years. This research uses panel data. Therefore, total item for analysis are  $16 \times 4 = 64$  samples. Table 1 shows the descriptive statistic.

	N	Minimum	Maximum	Mean	Std. Deviation
<b>ROA</b>	64	0.0092	0.1854	0.057484	0.0477182
<b>HCE</b>	64	2.4228	18.3296	6.641141	4.5223601
<b>SCE</b>	64	0.5872	0.9454	0.786387	0.1048144
<b>CEE</b>	64	0.0435	4.8456	0.761756	1.1015927

Table 1 shows the lowest score of return on asset is 0.0092 or 0.9%, the highest score is 0.1854 or 18.54 %. The average of return on asset is 0.057484 or 5.74% in four years. Human capital efficiency has the lowest value of 2.4228; the highest value is 18.3296 with an average of 6.6411. Structural capital efficiency has the lowest value of 0.5872; the highest value is 0.9454 with average value of 0.78638. Capital employed efficiency has the lowest value of 0.0435; the highest value is 4.8456 with an average value is 0.76156.

Correlation	Standard Coefficient Beta	t-count	P. value	Information
X1 – Y	0.725	2.742	0.008	Significant
X2 – Y	-0.292	-1.384	0.171	Not Significant
X3 – Y	0.297	2.077	0.042	Significant
t-table = 1.670 $\alpha = 5\% = 0.05$ X1= Human Capital Efficiency X2= Structural Capital Efficiency X3= Capital Employed Efficiency Y= Return on Asset				

Source: data processed, 2016

The Table 2 reveals that human capital efficiency and capital employed efficiency affect return on asset. It is proven by significance value lower than the alpha limit of 0.05 supported by t values of 2.742 and 2.077 that are greater than the t-table of 1.670. The different result shows that structural capital efficiency does not have significant effect on return on asset as the alpha is greater than 0.05.

The result shows that higher human capital efficiency will cause an increase on return on asset. Intellectual capital is the information and knowledge applied in work process to create a value (Williams, 2001). Intellectual capital is regarded as knowledge, intellectual property, and experience to be used to create wealth (Stewart, 1997). Intellectual capital includes all of employee knowledge, organization, and ability to create the value added and embodies the sustainable competitive advantage. Intellectual capital has been identified as intangible (resources, abilities, and competencies) to drives organizational performance and value creation.

Referring to resource based theory, human capital is the unique resource with ability to create the competitive advantage to develop and implement company strategy. Company strategy is created by human resources in expectation to increase company performance. The employee with skills and competent abilities will give long-term benefits for the company, in form of higher productivity and profitability for the company.

Salary and allowance as the factors of human capital efficiency are intended to motivate the employee to increase the company profit by managing the human resource through as training and development. An expert in human capital theory, Becker (1964), in Maji & Goswami (2016) argued that skill, knowledge, and performance enhancement of employee and their ability have a role to refine company performance. Salary cost has an effect on value added as shown by average of human capital efficiency that reaches 64%. The amount of salary including the benefits, bonuses, employee benefits, training, post-employment benefits, and pension to contribute to financial sector. The cost of salary is divided into several expenditure items to show the commitment of company on quality of human resource which aims to boost the employee performance.

The data analysis result showed that structural capital efficiency does not have effect on company performance. The structural capital efficiency cannot to improve company performance, especially to get company profit. This is due to various factors of structural capital efficiency cannot be developed to achieve company profits. The amount of structural capital required by company cannot meet the company's routines to achieve optimal performance. Not well arranged structural capital management such as system management, procedures and databases will hinder employee productivity in generating value added for the company.

The company cannot create culture to motivate its employee to increase company performance. The strong structure in an organization will shape good culture to support the employee to try something new for studying and practicing (Bontis et al., 2000). This research results supports Chen's et al (2005) that SCE does not have significant effect on company performance. According to Chen et al. (2005), structural capital efficiency is not a good indicator to explain structural capital of company. Structural Capital Efficiency is measured only Value Added (VA) reduced by Human Capital (HC). The way to measure cannot capture the overall parts of Structural Capital.

Maji & Goswami (2016) in their research conducted in India found the same result to explain the effect of structural organization, technology, intellectual property, process and strategy to encourage the organization growth that has not yet been well documented. The research of Maji & Goswami (2016), according to Report of Indian Government Planning Commission, showed that the manufacture sector in India do not consider documentation of knowledge and intellectual property rights as important enough. Thus, the opportunity for the companies to improve their financial performance by advanced technology and to spend more on research and development was still neglected for Indian companies. The case in India is similar to Indonesia as a developing country due to lack of awareness on documentation of intellectual property knowledge and copyright.

The results show that greater capital employed efficiency will improve company's performance. Capital Employed Efficiency is the efficiency on use of tangible assets, namely physical and financial assets derived from financial statement data. Capital employed efficiency is part of physical capital as an asset value to contribute to company's ability to generate revenue (investorword.com). The large capital used by a company should create greater total assets of company or larger size of company. The use of large assets in the activities are expected to increase company's revenue to improve company performance when it is measured by Return on Assets (ROA). It means that physical capital and intellectual capital play important role to improve the company profitability.

This study supported by Clarke et al. (2011); Rehman et al. (2011); Santoso (2012); Maji & Goswami (2016). The positive effect of capital employed efficiency in steel sector and

machine sector (Maji & Goswami, 2016) showed the importance of intellectual capital (CI) to improve the companies performance on physical capital intensive sector. The overall financial performance of a company for traditional sector depends on utilization of both tangible and intangible sources. This result is also evidenced by the fact that companies in Most Admired Knowledge Enterprise 2016 have a good performance without proven loss as the return on assets are positively. This finding indicates that the company is very good to arrange efficient tangible assets in order to generate benefits and profits for the company.

## CONCLUSION

Responding to analytical result and discussion, it is concluded that greater human capital efficiency will affect on company performance as marked by better return on assets. Neither efficient company nor inefficient company affect on structural capital efficiency, affect to improve company performance. Further research should examine companies based on industry type to offer diverse characteristics. It should use net profit margin and return on equity to show the ability of company to get net operating profit and profitability capability from capital utilization as an effort to enhance the other measurement of financial performance. It is also suggested to use different sample from other industry category to see whether another industry category produces the same results or not.

This research has limitations. First, this research uses panel data from 16 companies without explore deeply each companies to get more information. Future research should uses case study to explore each company. Second, this research does not classify each company based on their industry. Future research should classify each company based on the industry to get more clear figure from each industry.

## REFERENCE

- Abdel-A.S., Jawad. S.A., & Bontis, N. (2010). Intellectual capital and business performance in pharmaceutical sector of Jordan. *Journal Management Decision*, 48(1), 105-131.
- Andriessen, D. (2004). *Making Sense of Intellectual Capital: Designing a Method for the Valuation of Intangibles*. Elsevier Butterworth-Heinemann. Burlington, MA.
- Bontis, N. (2000). Intellectual capital and business performance in Malaysian Industries. *Journal of Intellectual Capital*, 1(1), 85-100.
- Booker, L., Bontis, N., & Serenko, A. (2008). The relevance of knowledge management and intellectual capital research. *Journal Knowledge and Process Management*, 15(4), 235-46.
- Clarke, M., Seng, D.R., & Whiting, H. (2011). Intellectual capital and firm performance in Australia. *Journal of Intellectual Capital*, 12(4), 505-530.
- Chen, M.C., Cheng, S.J., & Hawang, Y. (2005). An empirical investigation on relationship between intellectual capital and firms' market value and financial performance. *Journal of Intellectual Capital*, 6(2), 159-176.
- Dalkir, K. (2005). *Knowledge Management in Theory and Practice*. Elsevier Butterworth-Heinemann. Oxford.
- Edvinsson, L. (1997). Developing intellectual capital at Skandia. *Long Range Planning*, 30(3), 366-373.
- Maji., S.A., & Goswami, M. (2016). Intellectual capital and firm performance in emerging economies: The Case of India. *Review of International Business and Strategy*, 26(3), 410-430.
- Maji, S.G., & Goswami, M. (2014). The Journey of IC Research: Reflections From Past Two Decades. *Asian Journal of Research in Banking and Finance*, 5(6), 85-102.
- Petty, R., Cuganesan, S., Finch, N., & Ford, G. (2009). Intellectual Capital and Valuation: Challenges in Voluntary Disclosure of Value Drivers. Working Paper Series, <http://ssrn.com/abstract=1490208>
- Pulic, A. (1998). *Measuring the Performance of Intellectual Potential In Knowledge Economy*. available at: [www.vaic-on.net](http://www.vaic-on.net)
- Pulic, A. (2000). VAIC—an Accounting Tool for IC Management. *International Journal of Technology Management*, 20(5-7), 702-714.

- Purnomosidhi, B. (2006). Disclosure of Intellectual Capital Disclosure Practices in Public Companies on the JSX. *Indonesian Accounting Research Journal*, 9(1), 1-20.
- Putra., I.G.S. (2012). Effect of Intellectual Capital on the Value of Banking Companies Going Public on the Indonesia Stock Exchange. *Scientific Journal of Accounting and Humanika*, 2(1), 1-22.
- Rehman, W., Rehman, C.A., & Zahid, A. (2011). Intellectual capital performance and its impact on corporate performance: An empirical evidence from modaraba sector of Pakistan. *Australian Journal of Business and Management Research*, 1(5), 8-16.
- Santoso, S. (2012). The Effect of Intellectual Capital and Its Disclosure on Company Performance. *Journal of Accounting and Finance*, 14(1), 16-31.
- Scafarto, V., Ricci., F., & Scafarto, F. (2016). Intellectual capital and firm performance in global agribusiness Industry. *Journal of Intellectual Capital*, 17(3), 530–552.
- Stewart, T. (1997), *Intellectual capital: The New Wealth of Organizations*, Doubleday/Currency, New York, NY.
- Sumedrea, Silvia. (2013). Intellectual capital and firm performance: A dynamic relationship in crisis time. *Procedia Economics and Finance*, 6, 137–144
- Suwardjono. (2003). *Accounting Theory Series: No. 1 Principles of Paton & Littleton's Thoughts Regarding Accounting Principles for the Company*. Yogyakarta: BPF.
- Ulum, Ihyaul. (2008). Intellectual Capital Performance of the Banking Sector in Indonesia. *Journal of Accounting and Finance*, 10(2), 77-84.