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Rashidah Kamarulzaman

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## Intellectual Capital and Organizations Performance in Financial Industry in Malaysia

Rashidah Kamarulzaman

University College of Technology Sarawak, School of Business and Management, 868 Persiaran  
Brooke 96000 Sibul, Sarawak, Malaysia

### Abstract

As the economy has transformed globally into knowledge economy, many organizations have now changed their dependence on production asset to knowledge asset, which is also known as the intellectual capital. Effective utilization of these intangible resources is the driver for better performance for the organizations hence the issue of measurement is critical. Current measurement tend to focus more on the measurement of intellectual capital from the perspectives of 'traditional accounting' model which measure the past value creation rather than the utilization of the intellectual capital. This situation has inspired more empirical works in developing a more robust measurement of intellectual capital. This study measures the utilization of intellectual capital in the organizations using both the published financial data as well as the survey distributed to the senior management team. The sample size selection is the organizations within the Malaysian financial industry that comprises four major groups which are the insurance, banking and finance, capital market and development financial institutions. The objectives for the study is twofold; to examine the relationship between the components that make up intellectual capital and performance of the organizations and secondly to measure those components using the Value Added Intellectual Capital (VAIC) method and a new method of Utilized Intellectual Capital (UIC). The findings show that UIC measurement is more robust compared to VAIC. Both structural capital and transactional leadership components are significant towards the organizations' performance and culture was found to act as a mediator in the model.

**Keywords:** Intellectual Capital, Organizational Performance

### Introduction

Intellectual capital is considered as the crucial assets in competing in the knowledge-based economy. Long gone the era where the organizations are relying on the production based output. Organizations have changed from relying on production workers to knowledge workers. The intellectual words itself derived from the word knowledge. Thus, to sustain the competitive advantage and to survive in the new economy, organizations need to transform on their reliance to knowledge from production. High

dependency on knowledge means that the daily operation of the organizations revolving on the utilizing of knowledge in all aspect of capitals.

Intellectual Capital is developed or created within the organization through the utilization of the resources for example: skilled staff, product diversity and professional relationships with the stakeholders (Zakery, Afrazeh, 2015). Effective utilization of the intangible resources such as knowledge is the driver for better performance for the organization. The increase of useful knowledge as well as the knowledge application extensions is the essence of the Knowledge Economy. However, without proper utilization of this knowledge it will lead the organization to failure. Thus, it is important to measure the Intellectual Capital also from the utilization perspective instead of just depending on traditional accounting measures.

Organizations are relying on both tangible and intangible resources. With the current advancement of technology as well as the enhancement of a Knowledge Economy, more organizations are giving more attention towards the utilization of intangible resources. Decades ago, organizations are only acknowledging patents, copyrights and goodwill in their financial statements. In terms of human capital dependency, the organizations utilize the skills, expertise and experience of the human capital in creating the wealth and value to the organizations. Human capital manages and compliment other input in the organizations in order to achieve the organizations' objectives. Through the utilization of their knowledge, the human capital transforms the other capitals into the intended output.

Structural capital are those capital that shaped the organizations. Structural capital consist of the guidelines, technology, business process and models, and rules which managed carefully lead the organization into superior performance. Structural capital binds together all the other capitals to the organizations through the philosophy, mission and vision of the organizations. Relational capital is whereby the organizations is fully utilizing the external and internal relationship of the organizations that can contribute to the performance be it financially or non-financially. Finally, the customer capital is whereby the organizations utilize the brand name, intellectual property and trademark that will increase the value of the organizations. The value of the customer capital utilization to the organizations is translated in the customers' loyalty towards the organizations.

Intellectual capital needs to be utilized and managed effectively in order for the organization to improve the performance. All the sub-capitals (components) are interrelated and organizations must have the ability to transform these sub-capitals to benefits them. Numerous studies found that intellectual capital improves the performance of the organizations (Andreva, Garanina, 2017; Cerne, Etinger, 2016; Garg, 2016; Irsyahma, Nikmah, 2016; Inkinen, Kianto, Vanhala, Ritala, 2017). The study of the relationship between intellectual capital and performance has been conducted in major disciplines such as accounting, management, economics, information technology, sociology, psychology and education (Bontis, 2001) and in both the developed and non-developed countries.

Even though Intellectual Capital has been recognized as the organizations' value driver and has a significant relationship with performance; the issue of measuring Intellectual Capital is still largely debatable. Various attempts and approaches on the measuring of Intellectual Capital been made by companies and researchers. With the limitation of traditional accounting in measuring Intellectual Capital, new approaches are used to lead the way.

Due to the importance of the intellectual capital to the organizations' performance, this study examines the relationship between the intellectual capital components utilization and the

contributions toward the organization performance in the financial industry. In examining the components, the study use two approaches of measuring the intellectual capital utilization.

Reasons for conducting this study are due to the nature of the industry itself. The nature of the financial sector is highly knowledge intensive sector that relies on the knowledge worker and as the financial sector falls in the services industry it is also a high relationship-rich industry. The financial sector also relies on the technology for their survival in the industry. Financial industry's revenues and performance is judged by the relationship with their customers. Innovation on the product development and dependability on quality, better and faster service is in question. According to Goh (2005), although physical capital is essential for banks to operate, it is the intellectual capital that determines the quality of services provided to customers.

It is utmost important now for the financial sector in Malaysia to transform their organization dependency on the physical capital to knowledge capital due to the current competitive environment. The financial organizations must strategize their intellectual capital utilization wisely and effectively. This study is to measure the utilization of the intellectual capital in the Malaysian financial sector which covers the insurance, banking and finance of both Islamic and conventional, capital market and development financial institutions (DFI). The study has practical significance to the country as a whole and to the financial sector in particular.

In measuring the intellectual capital, this study will use the current measurement approach, which is the Value Added Intellectual Capital (Pulic, 1998; 2003; 2004) and newly develop approach, which is the Utilized Intellectual Capital (UIC). The reason for adopting the current approach of VAIC is to examine the robustness of the approach and to compare with the findings of the UIC approach. Based from the two approaches, the author expects to find the main sub-capitals that contribute to the performance of the organizations. The newly develop UIC approach is using the sub-capitals in VAIC and two additional sub-capitals which are customer capital and leadership style. Additionally, culture will be used to be the mediator to the study.

In summary, the study strives to answer the following research objectives:

1. Examine the relationship between the intellectual capital components and organizations' performance using VAIC approach.
2. Develop a new model using the intellectual capital utilization in order to examine the relationship between the intellectual capital components and the organizations' performance known as Utilized Intellectual Capital (UIC).

### **Literature Review**

It is a challenge now globally for organizations to measure the intangible assets (hidden assets) at both within and outside the organization. Furthermore the current performance measurement system does not justify and provide the solution to the measurement problem. This is due to heavy reliance on the financial and physical resources component of the balance sheet and lacking the information that is related to measuring the performance of its intangible asset resources.

This is in accordance with the previous works of Svanadze and Kowalewska (2015), Macerinskiene and Aleknaviciute (2015), Kamath (2015), Britto, Monetti and Lima Jr (2014) that mentioned although the intangible asset or Intellectual Capital is recognized as a vital corporate asset in generating

sustainable competitive advantage, there are problems in measuring Intellectual Capital. Existing studies of Intellectual Capital have been focusing more on the measurement from the perspectives of the “accounting model” instead of focusing on the utilization of the Intellectual Capital. This is done through measuring Intellectual Capital using the publicly available financial reports of the organization.

Among the known approaches in measuring the intellectual capital are the Value Added Intellectual Capital (VAIC) (Pulic, 1998; 2003; Firer, Williams, 2003; Chen, Cheng, Hwang, 2005; Joshi, Cahill, Sidhu, Kansal, 2013; Mondal, Ghosh, 2012; Yalama, 2013; Ozkan, Cakan, Kayacan, 2016), the Balance Scorecard (Kaplan, Norton, 1996), the Skandia Navigator (Edvinsson, 1997; Marr, Schiuma, Neely (2004) and the Disclosure Index. However, some of these approaches were criticized by the scholars. The critiques on VAIC due to few reasons. Firstly, VAIC is measured through historical financial statements, suggesting that the coefficients are measured on the value created in the past and not on potential value creation in the future (Janosević, Dzenopoljac, Bontis, 2013). Secondly, according to Janosevic et al (2013) the model has the inability to integrate possible synergies of various Intellectual Capital components. Thus, it is not possible to measure individual components’ contribution towards an organization’s performance. Thirdly, VAIC does not measure the intellectual capital rather it is just measuring the value created by human capital (Iazzolino, Laise, 2013). Finally, the VAIC measurement approach does not represent the actual utilization of the intellectual capital as it using the proxies indicator from the financial statement.

The other method of measurement is the Balance Scorecard that is using both financial and non-financial measures. The method was critique due to its inability to measure the utilization of the intellectual capital. The approach is designed to assist organizations to implant more balanced and strategic performance measurement and management systems.

The next method, which incorporates both financial and non-financial measure is the Skandia Navigator. The critique for the model is that it only provides timely snapshots rather than dynamic flows of Intellectual Capital as it relies heavily on the balance sheet approach (Roos, Roos, Edvinsson, Dragonetti, 1997). Secondly, the indicators list for the Skandia Navigator measure are too many for the users to understand what is being measured as well as the difficulty is determining the cause and effect from the model (Andriessen, 2004).

The scholars also have several critiques on the limitation of the Disclosure Index approach. Firstly according to Brennan and Connell (2000) intellectual capital information is mostly qualitative in nature and this affects comparability. Secondly is the non-standardization used in disclosing the intellectual capital disclosure index (Bukh, Nielsen. Gormsen, Mouritsen, 2005; Guthrie, Petty, Yongyanoch, Ricceri (2004). Thirdly, due to the source of information used is generally not audited and verified by an independent party. Finally, organizations choose not to disclose intellectual capital information due to the fear of losing the strategic advantage.

It is very crucial for the organizations to measure the utilization of the intellectual capital in order to ensure that they invest in the right resources. The decisions of investing in the right resources ensure the organizations sustainability and stability. This is in accordance with the theory of Resource-Based View (Spender, 1996) that states the importance to identify and examine how an organization’s resources can be acquired, protected and valued and how it is being controlled and utilized.



Therefore, this study contributes to the development of an improved model for measuring the Intellectual Capital by assessing the utilization of the components of Intellectual Capital. The improved model will be compared to the most used measurement approach, which is the VAIC. This study uses both the measured Intellectual Capital from the published reports as well as the perceived Intellectual Capital from the perspectives of top management from financial institutions.

## Methodology

### *Sample Selection*

The sample for this study is all the organizations in the financial industry comprising of the four groups which are the insurance companies, banking and financial institutions, capital market institutions and development financial institutions (DFI) for the period of five years from 2008 to 2013. The primary sources of the data is through the questionnaires sent to the senior management team and secondary data sources are from the published materials from the websites. Based from the information from Bank Negara Malaysia and Malaysian International Islamic Finance Centre (MIFC) the size of the sample is a total of 122 organizations.

### *Measurement of Value Added Intellectual Capital (VAIC)*

Value Added Intellectual Coefficients (VAIC) is a very important and consistent approach. VAIC is a component of Human Capital Efficiency (HCE), Structural Capital Efficiency (SCE) and Capital Employed Efficiency (CEE) which is develop by Pulic (2004). Value Added (VA) is calculated as the difference between outputs and inputs. The basic definition is as follows:  $VA = OUT - IN$

There are four steps for calculating Value Added Intellectual Capital for the regression analysis (Chan, 2009; Shiu, 2006; Kujansivu, Lönnqvist, 2007). The steps are as per follows:

#### *I. First Step*

Company's value added

$$VA = \text{Output} - \text{Input}$$

Where,

VA = Value added

Output = Total Income

Input = Cost of buying materials, components and services

Another expression of Value Added

$$VA = R + DD + T + EC + D + A$$

Where,

R = Retained Earnings

DD = Dividend

T = Taxes

EC = Total Employee Expenses/Investment

D + A = Depreciation and Amortisation

R + DD = Net Income After Tax (Chen, Cheng, Hwang, 2005; Feltham, Ohlson, 1999)

R + DD + T = Operating Profit (Pulic, 2004; Kujansivu, Lönnqvist, 2007)

Therefore,

$$VA = OP + EC + D + A$$

Where,

OP = Operating Profit

EC = Total Employee Expenses/Investment

D + A = Depreciation and Amortisation

*II. Second Step*

Human Capital Efficiency (HCE) is the investment on human capital in bringing value creation. HCE is an indicator of value added Human Capital and the expression for HCE is

$$\mathbf{HCE = VA/HC}$$

Where,

VA = Value Added

HC = Total payroll

*III. Third Step*

The share of structural capital in total value creation reflects structural capital efficiency (SCE). SCE is an indicator of value added Structural Capital and the expression for SCE is

$$\mathbf{SCE = SC/VA}$$

Where,

SC = VA – HC

Where,

SC = Structural Capital

VA = Value Added

HC = Total Payroll

*IV. Fourth Step*

Relational Employed Efficiency (CEE) is needed to create value both financially and physically. CEE is an indicator of value added Relational Employed and the expression is

$$\mathbf{CEE = VA/CE}$$

Where,

VA = Value Added

CE = Book value of the net assets of the firm

#### *Developing the New Model of Utilized Intellectual Capital (UIC)*

UIC will be measured through both data; the survey collected from the senior management team of the financial institutions and the data collected from the published financial statement from the organizations' website. The variables for the UIC is as per Table 1.

Table 1: Variables for Utilized Intellectual Capital

Variable	Constructs	Indicators /Items	Items Source	Reference
Independent	UIC: Human Capital, Structural Capital, Relational Capital, Leadership style	59	Primary	Nazari (2010), Oulette (2007), Reed, (2000), Santoso (2011), Avolio and Bass (2002)
Dependent	Performance: Financial Non-Financial	8	Primary and secondary	
Mediating	Organization culture	7	Primary	Denison (1990)
Control	Organisation size Organisation age	2	Secondary	
Demographic	Individual Organisation	8 3	Primary	

In summary, both of the VAIC and UIC data will be analysed together using the SmartPLS 2 software tool.

## Results

Both of the VAIC and UIC approaches is based on the partial least squares (PLS) method. SmartPLS 2 is a software tool that was used to assess the measurement and structural model. PLS was chosen as it works efficiently with the small sample sizes and the complex model (Hair et al., 2014). The research model was assessed using a two-step approach. First, the measurement model was analysed following the structural model analysis. Hair et al. (2014) state that the assessment of reflective outer models involves determining indicator reliability (squared standardized outer loadings), internal consistency reliability (composite reliability), convergent validity (average variance extracted, AVE), and discriminant validity (Fornell-Larcker criterion, cross-loadings). The convergent validity of each construct is achieved as the item loadings for each construct are above the threshold of 0.700.

Verification of the indicators reliability was obtained by calculating Cronbach's Alpha coefficient (CA), Composite reliability (CR) and the Average Variance Extracted (AVE) for the reflective



constructs. Human Capital, Relational Capital, Structural Capital, Customer Capital, Leadership Style, Culture and Organization Performance all exhibit sufficient reliability given that the calculated values exceed the threshold ( $CA > 0.700$ ,  $CR > 0.700$ ,  $AVE > 0.500$ ). To confirm the discriminant validity among constructs (Fornell-Lacker criterion) the AVE square root must be superior to the correlation between constructs.

In summarising the measurement model, both the reliability and validity tests were satisfactorily conducted on both reflective and formative measurements. As the measurement model was reliable and valid, this can be used to estimate parameters in the second part, which was the structural model of PLS. Figure 1 will explain on the structural model result of the study on both model the VAIC and UIC.

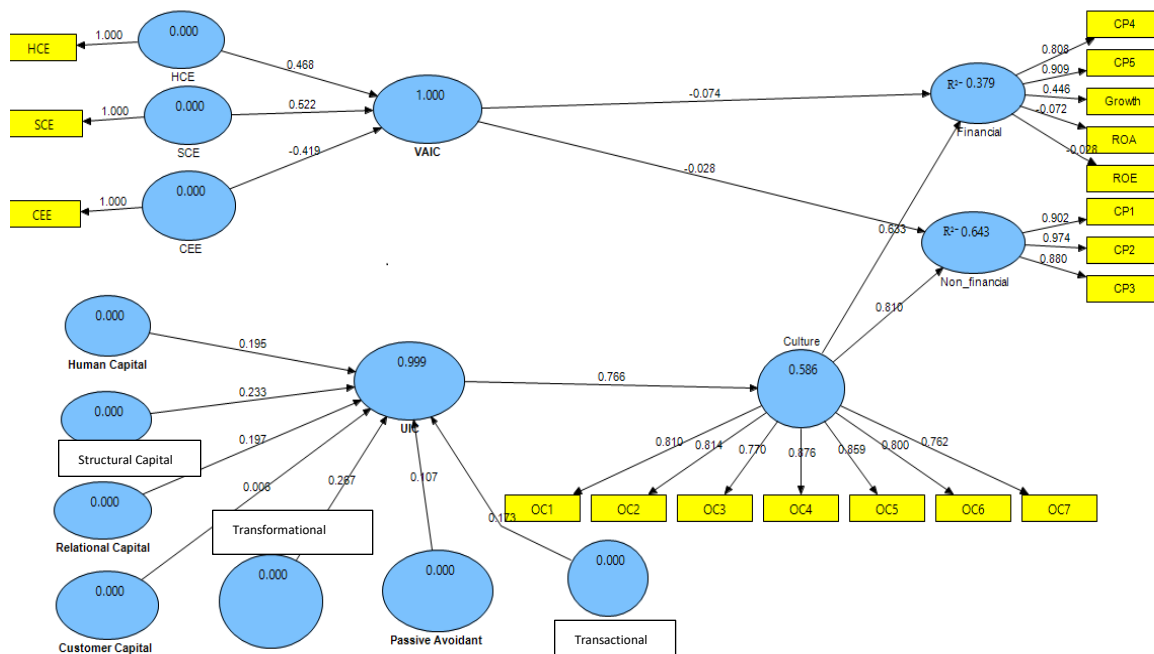


Figure 1: Structural model result

The  $R^2$  of structural model for both model is 38% on financial while 64% on non-financial. This can be summarized that, measured on single model VAIC show a low  $R^2$  value but if it combined with the other model than the  $R^2$  value increase substantially. Due to this, the evaluation for structural measurement model will only concentrate on the second model, which is the newly proposed model, the UIC.

Based on the above structural model, the VAIC model is not related with performance while the UIC model is significantly related to performance. Culture mediates the relationship between UIC and performance. In the first model of VAIC (Pulic, 1998) three variables were used to measure the Intellectual Capital and examine the relationship of its components i.e. Human Capital Efficiency, Structural Capital Efficiency and Capital Employed Efficiency with organisation performance. Based on the PLS analysis, only one relationship was supported which was between Structural Capital Employed and non-financial performance. Furthermore, the  $R^2$  value for the Value added

Intellectual Capital is 6% on non-financial performance as opposed to 32% on financial performance, which explains that this model has low predictive power.

In the second model of Utilised Intellectual Capital, the variables for independent variables are Human Capital, Structural Capital, Relational Capital, Customer Capital and three different leadership styles i.e. Transformational, Transactional and Passive Avoidant. Based on the PLS analysis, the relationship between Structural Capital and Transactional Capital were supported. Table 2 shows the result for the hypothesis testing for this research. The followings are the hypothesis for objective 1 and 2 for the research:

Table 2: Hypothesis Result

Hypothesis	Relation ship	Std Beta	Std Error	t-value	Decision
H1	VAIC -> Performance	-0.0301	0.2291	0.1314	Not Supported
H1a	CEE -> Financial	0.5641	0.3355	1.6812**	Supported
H1b	CEE -> Non-Financial	0.411	0.1329	0.3094	Not Supported
H1c	HCE -> Financial	0.0395	0.2149	0.1838	Not Supported
H1d	HCE -> Non-Financial	0.1126	0.1380	0.8163	Not Supported
H1e	SCE -> Financial	-0.0096	0.3502	0.0275	Not Supported
H1f	SCE -> Non-Financial	0.2059	0.1401	1.4696	Not Supported
H2	UIC -> Performance	0.7920	0.1355	5.8443***	Supported
H2a	Customer Capital -> Culture	0.0015	0.1102	0.0133	Not Supported
H2b	Human Capital -> Culture	0.0855	0.1993	0.4292	Not Supported
H2c	Passive Avoidant -> Culture	-0.0683	0.1390	0.4911	Not Supported
H2d	Structural Capital -> Culture	0.5669	0.1859	3.0498***	Supported
H2e	Relational Capital -> Culture	-0.0926	0.2328	0.3976	Not Supported
H2f	Transactional -> Culture	0.3873	0.1932	2.0039**	Supported
H2g	Transformational -> Culture	0.0575	0.1715	0.3355	Not Supported

\*\*\*p<0.01, \*\*p<0.05, \*p<0.10

In summary, the result showed that VAIC is not related to organizations' performance and UIC is significantly related to organizations' performance. Among the components of intellectual capital, both structural and transactional leadership style is significantly related to organizations' performance while the other components are not significant.

## Discussion

In order to achieve better organisation performance, it makes sense for organisations to invest strategically on the right capital that gives most impact to performance. In relation to measuring the right resources, the study develops a new measurement model that measures the utilisation of each of the component of Intellectual Capital.

The study recognises that the concept of Intellectual Capital comprises human capital, structural capital, relational capital, customer capital and leadership style. It is important for the organisation to know that the utilisation of the intangible resources is not the level of the resources itself. Through the old model of VAIC, the intangible resources are measured by the proxies of the published data instead of the perceived utilisation of the organisation's management. The findings from the study is inconsistent from the previous researches (Zehri, Abdelbaki, Bouabdellah, 2012; Muhamad, Ismail, 2009; Tan, Plowman, Hancock, 2007; Chen, Cheng, Hwang, 2005; Riahi-Belkaoui, 2003) whereby in this study it is found that VAIC does not relate to the organizations performance. Previous researchers found that VAIC is significantly related to organizations performance such as profitability, ROA and ROI. When the study introduced UIC, the results derived from the model were more comprehensive in the sense of the utilisation of Intellectual Capital.

The second finding from this study points to a new direction whereby structural capital is more vital among the components of Intellectual Capital. This departs from the current empirical study (Zakery, Afrazeh, 2015; Marzo, Scarpino (2016; Komnenic, Pokrajcic 2012), which suggests that human capital is more important towards the performance of the organisations and Yildiz, Meydan and Guner (2014) that states customer capital is important in Turkish banks compared to structural and human capital. This study indicates that structural capital which consists of framework, process, guidelines, technologies and systems are more vital in ensuring good performance rather than human capital which consists of skill, experience and qualification. Thus, an organisation is less affected by the people of the organisation but rather, by its strong systems. A strong organisation does not mean that it does not have high turnover but its sustainability and strength are derived from the strength in structural capital. Policy implications of the organisation are for the decision maker to put the investment in terms of the establishment of structural capital.

The final findings are concerning the leadership style. The findings of the study does not support that transformational leadership is vital in achieving better performance. The reason might be due to the style of Malaysian leaders and organisations. According to the respondents in the qualitative approach, Malaysian organisations are still not open to the transformational leadership style. Instead of coaching and mentoring, the leaders still opt for directing and authoritative style of leadership. Henceforth, this can be an avenue to study further on the leadership style and the organisation's performance from the perception of the employees. This will give better indication on the leadership style from the employees and a better comparison on two perceptions can be obtained.

## Conclusion

In conclusion, the newly developed UIC method in measuring the utilization of intellectual capital can also be used as a performance metrics in the organisation. Individually, each organisation can measure the Intellectual Capital utilisation by adopting the same approach used by the researcher. A similar survey can be done and the analysis can be taken place in departments or if it is in a bigger

scale, the whole organisation. Subsequently, this method can be used to assist the top management to understand and review their capital to improve the overall performance. Utilization is based on the questionnaires. Granted that this is based on the perception and arguably not a direct measure of utilization. This is at the time of the study the best way to measure utilization of the intellectual capital. Thus, the study supports that the method is robust and it provides a significant link between intellectual capital and performance, not provided by the other competing model of VAIC.

### **Corresponding Author**

Saadiah Mohamad, Universiti Teknologi MARA, Arshad Ayub Graduate Business School, 40450 Shah Alam, Selangor, Malaysia.

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