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Effect of Intellectual Capital on Organizational Performance

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Abstract

The purpose of this empirical study is to investigate the relationship between six elements of intellectual capital such as human capital, structural capital, customer capital, social capital, technological capital and spiritual capital with organizational performance in Malaysia. The study was conducted using a structured questionnaire distributed to higher-level management working in various organizations in Malaysia. Sample size will be 187 respondents out of 311 questionnaires distributed and selected randomly based on non-probability convenience sampling. Data collected will be analyzed using the Multiple Regression Analysis Model. The results revealed that intellectual capital has significant influence on the organizational performance in Malaysian.

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Keywords: Intellectual Capital; Human Capital; Structural Capital; Customer Capital; Social Capital; Technological Capital; Spiritual Capital; and Organizational Performance.

1. Introduction

In this millennium, less people will do physical work and more people will do brain work. This is called intellectual capital (IC). It does not appear on the company balance sheet but it has more value for organizations than physical assets. Economic wealth is driven more by knowledge and information than the production process (Akpinar & Akdemir, 1999). Intellectual capital (IC) is also known as the new invisible asset and the most widely used definition of intellectual capital is "knowledge that is of value to an organization." From this definition it is suggested that the

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management of knowledge (what is known) generate IC. In addition, Bayburina and Golovko (2009) explain that IC includes human capital, process capital, client capital, innovation capital and network capital. The complexity of these characteristics represents the competitive advantage originated inside and within the company. Therefore, survival and competitive success of a firm depends highly on the strategic management of its IC as compared to financial resources. Unfortunately, one of the challenges in managing IC is when the managers are not clear that their firms possess valuable resources, which could lead to success of new strategies.

Nevertheless, Malaysia, which is in its transformation process to k-economy, requires investments in the knowledge infrastructure. In knowledge-based economy, to be a developed nation and to maintain the developed status, high quality human capital is a priority. Furthermore, to increase the competitiveness of an organization, workforce must be more knowledgeable, adaptable and proficient. Thus, Government of Malaysia, realizing the urgency, has identified the development of human capital, upgrading the mentality and intellectual capacity of its people as one of the main agenda under the Ninth Malaysia Plan (Badawi, 2006) and the New Economic Model 2010 (National & Council, 2009).

According to Bontis, Keow and Richardson (2000), there are three main elements of IC which are human capital, structural capital and customer capital. This study is an extension of research done by Bontis et al. (2000), by including additional three independent variables that consist of social capital, technological capital and spiritual capital. Therefore, this study is intended to determine the association between the independent variables; human capital, structural capital, customer capital, social capital, technological capital and spiritual capital with the dependent variables; organization performance.

2. Literature Review

Most organizations have their own definition of IC. One of the definitions by Skandia Insurance Company is "the possession of knowledge, applied experience, customer relationship, organizational technology and professional skills which contribute competitive advantage to the firm in the industry (Sofie, 1999). It has been acknowledged by many researchers that IC is the most important strategic assets in evaluating the performance of an organization in the developing and under developed countries (Khalique, Abdul Nassir Shaari, Md. Isa & Ageel, 2011; Amrizah & Rashidah 2013 and Ngah & Ibrahim, 2012). For instance, Bontis et al. (2000), in their study done in Malaysia approved that IC is a significant contributor to the performance of organization despite of different type of industry. The concept of IC is broad and is normally split into a few characteristics, which are human capital, customer capital, structural capital, social capital, technological capital and spiritual capital.

2.1. Human Capital (HC)

There are vast studies that have investigated and proven that IC is significant towards organizational performance. One of them is human capital. Human capital is an amalgamation of genetic inheritance, attitude, education and people experience in their life and business. The most valuable asset in any business is human resources as compared to other capitals or equipment. However, it was also believed to be the most ignored asset by the firms. Human can be considered valuable asset or liability to an organization (Khan, Farooq & Hussain, 2010). Human capital refers to experts or employees skills, knowledge and experience shared with their organization in order to add value (Baron, 2011).

2.2. Customer Capital (CC)

Customer capital, also known as relational capital or external capital consists of relationships with customers and suppliers, the government or related industry associations, brand names, trademarks and reputation. According to Akpinar and Akdemir (1999), it refers to the "organization's relationships or network of associates and their satisfaction with and loyalty to the company".

2.3. Structural Capital

Structural capital consists of concepts, models, patents, computers and system created by employees, yet owned by the organization (Akpinar & Akdemir, 1999). Alternatively, it may also be acquired elsewhere. In other words, an organization exists from the combination of internal structure and people. Once the organization enhances its technology, develops process and establishes other internal initiatives, structural capital will improve. Therefore, structural capital means the ability of organization to accommodate their customers demand. Recent evidence suggests that a good organization structure, together with skilled employees providing efficient and quality service will cause greater performance of an institution (Amrizah & Nawal, 2013).

2.4. Social Capital

Social capital refers to the institutions, relationships and norms that shape the quality and quantity of a society's social interactions among people and contribute to economic and social development (Grootaert & Bastelaer, 2001). According to Hassan (2014), social capital plays a crucial role in facilitating adoption and overcoming constraints of lack of financial, human and natural capital. Furthermore, it is not just the sum of the institutions, which underpin a society – it is the glue that holds them together. Social capital can be a set of horizontal associations between people, consisting of social networks and associated norms that have an effect on community productivity and well-being.

2.5. Technological Capital

Information technology (IT), research and development (R&D) and innovation can be considered as technological capital. In order for knowledge to be shared swiftly and accessible to others, the existence technological capital is important. Collection, storing and distribution of information will be easier with the assistance of technological capital (Ngah, 2011). A study done on fabless firms in Taiwan, found that innovation and IT has positive impact on the company's performance (Lu, Wang, Tung & Lin, 2010).

2.6. Spiritual Capital

Spiritual capital is the effects of spiritual and religious practices, beliefs, networks and institutions that have a measurable impact on individuals, communities and societies (Liu, 2010). Furthermore, Marques (2008) found that spiritual behaviour in an organization will lead to enhanced corporate performance and advantages for multiple stakeholders.

3. Methodology

Data collection was mainly based on primary data. Structured questionnaires were adopted from Khalique, Bontis, Abdul, Abu and Isa (2015), Amrizah and Rashidah (2013) and Ngah and Ibrahim (2012) and distributed to 311 respondents selected randomly based on non-probability convenience sampling where 187 respondents who participated were from various organizations in Malaysia. The response rate was 60%, which was satisfactory. According to Sekaran and Bougie (2010), sample size larger than 30 and less than 500 are appropriate for most research. Data collected from the questionnaires were analyzed according to the Pearson correlation, Cronbach's alpha reliability test and multiple regression analysis. Figure 1 below depicts the association between the independent variables and dependent variable. The dependent variable for this study is the organizational performance (OP), which indicates the performance of various companies in Malaysia. Meanwhile, there are six independent variables that relate to the dependent variable. These variables comprise human capital, customer capital, structural capital, social capital, technological capital and spiritual capital.

Therefore, the hypotheses developed in this paper are tested as follows:

H1: Human capital (HC) is related with organizational performance (OP)

H2: Customer capital (CC) is related with organizational performance (OP)

H3: Structural capital (SRC) is related with organizational performance (OP)

H4: Social capital (SOC) is related with organizational performance (OP)

H5: Technological capital (TC) is related with organizational performance (OP)

H6: Spiritual capital (SPC) is related with organizational performance (OP)

Fig. 1. Theoretical Framework

4. Results and Discussion

4.1. Correlation Coefficient

The correlation coefficient conveys the accurate study of one variable from another. This correlation coefficient must lies from -1.00 to +1.00. According to Pallant (2011), the value of correlation coefficient ranging from 0.5 to 1.0 is considered large and suggests the existence of strong relationship among independent and dependent variable. Table 1 below shows that there is a significant correlation among independent variables and dependent variable. Therefore, this study suggests that there is a strong positive relationship between IC and organizational performance with minimum correlation of 0.6800 and at 1% significance level.

Table 1. Correlation coefficient analysis.

Correlation (Probability)	HC	CC	SRC	SOC	TC	SPC	OP
Human capital (HC)	1						
Customer capital	.786**	1					

(CC)							
Structural capital (SRC)	.838**	.748**	1				
Social capital (SOC)	.771**	.740**	.785**	1			
Technological capital (TC)	.724**	.729**	.815**	.760**	1		
Spiritual capital (SPC)	.739**	.683**	.755**	.804**	.735**	1	
Organizational performance (OP)	.740**	.779**	.755**	.797**	.776**	.772**	1

4.2. Reliability

Alpha value used for the reliability test is to measure the internal consistency of each item in the variables. Values of Cronbach's alpha above 0.7 is acceptable, however, value above 0.8 is preferable (Pallant, 2011). Table 2 below states that Cronbach's alpha for each variable ranges from 0.949 to 0.953, suggesting very good internal consistency.

Table 2. Reliability

Model	Cronbach's Alpha
Human capital (HC)	.951
Customer capital (CC)	.953
Structural capital (SRC)	.949
Social capital (SOC)	.950
Technological capital (TC)	.952
Spiritual capital (SPC)	.953
Organizational performance (OP)	.950

4.3. Multicollinearity

Variance Inflation Factor (VIF) and tolerance are measure of the amount of multicollinearity in the set of multiple regression variables. VIF above 10 and tolerance value less than 0.1 specifies that multiple correlation with other variables is high, proposing the possibility of multicollinearity (Pallant, 2011). According to Table 3 below, VIF result shows that all independent variables values are less than 10 and tolerance value are greater than 0.1. Therefore,

diagnostic testing indicates that multicollinearity assumption is not violated.

Table 3. An example of a table.

Model	Collinearity Statistics	
	Tolerence	VIF
Human capital (HC)	.224	4.464
Customer capital (CC)	.314	3.183
Structural capital (SRC)	.196	5.109
Social capital (SOC)	.248	4.035
Technological capital (TC)	.275	3.635
Spiritual capital (SPC)	.296	3.374

4.4. Multiple Regression Analysis

The model was significant [F (6,181) = 97.158, p < .01] with the predictors explaining 75.5% of the variation in organization performance. The findings as shown in Table 4 reveal that IC have significant impact towards organizational performance. In term of importance, customer capital made the largest unique contribution to the model followed by technological capital, spiritual capital and social capital. However, human capital and structural capital has the lowest contribution. Among the six predictors entered into the model, four made statistically significant contributions with customer capital, social capital, technological capital and spiritual capital having a positive relationship with organizational performance. The relationship between these variables is very strong at 0.01 level of significant and therefore, the result fails to reject H2, H4, H5 and H6. Thus, on the other hand, it was found that relationship between human capital and structural capital towards organizational performance is insignificant. Therefore, this study will reject H1 and H3.

Table 4. Multiple linear regression analysis.

Model	Std Coefficient	Sig.
Human capital (HC)	.005	.949
Customer capital (CC)	.288	.000***
Structural capital (SRC)	.004	.960
Social capital (SOC)	.219	.003***
Technological capital (TC)	.230	.001***
Spiritual capital (SPC)	.228	.001***

Note: $R^2 = .755$, ***$p < .01$

5. Conclusion

Intellectual capital (IC) is no less important than capital investments for companies in developing countries in order to create value and sustainable advantages. Therefore, governments of developing countries should balance resources in investing in IC and physical investments (Chen, Cheng & Hwang, 2005). On the other hand, human capital (HC) encompasses individual economic value. However, human intellectuality and competency is inadequate to ascertain the effectiveness of HRM and organization performance. The results showed that HC alone could not contribute towards core competence of organizations performance. HC requires other organizational capital support such as

structural capital (Bontis et al., 2000). A research by Muhammad and Ismail (2009), also stated that human capital and structural capital individually is not significantly related to the company's performance. Furthermore, firms which possess all the IC components are endowed with more strength to compete in the business as compared to those which possess only a single IC resource (Amrizah & Rashidah, 2013). Companies, which are balance in human, relational and structural capitals, perform better in terms of financial and market performance. Therefore, companies should possess a balanced IC model, which consists of world-class infrastructure, highly educated, and skilled workforce couple with local and global contacts. In future, it is recommended that researcher should concentrate on specific industry such as microfinance institutions.

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