THE INTEGRATED EFFECT OF THE COMPONENTS OF INTELLECTUAL CAPITAL ON ORGANIZATION PERFORMANCE

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Abstract

Since the rise of the knowledge-based economy, many worldwide companies have begun to deal with different frameworks to manage and evaluate the performance of intellectual capital, especially in the area of knowledge management services. This paper presents critically review several articles in the field of intellectual capital in relation with firm performance to shed light on different arguments discussed regarding the subject. It is argued that management should evaluate and prioritize their intellectual capital competitive. Based on the analytic hierarchy process, the study analyses interdependences among intellectual capital elements and determines the impacts of core competences on organizational performance through reviewing several studies. Thus, in attempting to figure out the impact of intellectual capital components on company’s performance, the study will analyze and discusses the results from the studies. The results obtained from this review showed that there is a significant relationship between the intellectual capital and organizational performance, while there might be little evidence to reject this positive effect.

Key words: Intellectual Capital Components, Firm Performance, Profitability.

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1. INTRODUCTION

Organizations do not rely on tangible assets only in the competitive market era, but also rely on intangible assets as well which has been become more and more important in the last few decades (Rashid, 2017; Budur et al., 2018; Mahmood & Sabir, 2023; and Budur et al., 2024). All industries are important that need to focus on the intellectual resources to improve the efficiency of the outcomes and performance in order to be able to provide the most recent information in parallel with the new technology (Budur, 2020). Hence, the study field under
which this article falls is in the area of Intellectual capital within organization performance. The study will examine the role of the components of intellectual capital on performance through reviewing several studies in this field critically. The motivation behind this research is that intangible assets play a significant role in any enterprise which has a potential of generating future benefit and improving the entity’s performance. Organizations as important part and parcel of the society should compete with international firms and attempt to provide the best possible services and product which may lead to better performance and outcome (Rashid, 2018; Noori & Rashid, 2017). These organizations need knowledgeable and intelligence specialists and workforce with the most up to date information to make them be able to compete with the international organizations. The lack of such information with a proper mix of personnel, technology and physical assets may lead to the failure of firms to perform their best with competitive local and international firms (Rashid, 2019). Therefore, the research contribution to the field would provide literature on the relationship between components of intellectual capital and firm performance in terms of measuring, reporting, disclosing, and managing an intellectual capital. The remaining of this paper is structured as follows. In the next section it discusses and reviews several studies conducted in this field. Then, it will conclude the arguments based on the results from the articles reviewed.

2. LITERATURE REVIEW

Studies that developed methods to measure IC

Recently, a number of empirical studies have been undertaken regarding the intellectual capital which becomes more and more attractive in the literature (Rashid, 2020; Budur et al., 2023; Fatah & Jaf, 2023; Mahmood & Sabir, 2023; and Rashid & Sabir Jaf, 2023). Human capital as an important element has been received a great attention over the years by researchers. From 1960th researchers have focused on human resources and they supported that to account for employees as assets and consider the value of them as an important element in the business. Likert (1961) and Odiorne (1963) stated that people in organizations are highly valuable resources from the leadership and human resource point of view. Next, researchers focused and attempted to measure the value of intellectual capital and developing several models in this respect. In doing this, Hekimian and Jones (1967) developed the “Opportunity Cost Model” and Flamholtz (1974) developed the “Replacement Cost Method” that all of them are cost based methods. On the other side, a number of researchers developed value-based methods which relying on wages and salaries. For instance, Hermanson’s (1964) developed Discounted
Future Wages Model and Lev and Schwartz Discounted Wages Model. In the above-mentioned methods, data from salaries has been collected over a specific time period and then they are discounted at a rate of owned assets, and then multiply the result by the efficiency factor. From the late of the past centuries a greater attention has been paid to intellectual capital and the phrase of intellectual capital has been used for the first time such as (Brooking, 1996; Edvinsson and Malone, 1997; Sveiby, 1997; Roos & Roos, 1997). A very important model has been developed by Skandia a financial Swedish firm to provide information regarding the “hidden” intellectual asset in the business. Karl-Erik Sveiby (1997) in his innovative research stated that we may shift our thinking regarding the businesses and entities as there is an increasing importance of intellectual capital. Roos & Roos 1997 argues that we can divide the intellectual capital roots into two streams of thought. The first one focuses on utilizing skills and knowledge and developing the relationship between knowledge, creating values and success. Second stream focuses on the measurement side which requires the development of a new information system to be able to measure intangible assets. There is a widely referenced empirical study in the literature which tested ten companies to measure the intellectual capital by Danish Trade and Industry Development Council in 1998 (Rashid & Noori, 2017). The study concluded that evaluating and managing the intellectual capital effectively leads to the company’s long-term success and will outperform other firms. The past literatures have divided intellectual capital into three dimensions which are External capital (Customer-related) capital, internal capital which includes structural capital as well as human capital. (Sveiby, 1997; Roos & Roos., 1997; Stewart, 1997; and Edvinsson and Malone, 1997). The second element of intellectual capital is structural capital such as legal framework, manual & software systems, organizational structure, and research & development. In other words, all internal process and procedures inside the company that contributes in the value creating of the firm. The final element is external structure such as firm brand customer & supplier relationships and any other market asset. The literature has developed several methodologies for measuring intellectual capital. The most common methodologies are Technology Broker, The IC-Index, Monitoring Intangible Assets, The Skandia Navigator, and finally the ICAP Methodology. The technology broker by Annie Brooking (1996) makes a practical contribution to intellectual capital measurement by offering three measurement models to help calculate the dollar value of intellectual capital as identified through the Technology Broker’s intellectual capital audit. Roos & Roos 1997 IC-Index is an example of “second generation” practices that attempt to consolidate all the different individual indicators into a single index, and to correlate the
changes in intellectual capital with changes in the market (Bontis, 2001). As Dzinkowski, (2000) stated that companies could assess systems, mechanisms, procedures and other wealth that are not quantified under the accounting and management practices in order to be able develop and measure the company’s intangible assets through managing the intellectual capital which leads to the firm value creation. One of the most common methods attempted to value the intellectual capital is the direct intellectual capital method. This method estimates the value of intangible assets by identifying several components such as balance scorecard, market capitalization method (Tobin Q), and finally Return on Assets (ROA) method. These methods are trying to catch the link between intellectual capital and firm performance. The model combines financial and non-financial metrics and balances the internal and external perspectives simultaneously. In this model they combined result measures and determinant measures. Result measures shows the success of a strategy chosen by an organization, while determinant measures focus on activities and reasons needed to achieve the goals set by the organization. It is important to mention that however there is a noticeable level of improvement taking place with regard to the frame more effective performance measurement systems, Higher education industry is still concentrating on more traditional forms of performance measures. Such measurement tools are associated with a certain fundamental drawback, including limitations in their precise and truthfulness; a dominance of lag/result over lead/determinant measures; usually focusing on the short-term vision at the expense of strategic issues. From the above-mentioned points of view, there should be a concern regarding utilizing improper measurement tools which may lead managers and directors to ignore such issues that affect the performance of the universities (Rashid, 2023). In this sector it is important to consider the measurement system to be effective in reflecting the nature of service delivery in the higher educational industry which needs a high degree of knowledgeable lecturers with up-to-date information in all fields of study. This new accounting taxonomy sought to identify the roots of a company’s value by measuring hidden dynamic factors. The Teleplan’s ICAP methodology does not strive to measure but to evaluate intellectual capital based on the organization’s value chain. An analysis of the intellectual capital needed for that value chain to work the best and generate the most income. By focusing on the value chain, the ICAP method emphasizes the strong link between intellectual capital and business performance.
3. METHODOLOGY

Among previous literature, Fernández et al (2015) evaluated performance of firms influencing by core three components of intellectual capital: human, structural, and relational capital. They aimed to examine the moderator impact of strategies by corporations such as Product and International diversification on performance. The research implemented a longitudinal study for a sample of international corporations from different industries (trading, service, finance, and technology) whose basements are in Spain. The study contributed towards the comprehension of the complexity embodied in the Check relation strategy used by the firms for decision making, Technology, Media and Telecommunication’s IC and firm performance. This paper answers the claim to investigate new causal relations that affect corporation performance that can therefore help directors to adopt the best decision-making strategies, and to shed light on the inconsistent and inconclusive results derived from the literature.

Additionally, Ornek and Ayas (2015) purposed to determine the effect of intellectual capital owned by the entities on innovative work behaviors, and further to identify how the effect of intellectual capital reflects on the performance of the business. This study points out that in spite of the fact that prior researches assert the presence impact of intellectual capital in favor of firm performance, building up such positive effect relies on move the intellectual capital toward innovation. In other words, it is important to improve the knowledge and skill of employees in order to be more innovative to improve performance. Hence, running the transformation of intellectual capital into innovation successfully will lead to performance development. In the same direction, Francis Et al (2020) showed that firms’ organization intangible capital has an approving and economically significant effect on innovation. The study found that firms achieve a greater amount of patent, if possess a greater amount of organizational capital and then their patent will receive more citations. The study has more robust result using different and alternative measures of intellectual capital and innovation. Another result from this study is related to difficulties associated with the process of innovation which should be handled by corporation to meditate the risk of manager’s career. The ability to handle such difficulties is a possible mechanism that organizational capital could affect company innovation positively.

In respect of drinking industry, Gogan et al (2016), conducted a study to examine the relationship between intellectual capital and firm performance in four companies operating in drinking water distribution industry from 2010-2014. They stated that in the knowledge era,
where intellectual capital represents a large part of the value of a product, the traditional annual financial statements report only partially the value of intangible assets (concessions, licenses, patents, trademarks, etc.). In fact, intellectual capital is an important activity for organizations which want to be efficient on the market and thus to obtain sustainable competitive advantage. It means that intellectual capital which has not been reported in financial statements is an important and effective part of business value in contributing to develop firm performance. The results obtained from this study showed that there is a significant relationship between the intellectual capital and organizational performance. More importantly, Hashim et al (2015) extended the use of elements of intellectual capital to six elements to investigate the relationship between intellectual capital such as human capital, structural capital, customer capital, social capital, technological capital and spiritual capital with organizational performance. The study conducted by using a structured questionnaire and distributed to top managers working in different sectors in various organizations in Malaysia. The questionnaires distributed to a sample size of 311 targeted managers with only 187 respondents which have been selected randomly according to non-probability convenience sampling. This study utilized Multiple Regression Analysis Model to analyze the data collected. The study revealed the same result which indicates that intellectual capital significantly and positively affects organizational performance in Malaysian. It asserted that all six components of intellectual capital mentioned above has positively affect the performance of businesses.

On the other hand, Mosavi et al. (2012) examined the link between IC’s components and firm value and financial performance with the implementation of value added intellectual coefficient (VAIC) approach. The study conducted on a sample of 80 Iranian firms listed in the Tehran Stock Exchange (TSE), in various sectors for the period of 2006 to 2010; different regression models were constructed to examine the relationships between IC’s components and the selected market value and financial performance measures of these companies. The results of the analysis revealed no conclusive statically evidence to support a positive effect of IC, as measured by VAIC, on firm performance. They stated that the result is not consistent with the hypotheses that claim a positive relationship between intellectual capital and firm performance. However, the study justified that there is just a statistically significant relationship between human capital efficiency and financial performance. They concluded that, the results of the study may not be generalized to other industries and other countries. The recognition of different components of intellectual capital will helps firms to a better understanding of their abilities they have and development of their human resources. Thus, improvement in the skills
and knowledge of human resource is one of the most important reasons to lead companies for success.

Also, in respect of Value Added Intellectual Coefficient, Ulum et al. (2014) used the fourth component of VAIC which is relational capital efficiency that includes marketing expenses. These expenses have been viewed as intangible asset like investments in brand, reputation and value. The study calculated relational capital efficiency as the ratio of marketing expenses to value added. They found that the value of MVAIC of Indonesian banking sector ranged between -21.41 to 5.20 which classify performance into four categories (very good Performance, Good Performance, Common performance, and Bad Performers. The result showed that three quarters of banks are included in the first category. According to the finding value added is a function of financial capital employed as well as intellectual capital. Also, Bayraktaroglu and Baskak (2019) with the same elements but extended and modified value-added (VA) intellectual coefficient (VAIC) model used additional hidden and missing intellectual capital (IC) components with this approach. They proposed mode to explore the relationship between IC and firm performance for Turkish manufacturing firms with a more detailed level. They employed multiple regression analysis to identify the IC components to forecast the company’s performance and the integrated effect of some IC components on IC components and then on firm performance. This study used data from the annual reports of the Turkish firms in manufacturing industries for the period 2003–2013. Based on the results innovation capital efficiency has a moderating effect on the relationship between structural capital efficiency (SCE) and profitability. It means that, the increase in R&D costs, will lead to more positive effect of SCE on profitability and productivity.

Huang and Huang (2019) tested the impact of intellectual capital on organizational performance from holistic perspective. In this study, they adopted a holistic model to examine how different capabilities actually account for organizational performance. This study also accounted for mediation of the relationship between organizational abilities and performance conducted a questionnaire distributed to 167 directors in the Taiwan Transportation industry. This study applied structural equation model (SEM) based on partial least squares (PLS). The result showed that knowledge in the market and innovative capabilities have positive impacts on intellectual capital, while knowledge of customers have no significant effects. Intellectual capital has the ability to mediate the relationships between organizational capabilities and firm performance partially. This research concluded that recognizing the mediation effects of
intellectual capital on organizational performance and organization capabilities from external and internal point of view lead to enhance organizational performance, especially in transportation industry.

Furthermore, Kalkan et al (2014) claimed that in their study the innovation in new era is argued to be a necessity for all firms due to the terminating competition in market, globalization and rapid development of technology. The ability and knowledge of managers to make decisions to develop organization strategy guides the organization regarding its environment, operating, and structure and these factors definitely affect firm performance. The strategies that improve firm performance are based on the style of managers and organizational information system. This study argued that firm performance measurement can be conducted in several ways such as financial performance, performance related to productivity, and market performance. Thus, this study tested the relationship between four elements (intellectual capital, innovation, strategy of the firm, and firm performance. It tested the effect of three elements (intellectual capital, organizational strategy, innovation) on performance in Turkey for a sample size of 435 insurance firms applying multiple regressions. They found that intellectual capital has a positive effect on firm performance as well as firm value and this can be used as an indicator for future financial prediction. Thus, managers with higher level of knowledge and skills will lead to greater performance of the firm rather than those with less knowledge.

Moreover, Lee and Lin (2018) conducted research from the perspective of intellectual capital theory. This study tested the effect of intellectual capital elements on performance in Taiwan accounting companies implementing a multiple regression performance evaluation model. The results of the study asserted that firm with younger employees have a better operating performance in the majority of firms. It also found that business with longer age, high labor cost, and high marketing costs also associated with better performance in China. This paper stated that human capital, process and customer capital are major factors which affect firm performance in the accounting field. Thus, they concluded that the result can be utilized as a reference to evaluate performance in accounting companies, which can be helpful to establish a well-planned management system will lead to better quality in service provided and then better performance. In the same industry but different environment, Meles et al (2016) selected a large sample of 5,749 commercial banks, covering over 40,000 observations over the period of 2005-2012 to examine the effect of intellectual capital components along with efficiency. This paper found that using efficiency along with Intellectual Capital components affects firm
financial performance positively of US banks. In addition, the results show that the human capital (HC) efficiency is found to have a larger impact on financial performance more than other components of intellectual capital. They suggest that managing knowledge through a good mechanism will make banks to posse enough IC with consistent with the complexity of the market environment. Regarding hospitality industry, Also, Sardo et al. (2018) analyzed the effect of intellectual capital on financial performance during the period between 2007 and 2015. Using a sample of 934 Portuguese small and medium-sized hotels, this study adopted the GMM system (1998) estimator to analyze a dynamic panel data. The findings pointed that intellectual capital components affect hotel financial performance positively, particularly Human capital and relational capital which tend to be main factors for hotel success, in better service quality provided. Furthermore, the results showed that human capital and structural capital are capitalized by the establishment and maintenance of long-term relationships with key stakeholders. They concluded that the integrated effect of intellectual capital components enhances the hotel financial performance.

4. CONCLUSION

Intellectual capital is a recognized foundation stone of firm’s competitive advantage. Based on the review conducted in this paper to analyses the effect of intellectual capital financial performance, for different period as well as sectors, we achieved some important results. Empirical findings show that human capital, structural capital and relational capital positively impact on financial performance. Human capital and structural capital knowledge appears to be key elements for the success of firms and are the basis of improve quality in the different sectors. Furthermore, human and structural capitals are capitalized by the establishment and maintenance of long-term relationships with key stakeholders, i.e., by strengthening the relational capital. Structural capital and relational capital in the previous period positively influence financial performance of the current period. These results upon the studies reviewed also indicate that investments in structural capital, such as, databases and processes, are valorous to future financial performance and, thereby it enhances the long-term relationships with key stakeholders. Moreover, the results showed the persistence of financial performance, which means that financial performance of the past period, is a positive influence on the financial performance for the current period. In this context, these findings suggest that investments made in structural capital and relational capital can positively impact on the financial performance. Additionally, these results reveal that the interaction between IC
dimensions enhance financial performance. In fact, it is worth to highlight that the interrelationships between IC components impact positively on IC that means that firms can improve their financial performance investing in each component of IC, which will create value, considering the scale effect obtained on the basis of the interrelationships between IC components. On the practical side, it is important that owners/managers closely manage firms’ intellectual capital, since it is an important source of firm value creation and financial performance.

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