



Review of Intellectual Capital Components Research Abdullah N. A. Alkhateeb*, Liu Yao and Cheng Jack

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ABSTRACT

The success of the organizations in a competitive business environment is depending on the intellectual capital, which is considered as strategic assets for sustainability of the organization. In the knowledge-based economy, modern and high tech organizations not only concentrate on innovation, services, marketing, research and development, instead pay particular attention to the organization intellectual capital. The aim of this paper is to investigate theoretically and empirically contributions in the subject of intellectual capital in an endeavor to recognize the components of intellectual capital. However, to achieve the objective of this paper a comprehensive related literature review was performed. The related literature showed that there are nine dimensions of intellectual capital that have been identified.

Keywords: Intellectual Capital, Components, Dimensions, Models.

1. Introduction

Nowadays the organizations are facing an enormous challenge since they are working in the complicated and volatile environment and also the speedy change in economic and political issues. Within the past was the vital capital for the organizations is that the tangible assets like money, buildings, inventories, and etc. Further, the foremost vital capital in organization nowadays is that intellectual capital. The intellectual capital is one amongst the intangible assets within the organization which play a very important role in the business process. Thus, the realization of intellectual capital was first as a framework to investigate the contribution of intellectual resources in profit organizations, it absolutely was presently taken by public and non-profit organizations due to its importance (Kong and prior, 2008; Ramírez, 2010).

In addition, currently, the intellectual capital represents a high proportion of the overall value of the organizations it could be up to 90 % of the overall market value. As an example, the market value of Microsoft Corporation is estimated \$ 115 billion, which is a physical capital is just 10% and the remainder represents the intellectual capital. According to Khan (2014), intellectual capital is the knowledge resources of the organization and the most vital asset for the survival of knowledge-intensive organizations. Somehow, the success of organizations mostly depends on the making, discovering, capturing, diffusing and utilizing such knowledge resources or the known as intellectual capital. According to River and Hsieh

(2011), investment in knowledge is crucial to its ability to make high-value products and services that end up in gaining sustainable competitive advantages in organizations. However, the development of intangible assets of the organization fit with the organizational performance that allows them to identify the shortcomings and address them within the future and to attain strategic objectives, future vision, and mission of the organization (AL- Shubiri, 2012). The researchers in this study will extend the research by identify the components of intellectual capital.

2. Literature Review

The following section provides a summary of the academic literature that is relevant to this study. It includes a section on intellectual capital, models of intellectual capital, and dimensions of intellectual capital.

2.1 Intellectual Capital

There are numerous definitions of intellectual capital since the beginning interest of it have in late of 1980s (Goh, 2005). Bontis, (2001) referred that most of the intellectual capital literature have stemmed from an accounting and financial perspective. According to Brooking and Matto, (1996) defined intellectual capital as the term given to combined intangible assets that enable the corporate to operate. Bontis, (2001) outlined intellectual capital as the assortment of intangible resources and their flows. Edvinsson and Malone, (1997) outlined intellectual capital as a supply of intangible assets that usually do not seem on the record. Stewart, (1997) defined intellectual capital as a package useful knowledge that features an organizations processes technologies, patents, employees, skills and knowledge about customers, suppliers and stakeholder. Further, Roos, Roos, Dragonetti and Edvinsson, (1997) defined intellectual capital as the total knowledge of company's members and practical translation of this knowledge like trademark, patents and brands. According to Seviby, (1998) intellectual capital is that the knowledge, experience, intelligence of worker as well as knowledge resource, stored in an organizations databases system processes, culture and philosophy.

In addition, Stewart, (1997) specified the intellectual capital by its three components which are a combination of human capital, structure capital, and customer capital. Thus, intellectual capital consists of the components that named human capital, structural capital, and customer capital. Intellectual capital presents intangible resources like education, knowledge, employees' competences, skills, intellectual agility, customer relationship, brand names and organizational structure of the organization (Edvinsson, 1997; Sevbiy, 1997; Roos et al., 1997; Bonits, 1998; Kujansivu, 2009).

In line with Kozak, (2011) the idea of the intellectual capital continues to be underneath development. "The concept of intellectual capital was first planned by renowned economic expert, James K. Galbraith in 1969, and he thought that intellectual capital wasn't solely a sort of static intangible asset in itself, but a sort of dynamic capital without fixed capital form, and it's the process effectively utilizing knowledge, and a sort of measure to understand the target" (Ding & Li, 2010). Moreover, the intellectual capital construct it is refer to the intangible assets with the components that have a probable benefit for future economic, that will obtain and mange by the organizations (OCDE, 2011). Somehow, Lynn (1998) and Bontis, Keow and Richardson, (2000) mentioned that intellectual capital is the difference between book value and market value. However, Chang and Hsieh, (2011) argued that there's generally no accepted definition of intellectual capital.

According to Sardo and Serrasqueiro, (2017) intellectual capital is an important resource for organizations' value creation. Intellectual capital is taken into account as the vital strategic asset for sustainability of the organization in a competitive environment (Khan, 2014). The organizations characterized with high levels of intellectual capital are likely to outperform the organizations with low overall levels of intellectual capital (Hussinki, Ritala, Vanhala, & Kianto, 2017). According to Molodchik and Jordan (2017), reveal that higher intellectual capital endowment promotes the level of product novelty.

2.2 Models of Intellectual Capital

With a wide range of intangible resources, intellectual capital is wide classified into three basic and powerfully interrelated components human, structure, and customer capital (Bontis, 1998; Edvinsson, 2000; Leitner, 2002). Anne Brooking, (1996) classified components of intellectual capital as market assets, assets cantered on humans, intellectual property, and infrastructure assets. "Market Assets" embody customers' loyalty, brands, distribution channel, contracts and advertising that provide potential to competitive advantage. "Assets Cantered on Humans" are the employees' expertise, creativity, solving problem ability and leadership. "Intellectual Property" is ability, trade secrets, trademarks, patents and design rights. Infrastructure assets are the technology, methodologies, organization culture, and communication system.

Sveiby, (1997) emphasized another classification of three components, namely, employees' competences, internal structure, and external structure, as shown. "Employees' Competences" are the expertise and education to make tangible and intangible assets. "Internal Structure" represents the IT system, concept, models, and patents. "External Structure" is that the relations between organization and therefore the suppliers and customers.

Edvinsson and Malone, (1997) identified intellectual capital in two components, "Human Capital" and "Structure Capital". Human capital is employees' knowledge, talent and innovation that are deal with organization vale and culture. Structure capital is all the hardware; software system, database, and organization structure that to enhance the productivity of the organization.

According to Stewart, (1997) intellectual capital consists of "Human Capital", "Structure Capital" and "Customer Capital". Human capital is that the head of innovation but it's not owned by the organization. Structure capital is own by organization representing its system, data, strategies, publications, culture and procedures. Customer capital is that the relation between the customer and organization.

Latterly, the triple categorization of intellectual capital has begun to receive few critiques for its suspected failure to comprehend the complete diversity of the key intangible value of recent organizations (Kianto, Ritala, Spender, & Vanhala, 2014). Moreover, there are another intellectual capital dimensions are gain the attention of the researchers in this subject that are: trust capital (Mayer, Davis & Schoorman 1995), entrepreneurial capital (Erikson, 2002), spiritual capital (Ismail, 2005), technological capital (Ramirez, 2010; Khalique, Shaari, & Isa, 2011; Ramezan, 2011), renewal capital (Kianto, 2008; Inkinen, 2016) and social capital (Bueno, Salmador & Rodriguez, 2004; Khalique et al., 2011).

Khan (2014) concludes that the importance of these components and it is decisive assets for the organization's success as well as the performance. As the literature has shown there are

several intellectual capital models. However, this study attempt in improving and develop the previous studies. Taking into consideration the main models (Kaplan & Norton, 1992; Bonits, 1996; Brooking, 1996; Saint Onge, 1996; Edvinsson and Malone, 1997, Sveiby, 1997; Stewart, 1998; Viedma, 2001). The three intellectual capital components, human capital, structural capital and the customer capital that amended by replacing customer capital to relational capital (Bhasin, 2008). In addition, it is argue that test of relational capital through separate internal and external dimensions is worthwhile, as they seek advice from value embedded in relationships with completely different stakeholders that are demonstrated to contribute to organizational performance in several ways (Inkinen, 2016).

Even though the offered models of Intellectual Capital are not fully alike and there is no accepted public theory of Intellectual Capital (Rykovska, 2016). However, this paper attempt to identify of the main intangible assets of the organization in order to guide the discussion about the most important intangible value drivers of the organization.

Further, Expanded Intellectual Capital Model (EICM) with abbreviations is shown in Figure 1. The components of intellectual capital are Human capital (HC), Structural capital (SC), Relational capital (RC), Social capital (SOC), Technological capital (TC), Spiritual capital (SPC), Renewal capital (RNC), Trust capital (TRC) and Entrepreneurial capital (ENC).

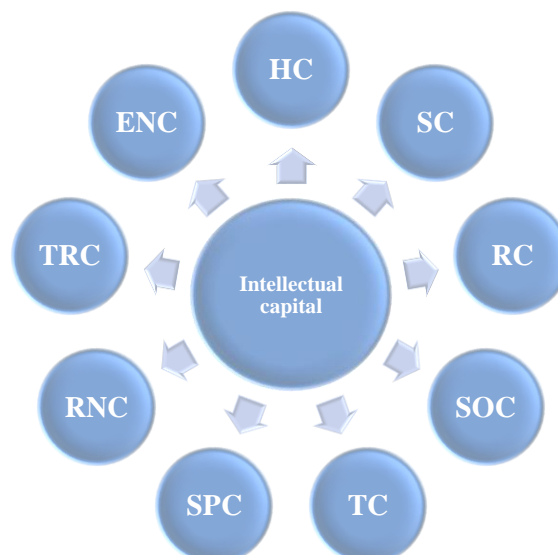


Figure: 1 Expanded Intellectual Capital Model

In addition, this analysis views the intellectual capital as a long-term investment (Tiwana, 2001). However, the developing the intellectual capital in organizations requires developing standards to be able to manage the intangible assets with the high degree of reliability and dependability (Al-Alak & Najim, 2011). Thus, supported the literature review, intellectual capital was capable to create the competitive advantage for the organizations (Bontis, 2001; Barney, 2001; Taie, 2014; Salavati, Ahmadi, & Rahmatinia, 2014).

2.3 Dimensions of Intellectual Capital

2.3.1 Human Capital

There is an exigency need for high class human capital in organizations (Maheran & Khairu 2009). In line with Fernandez, Castilla and Moore (2000), human capital is the knowledge that an individual obtained, and it is increasing his value contribution to the organization and his own performance. According to Rossi, Citro and Bisogno (2016), "Human capital is a

combination of aptitudes in pursuing target performances, sense of ownership and motivations". In addition, human capital is that the intangible asset at a corporation in terms of innovation (Edvinsson, 2000; Stewart, 1997; Brooking, 1996). Later, researchers further found that the human capital is that the main source of creativeness and innovation (Taie, 2014, Ahangar, 2010; Namazi, & Abrahimi, 2007). It depends on knowledge, skills, competencies, capabilities, and innovation of staff (Shaari, Abdul, Khalique & Isa, 2011; Isaac, Herremans & Kline, 2010; Choo, & Bontis, 2002; Bontis, 1998; Edvinsson & Malone, 1997).

In addition, human resources have a possible to convert to the human capital by proper management (Abhayawansa & Abevsekera, 2008; Coff, 1997). Roos et al., (1997) argues that staffs that are meant human capital generate IC through their competency, their attitude and their intellectual agility. However, the organizations seeking for competitive advantage have to be compelled to use the intellectual capital by taking action to its human capital (Ireland, Hitt, & Sirmon, 2003). According to Dzenopoljac, Yaacoub, Elkanj and Bontis (2017), human capital mainly influenced the market performance.

2.3.2 Structural Capital

Ross et al. (1997) defined structural capital as what remains within the company when staffs get back at nighttime. Bonits (1999) defined structural capital as all the non-human storehouse of knowledge in organizations, that embody the databases, organizational charts, process manual, strategies, routines and something whose value to the corporate is more than its material value. The structural capital depends on the innovation and process capital. Innovation capital means that how a company creates new product and services and the process capital refers to the system, tools and techniques of the organization (Edvinsson, & Malone, 1997).

Further, the investment of a corporation in technology, and its internal process can improve the structural capital; structural capital provides the organization potential to achieve in future competitive advantage by making value added to its product or services (Remezan, 2011; and Gannon, Lynch, & Harrington, 2009). Structural capital consists of "Systems & programs", "research & development" and "intellectual property rights" (Sharabati & Nour, 2013). According to Novas, Alves and Sousa (2017), structural capital has a positive and significant link with organizational performance. According to Ramirez, Tejada and Baidez (2014), structure capital is that the specific knowledge associated with the interior process of dissemination, communication, management scientific and technical knowledge within the organization. Structural capital includes procedures and routines supporting the decision-making process, the ability of achieving objectives and handling changes (Rossi, Citro & Bisogno, 2016).

2.3.3 Relational Capital

According to Seetharaman (2004), relational capital encompasses the external revenue generating aspect of the organization. Relational capital has the foremost challenge from other intellectual capital components to codify due to its external characteristics (Bontis, 1999). Relational capital is predicated on the relationships between organization and its customers (Edvinsson & Malone, 1997). It is the knowledge in relation with customers, suppliers, industry associations and stakeholders that has impact the organization. The other vital relationships within relational capital are staff, management, shareholders, public, institutions and associations (Bueno et al., 2004). Ross et al., (2001) illustrate that it is

important for the organization to own strong relation with its customer to achieve competitive advantage.

In addition, relational capital is a vital dimension that affects inward relationships of a corporation and the customer (Hsu, 2006). This can be the value reflected in customers' confidence of the organization's service or product (Chen, Zhu & Yuan Xie, 2004). Moreover, Ramirez, Tejada and Baidez, (2014) declared that the relational capital gathers the wide set of economic, political and institutional relationships between the organization and enterprises, non-profit organizations, local government and society in general. Further, according to Rossi, Citro and Bisogno (2016), relational capital is a combination of values, relationships and acts. Moreover, Inkinen, (2016) strongly recommend that "relational capital ought to be split into internal and external dimensions, as they regard value embedded in and derived from the relationships with completely different stakeholders".

2.3.4 Social Capital

Social capital is one of the most vital components of intellectual capital and it has significant contribution towards the firms' performances (Khaliq et al., 2011) and sustainable competitive advantage (Shipilov & Danis, 2006; Ireland et al., 2003; Nahapiet & Ghoshal, 1998). Social capital is the combination of relationships within the firm and with external entities that helps organizations by riveting knowledge and to gain access to resources (Nahapiet & Ghoshal, 1998). Bourdieu and Wacquant, (1992) defined social capital as a resources accumulated within the organization by a stable network of intra organizational relationships.

According to Nahapiet and Ghoshal (1998), social capital is a total of current and potential resources incorporated in, available in, and derived from the network of relations possessed by an individual or social unity. Paldam, (2000) declared that social capital is the glue that holds societies together. Cohen and Prusak, (2001) emphasized that social capital represents the value of human connections based on confidence and on personal networks. They stressed that without social capital innovation, sharing of knowledge and productivity is dramatically reduced in organizations (Yazdani & Yagoubi, 2011). Nahapiet and Ghoshal (1998) introduced 3 dimensions of social capital that is wide accepted like structural, psychological feature and relational. These dimensions of social capital produce the value of the intellectual capital of a corporation.

Bueno et al., (2004) stressed that it should be noted it must not be mistakenly identified social capital with structure capital or relation capital that derived from the relationships with agents such as customers, suppliers and competitors. Social capital is taking part in extremely important role within the development of intellectual capital in a corporation (Cohen & Prusak, 2001; Bueno et al., 2004). Social capital is that the most significant sources for organizations in achieving sustainable competitive advantages (Ireland et al., 2003). Thus, to study the social capital independently is giving high contribution to intellectual capital of the organization.

2.3.5 Technological Capital

Knowledge associated with use of innovation of production techniques, access and products technology is the main base of technological capital (Fernandez et al., 2000). Ramirez (2010) in agreement that technological capital is an intangible asset and it derives from technical knowledge. Within the same manner, Ramezan (2011) declared that technological capital is a

part of intellectual capital and could be a combination of knowledge related to the development and technical system of a corporation. It is supported the activities and functions associated with the development of product and services of the organization. Technological capabilities of organizations, particularly knowledge intensive organizations, are appeared as one of the essential foundations of their competitiveness (Afuah, 2002; Nicholls-Nixon & Woo, 2003). Bueno, Salmador, Rodríguez and De Castro, (2006) stated that technological capital is predicated on the research and development and information technological knowledge. Muiña and Barahona, (2008) argued that the higher technological knowledge of a corporation, the greater the protection of intellectual capital against imitation.

However, technological capital has positive impact on the performances of organizations and it's a significant contributor of intellectual capital (Bueno et al, 2006). Knowledge related to use of innovation of production techniques, access and products technology is that the main base of technological capital, which is intangible and play a crucial role within the competitive success of corporations (Fernandez et al., 2000). Therefore, on the basis of above mentioned literature, it is concluded that technological capital is one the most vital component of intellectual capital, and it is supported information technology (IT), knowledge research development (R&D) and protection rights. Technological capital might overlaps with structure capital through the innovation. According to Khalique et al., (2011) technological capital is a critical component of intellectual capital appeared in knowledge-based economy. In one word, technological capital could be a part of the intellectual capital that may be association with organizational performance outcome, and should study independently with intellectual capital as one of its dimension.

2.3.6 Spiritual Capital

According to Ismail (2005), spiritual capital is defined as “the intangible knowledge, faith and emotions embedded within the minds of people and within the hearts of organization which incorporates vision, direction, guidance, principles, values and culture”. Many researchers stated that spiritual capital considered as the vital component of intellectual capital (Ismail, 2005; Khan, 2014; Hashim, Osman, & Alhabishi, 2015). Ismail (2005) introduced spiritual capital as an additional component of intellectual capital that plays a vital role to boost the organizational performance of telecommunication sector in Asian nation. Spiritual capital is a combination of power, influence, spirit and knowledge which will gain through faith (Berger & Hefner, 2003). Fry (2003) stated that due to spiritual capital a leader can deploy spiritual resources in a social context and they follow God's will by following divine laws or values in their daily lives. Spiritual capital focused on the interrelationships, connectedness and mutuality for sustainable development with the view to attain companies' objectives" (Shamsuddin, Ibrahim, & Ridzwan, 2016).

Spiritual capital has consistence and definite purpose for folks like looking for meanings of life (Howard, 2002). Spiritual capital consists of happiness, forgiveness, kindness, faith, integrity, empathy and honesty (Mitroff & Denton, 1999; Kriger & Seng, 2005). Consequently, on the basis of literature reviewed it is concluded that spiritual capital is additionally a crucial component of intellectual capital, and it's taking part in significant contribution to the performance of organizations since of its connected with knowledge-based view, and base on intangible knowledge. It is mainly based on 2 dimensions like religious and moral values.

However, spiritual capital is the power and influence that are created by an individual or organization with the assistance of spiritual knowledge and religious beliefs (Liu, 2008). It has been highlighted, however, that the sustaining of competitive advantage for a longer time entails support provided by spiritual capital (Zymonik & Dobrowolska, 2015). Further, spiritual capital has shown based on the literature an impact on organizational performance and competitive advantage. Therefore, this paper considered spiritual capital as one dimension of intellectual capital and should measure independently.

2.3.7 Renewal Capital

According to Kianto, (2008) renewal capital is the resources of the organization that connected with innovation capabilities. In addition, Kianto, (2010) refer to renewal capital as the ability of the organization to renew whatever its product, services, process, strategies, management activities through their learning and creativity. Renewal capital is developed based on “Organizational Renewal Capital Inventory” ORCI method (Kianto, 2008). “Organizational renewal capital is predicated on knowledge-based view of the organization” (Spender, 1996). Further, the renewal capital connected with knowledge-based view through learning and discussion (Huber, 1991).

Thus, the renewal capital has multi associated with the intellectual capital components through innovation and creativity (human capital), the cooperation of organization stakeholders (relation capital), and with organization culture (structure capital). From this point of view, this paper assumed that to take renewal capital as independent dimension of intellectual capital and should measure separately, since it consider as the key issue of the modern organization competitiveness. This perspective shares the similarity with (Inkinen, 2016).

2.3.8 Trust Capital

According to Mayer et al., (1995) trust capital refers to the attribute of trust that adds value to the organization’s internal and external relationships. Trust is an antecedent of innovative work environments; it is an intangible, relational asset for cooperation between individuals (Savolainen & Lopez-Fresno, 2013). Intangible assets are managed by the organizations and are accumulated from the human capital, human capital is connected to an individual, the individual builds and breaks trust; however the advantages and unfavorable effects spread to groups and organizations. This particularly applies moral activities; an individual’s unethical actions propagate detrimental consequences to the organizational level and even the whole society (Savolainen, 2011).

Thus, trust capital connected with spiritual capital. Moreover, trust may be a way to produce loyal relationships that do not deteriorate or break simply. Within the long term, the steady and organization relationships from individuals', social and cultural intangible capital to be realised as inimitable competitive advantages (Nahapiet & Ghoshal, 1998; Savolainen, 2011; Eggs, 2012). In term of competitive advantage that has shown in literature trust capital is related to knowledge-based view discussion. From this perspective, that has been association with (Inkinen, 2016); this paper examines the trust capital independently for its value to the organization, and it consider as one of the intellectual capital components.

2.3.9 Entrepreneurial Capital

According to Erikson, (2002) entrepreneurial capital is increasing function of perceived entrepreneurial competence and commitment; forward to the presence of entrepreneurial

goals. Based on that, competence and commitment of entrepreneurial capital are the lays of foundation organization generation and performance (Erikson, 2002). Entrepreneurial capital is developed based on the Ulrich, (1998) intellectual capital model that outlined intellectual capital as the multiplicative function of competence and commitment as the most significant assets and resource of competitive advantage (Erikson, 2002). Further, these competence and commitment are associated with people (human capital) of the organization. As Erikson, (2002) refers that entrepreneurial capital is treated as heterogeneous resource, consisting of a group of human capital. The independent people who carry the competence and commitment they represent the entrepreneurial capital of the organization are ready for decision-making that provide them the flexibility to calculate the risks (Hughes & Morgan, 2007; Cesaroni, Del Baldo, Demartini, & Paoloni, 2015).

In competitive environment the individuals in organizations these days have to be compelled to evaluate the assumptions that utilized in decision-making (Ballantyne, 2012). In term of competitive advantage shown that entrepreneurial capital is related to knowledge-based view discussion by its (VRIN), valuable, rare, inimitable and non-substitutable resources (Barney & Hansen, 1994). Entrepreneurial capital shares similarity with intellectual capital components like human capital and structure capital (Inkinen, 2016). As a literature shown that entrepreneurial capital play a crucial role in organization performance and competitiveness. This paper is aspiring to study entrepreneurial capital as an independent component of intellectual capital.

3. Conclusion

This paper identified the intellectual capital components. Intellectual capital components are human, relation, structure, social, technological, spiritual, renewal, trust and entrepreneurial capital. Organizations with strong intellectual capital are better equipped to respond to dynamical and unpredictable market demands; these organizations have better opportunities from its competitors. However, all these components of intellectual capital are operating along towards achieving competitive advantage. Further, intellectual capital is the spine of the organizations; more studies should be encouraged in the field of intellectual capital. Thus, future research can apply this proposed Expanded Intellectual Capital Model in the organizations to further examine the impact of intellectual capital.

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