

Intellectual Capital as a Key to Manage the Knowledge.

رأس المال الفكري كأساس لإدارة المعرفة.

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Abstract:

In the last century and following the classical approach of Adam Smith labor; land and capital were considered as economic production factors. But today, researchers emphasize that the main source to achieve competitive advantage is based on a company's labor workforce also known as "Human resource". Knowledge management (KM) and intellectual capital (IC) are believed to influence each other, and the relationship between the two constructs is of vital importance to organizational effectiveness. The aim of this paper is to review the relationship between these concepts. Contrary to most of the prior KM-IC relevant research, this research proposes a model which determines the relation between KM and IC.

Keywords: Knowledge management-Intellectual capital .

ملخص:

في القرن الماضي وتبعاً للنهج الكلاسيكي لعمل آدم سميث؛ تم اعتبار الأرض ورأس المال من عوامل الإنتاج الاقتصادي. ولكن يؤكد الباحثون اليوم أن المصادر الرئيسية لتحقيق الميزة التنافسية يعتمد على القوى العاملة في الشركة والمعرفة أيضاً باسم "الموارد البشرية". يُعتقد أن إدارة المعرفة (KM) ورأس المال الفكري (IC) يؤثران على بعضهما البعض، والعلاقة بين الهيكلين ذات أهمية حيوية للفعالية التنظيمية. الهدف من هذه الورقة هو مراجعة العلاقة بين هذه المفاهيم. على عكس معظم الأبحاث السابقة ذات الصلة بـ KM-IC، يقترح هذا البحث نموذجاً يحدد العلاقة بين KM و IC.

الكلمات المفتاحية: إدارة المعرفة-رأس المال الفكري.

1. INTRODUCTION

The world transforms from an industrial to a service and knowledge-based economy and dot.com (internet based companies) that allow an increasing number of organizations regarding intellectual assets as tools to add value to their services, as opposed to physical assets such as machinery.

Although ;it is widely recognized that there is a new economy depending mainly on information technology, there is still no exhaustive method to measure intellectual capital, despite of a large number of proposals. The issue of measuring the intellectual assets that should appear on financial statements is still important. What we cannot measure we cannot manage without a method of capturing these softer assets, measuring and monitoring them to see if there are annual improvements. There is always the danger that they may be ignored and thereby; companies will not be effectively using their various resources, both tangible and intangible, to add value.

2. Definitions of knowledge:

Many researchers (For example Drucker 1993; 1995; Hamel 2002; Nonaka 1991; Pemberton and Stonehouse 2000) considered knowledge as the cornerstone for competitive advantages (Wilson J, 2005). Drucker (1993) argued that knowledge in one hand has replaced the old factor of production – labor, capital, and land. On the other hand it is viewed as the only meaningful resource in the new factor economy. Carlucci et al (2004) noted that the importance of knowledge assets and their management for company's competitiveness some shortcomings have to be stressed.

There is not only one definition of knowledge. The philosopher Plato defined knowledge as “perception and true judgment”. The definitions of Knowledge in the Oxford English Dictionary are: (1) Information and skills acquired through experience or education. (2) The sum of what is known. (3) Awareness or familiarity gained by experience of a fact or situation. Stewart (2000) mentioned that knowledge is a conclusion drawn from data and information. This knowledge hierarchy can be traced back in the back in the poetry “The Rock” by Eliot in 1934 (Sharma, 2008). It is a Data, Information, Knowledge & Wisdom (DIKW) hierarchy.

Where is the Life we have lost in living? Where is the wisdom we have lost in knowledge? Where is the knowledge we have lost in information? Where is the information we have lost in data.

2.1. The two major types of knowledge:

According to Nonaka and Takeuchi (1995) knowledge is formed and expanded through social interaction between tacit knowledge and explicit knowledge, using four steps to create knowledge. Tacit and explicit forms of knowledge are inextricably linked. Knowledge management depends complementally on these two types of knowledge tacit and explicit; they are like two sides of the same coin. The focus of knowledge management is to leverage and reuse knowledge r

Esources that previously subsist in the organization. In effect, these two types of knowledge are like two sides of the same coin, and are equally relevant to the overall knowledge of an organization:

2.1.1. Tacit knowledge:

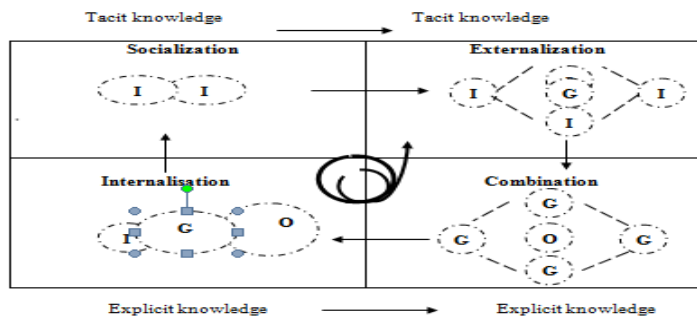
Tacit knowledge is difficult to formulate, to be put into words, text, or drawings (sometimes referred to as formal knowledge), “people know but they can't communicate all what they know”. The main matter of many authors of today is when did they try to describe the tacit knowledge and what is meant by it? Tacit knowledge contains ethics, skills, actions, procedures, ideas, values and emotions. This type of knowledge only exists in the human mind/body (Sanchez, 2004). It is difficult to teach and talk about this type of knowledge. Learning by doing is the main concept to teach this type of knowledge. One has to experiment or be trained to gain the experience.. For example riding a bike. In the beginning you fell of the bike a lot of times but by experiment and trying again and again, you learn how to balance on the bike. It can be described with another quote regarding tacit knowledge by Polanyi which is “*This is the usual process of unconscious trial and error by which we feel our way to success and may continue to improve on our success without specifiable knowing how we do it...*”. (Little et al. 2005). For example, to personalize tacit knowledge, McKinsey Company and Bain Company use people-to-people methods and encourage and reward contributions of the individual and process. This method works by enabling people to

work together to create realistic solution to the problem. This personalized tacit knowledge fits the company culture, customer needs and standard reporting methods. To be successful in this method; these two companies built worldwide networks of people to solve problems. The networks were connected so tacit knowledge could be shared face to face, over the telephone, by email and through video conferences. (Hansen et al., 1999)

2.1.2.Explicit knowledge:

Explicit knowledge described by the technical or academic data or information that is described in formal language, like patent, copyright, mathematical rules manuals.. . This type of knowledge or “know-what” usually shared through electronic methods or written documentation . Explicit knowledge is technical and requires a specific level of academic knowledge that is gained through structured education . Explicit knowledge is stored in databases and is accessed with high quality, reliable, fast information retrieval systems. This knowledge assets can increase the ability of the companies to solve many problems or connect people with valuable, reusable knowledge. In which required high level of monetary investments in the infrastructure needed to support information technology (Hansen *et al.*, 1999). The use of explicit knowledge assumes that there is a stable environment but marketplace competition, changing customer needs among other factors, reduces stability. (Smith.E, 2001).

Fig.1.Spiral Evolution of Knowledge Conversion and Self-transcending Process



I: individual; G: group; O: organization

Source: Nonaka.N& Konno .N.(1998), The concept of “ba”: Building a foundation for knowledge creation, California Management Review, P 43.

3.Knowledge management :

Knowledge management is a managerial tool that creates, transfers, transmits stores and applies knowledge, in a cause of providing the members of the company with real information to help them react and make the right decisions, in order to attain the company’s goals.knowledge management involves four processes: knowledge creation, knowledge storage, knowledge sharing and knowledge application of management; it is important to integrate the different members of the company in a multiple knowledge management process chains.

3.1.Knowledge creation:

The creation of knowledge is explained by different theories, which tend to approach the era of knowledge creation from either a technology perspective, including the knowledge discovery in data bases process and data mining (Benabou D, 2009), or from a people perspective, including Nonaka’s Knowledge Spiral.

3-2 Knowledge Storing: The second main knowledge management process identified through the literature is knowledge storing. Studies show that organizations must not only create knowledge but also store it, because this new knowledge created can be lost by the years (Quinck, 2008). It is often referred to as “organizational memory” and includes physical resources (like written documentation, databases, expert systems which store codified human knowledge, documentation contains organizational procedures and processes) and also non physical sources (knowledge stored in the heads of the employees is also referred as individual memory) (Alavi and Leidner, 2001, Quinck, 2008).

3-3 Knowledge Sharing: The third step in the knowledge management is the choice of the ways to share the knowledge created and stored. The meaning of knowledge sharing is the ability of the organization to obtain access to its own and other organizations knowledge, through a deep field of study on technology transfer and innovation, and the field of strategic management. The success in the knowledge sharing requires extend in the learning processes rather than simple communication; as an idea related to development and innovation need to be made locally. (Cummings, 2003) .

3-4 Knowledge Application: The last of the four main knowledge management processes identified through the literature and to be discussed is knowledge application.

Three concepts are mentioned to explain the application of the knowledge: Directives, Organizational routines and self-contained task teams.

4. Intellectual capital :

The term “intellectual capital” was first used by the economist John Kenneth Galbraith in 1969 (Bontis, 1998; Stewart, 2006; Steenkamp, 2007). Stewart (1997) defines intellectual capital as the intellectual material–knowledge, information, intellectual property and experience– that can be put to use to create wealth “Union Fenosa, a top Spanish firm, defines intellectual capital as “a collection of intangible assets that promote the organizational capability for generating profits now and in the future”. (Union Fenosa, 1999, Ordonez De Pablos.P)

A comprehensive definition of IC is offered by Brooking (1996). “IC is the term given to the combined intangible capital which enables the company to function”. Petty and Guthrie (2000) observed “IC is instrumental in the determination of enterprise value and national economic performance”.

Bontis (1998) explains that intellectual capital is composed of a system of inter-relational blocks (See Figure 2):

- human capital:

an organization’s tacit individual knowledge. This is defined as a combination of education, genetic inheritance, experience and attitudes about life and work. It is measured as a function of volume –Structural capital– tacit knowledge that embraces the organization. It recognizes the great variety of relationships required to manage the company in a coordinated manner. Without this, intellectual capital would only be human capital. YondtMA and Snell S A(2004) showed that there is a consistent support for the notion that human resource systems are fundamental in the development of intellectual capital.

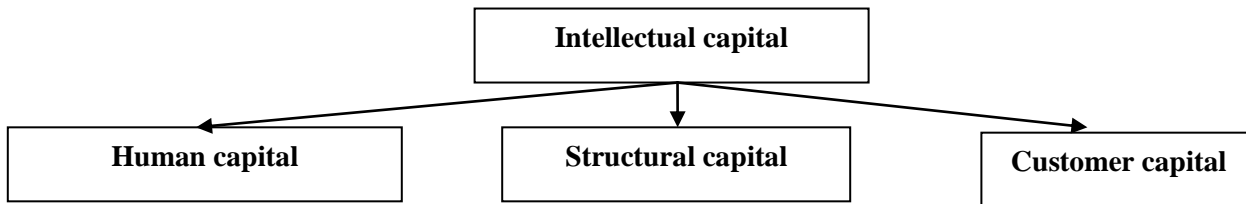
- Structural Capital:

The knowledge that have been used in daily task of organization is been called as the structural capital. It deals with the structure and system that available in the organization. The elements that involve in this capital are system and culture. According to 6, the companies that have the excellent structural capital will allow their workers to learn, make mistake and learn from

mistake in doing their task and at the end of the day, they will contribute to the growth of their companies. Some of this capital is protected under legal and right. In addition, this capital can be purchased and disseminated everywhere by the organization. This capital also helps the organization in generating the creative items to the customers (Nik, Alwi, Jannatul, Irwan, Nur, & Syazlinda, 2016).

– **Customer capital:** Comprehensive knowledge within the areas of marketing and customer relations. It includes established knowledge about customers, suppliers and industrial association or related governments. It can be measured as a function of longevity.

Figure 2: Components of Intellectual Capital (Bontis)



Source: Bontis, N. (1998), *Assessing Knowledge Assets: A Review of The Models Used to Measure Intellectual Capital*, *International Journal of Management Reviews*, Blackwell publishers, Vol 3, Issue 1.

1) **Human capital:** Knowledge that groups and people possess, such as the capacity to generate it, which it is useful for the mission of the organization.

2) **Structural capital:** Composed of knowledge and intangible assets derived from share processes, which are owned by the organization. This capital remains even when people leave.

- *Organizational capital:* Made up of natural and implicit, formal and informal intangibles. These structure and develop effective and efficient activity of the organization.

– *Technological capital:* Consisting of intangible directly linked with the development of the activities and functions of the technical, operational system of the organization.

3- **Relational capital:** knowledge incorporated in the organization and people as a consequence of the value derived from the relationship; with the representatives from the market and society in general.

– *Business capital:* the value of the relationships with the main connected agents in the business process.

– *Social capital:* Value of the relationships with the remaining agents in the organization's environment.

While Jan Khan M W (2014) in his exploration research, showed that there are six components of Intellectual capital namely human capital, customer capital, structural capital, social capital, technological capital and spiritual capital. **Spiritual capital** based on spirit, influence which can be created by a person or organization that contain guidance, ethics values and religion. And **Technological capital** is the set of hidden assets based on innovation and technical process. It is mainly based on R&D, infrastructure, intellectual property and innovation. (Khalique (2013))

5-The relationship between intellectual capital and knowledge management :

The relationship between IC and KM can be explained by the knowledge-based view (KBV) of the firm, which has been developed from seminal studies such as Simon (1965), Cyert

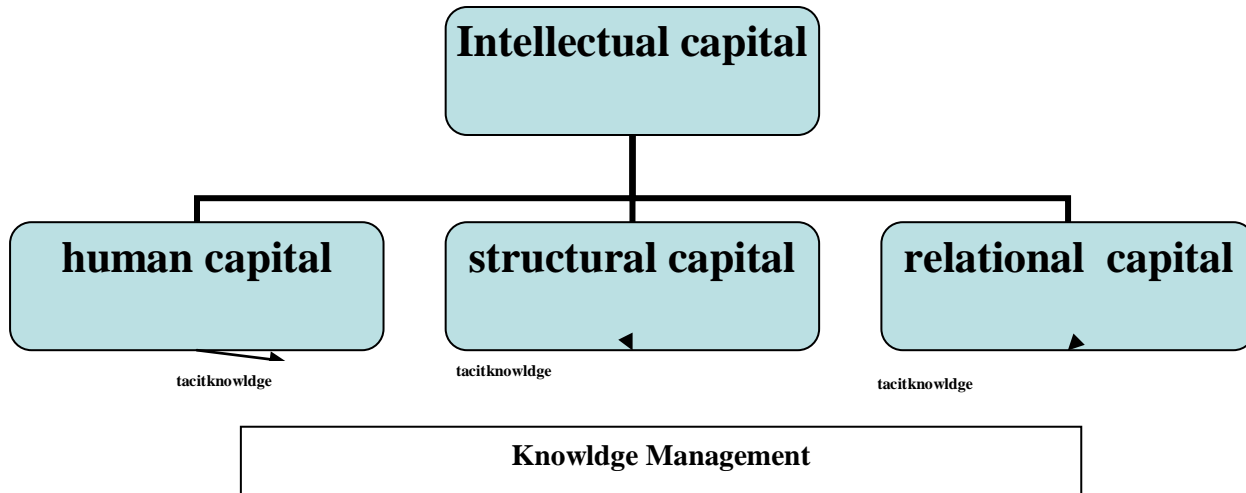
and March (1963), Levitt and March (1988), and Huber (1991). KBV also adopted a logic originating from the resource-based view (RBV) of the firm, which conveys a dual message.

Intellectual capital and knowledge management serve in the different purpose even though they have something in the similarities. Even different but the fact that we cannot deny is actually IC and KM is complement and relate to each other. The use of IC and KM is covering all aspects and factors in the organizational activities and processes. It starts from the process of knowledge creation to the leverage part. According to 7 knowledge management focus on the tactical and operational implementations of knowledge related activities. This process or step is concerning with the activities which will facilitate the knowledge creation, capture, transformation and lastly the use of the information. Intellectual capital and knowledge management is vital to an organization. The relationship will make the use of it to work together by aligning the knowledge management process and the intellectual capital elements. In addition, knowledge management also important in the process of intellectual capital developments and manipulation. Organizations need to fully understand the priorities in managing intellectual capital with the respect of managing the corresponding effective knowledge processes. The use of intellectual capital can only be implementing and achieve if the process is managed systematically. The most systematic KM approach must has exceed the lame limits of the management area and must also consider several factors that have impact towards the intellectual capital use and KM activities that has been implemented (Nik, Alwi, Jannatul, Irwan, Nur, & Syazlinda, 2016).

Each component of IC (i.e., human, structural and relational capital) can affect KM: **Human capital** enables KM because individuals within the organization can develop appropriate and needed KM processes (Argote et al., 2003), and can use their knowledge to improve KM (Nonaka & Takeuchi, 1995). It is defined as a combination of education, genetic inheritance, experience and attitudes about life and work (Bontis, 1998), in which reflect the tacit knowledge of the firm in which it is used in KM; The experience of existing workers with the organization's procedures and the manner in which the things are taken care of by these workers can add to making and utilization of knowledge inside an organization more than contracting another worker who is new to the organization. Aptitudes of workers are both profound and expansive, that is, their holders can investigate specific knowledge and their different applications. Individuals with different aptitudes are incredibly important for knowledge creation since they can coordinate assorted information resources and these individuals can consolidate hypothetical and useful information and to perceive how their insight connects with practical issues of organisations. Subsequently, they can grow their ability over a few practical areas, and along these lines make new knowledge. In light of the above writing, the accompanying hypothesis has been denoted as, there is a positive relationship between human capital and knowledge management processes (Mubarak & Samsudeen, 2020); Also human capital contains the social side in which facilitates KM because interpersonal interactions enable knowledge integration (Grant, 1996a), within-firm knowledge sharing (Na-hapiet & Ghoshal, 1998; Chieh Hsu & Rajiv Sabherwal, 2012), interfirm knowledge transfer (Santoro & Bierly, 2006; Santoro & Saparito, 2006; Chen, Shih, & Yang, 2009; Chieh Hsu & Rajiv Sabherwal, 2012), and knowledge creation (Nonaka, 1994; Chieh Hsu & Rajiv Sabherwal, 2012). **Structural capital** is tacit knowledge that embraces the organization. It recognizes the great variety of relationships required to manage the company in a coordinated manner. It is divided into organizational capital and technological capital. Organizational capital enables KM because the various forms of organizational capital, including transactive memory systems, organizational structure, and information technologies, can be leveraged in developing KM processes (Alavi & Leidner, 2001; Olivera, Goodman, & Tan,

2008;Chieh Hsu &Rajiv Sabherwal, 2012).**Relational capital contains** all the organizational knowledge about the stakeholders like customers , suppliers , competitors... in which is stored in IT tools and organizational memories ,this help and facilitate the KM process to transform tacit knowledge into explicit knowledge . (figure3)

Figure 3: the relationship between IC and KM



4. CONCLUSION

Nonaka and Takeuchi (1995) has been introduced the dimensions of knowledge which distinguishes between tacit knowledge and explicit knowledge. This research notes that the different components of IC contains these two types of knowledge in which facilitates the process of KM through the opinions' review of the researchers .The paper finds that human structural and relational capital effect the KM process, to give higher priority to the management of intellectual capital by taking a holistic view of all sources of knowledge that had the potential to add value and for the future positioning of the business units. The researchers emphasis the importance of intellectual capital as a key contributor to create wealth and a competitive advantage ,and to transform tangible resource into productive services. Therefore, increasingly the future success of organization will be dependent upon their intellectual capital

Intellectual capital is considered one of the new managerial concepts which have appeared throughout the last decade. This concept refers to producing success through using human abilities, organizational capabilities and customer relations

As Stewart said that the knowledge content of practically every thing "look at the knowledge content", of every goods and services. (Stewart, 1997) and from this perspective there is a need to use the intellectual capital application to achieve these goals successfully.

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