

Intellectual Capital in light of Creativity and Competitiveness: Overview of Organizations' Intangible Assets

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Abstract

This research paper addresses several issues related to intellectual capital including a historical overview, the interest in elusive and intangible assets, and the impact of latest technological progress associated with the information technology developments. Ralph Stayer, CEO of Johnsonville Foods Company was the first to use the term "intellectual property" to refer to the organization's intangible assets. This paper also identifies the concept of intellectual property being a set of all knowledge capacities of the organizations that help them achieve their goals. The intellectual property includes ideas, inventions, technology, general knowledge, computer soft wares and programs, designs, data skills, processes, creativity and applications in all organizations. The intellectual capital is knowledge that can be converted into profits. The components of this concept were identified as follows: Structural capital, human capital, social capital and the psychological capital. The paper also discusses various definitions provided by several researchers relating to intellectual capital, amongst them: Edvinsson & Malone, K. E. Sveiby, Y. Malhorta, T. Stewart, Despres & Channvel, and Mckenzie & Winkelen. Moreover, the researcher tackled different measures used in intellectual property assessment and classified them in the following clusters: (1) descriptive measures/scales that describe some traits and characteristics and are based on exploring views related to identify the impact of the intellectual capital on organizations' business (2) scales and models correlated to the intellectual capital and the intellectual property, which measure the intellectual capital components (3) market value scales and models which focus on the book value of knowledge assets and their market value (4) scales and models of knowledge revenues which are based on calculating returns on assets (ROA). The paper concluded stating that specific issues relating to companies and the nature of the market made it impossible to come up with certain results that can be generalized when making comparison among modern administrative trends or attitudes which defined the intellectual capital as intangible assets. Thus, the researcher urged researchers and parties interested in building up and upgrading companies' capacities to exert intensive efforts to boost investment in human capital for its key and influential role in accomplishing excellence and enhance the position of these companies.

Keywords: Intellectual capital and intangible assets.



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1. Introduction

Until recently, people used to think that development, progress, happiness and prosperity are but achieved by the accumulation of wealth, giant and successful projects and enterprises, namely the material gain and the financial capital. Many businessmen and practitioners built up their projects on such belief and this contributed to a large extent in achieving the remarkable success of the financial system and the associated economic prosperity in all wakes of life. However, this belief started to decline gradually, as a result of: he great technology developments and what is called "Computer revolution", the increasing importance of the information technology, and the evolving role of knowledge based on tangible and intangible assets in the recent and modern developments. As a result the concept of the Intellectual Capital emerged though it is not easily measured and evaluated. Hence, the technology revolution was behind introducing new international concepts such as Globalization and the importance in intangible assets increased and represent the largest proportion of companies and organizations' assets. The growing concern in the intellectual capital was a result of the development of modern concepts which argue that there is no growth without limit, as everything must have an end.

Moreover, the concepts of Growth Management which relates to help different business organizations and systems survive and grow up and the emergence of Sustainable Development motivated people to participate in building up their future and realizing the importance of a new kind of capital. People come to recognize that there is another type of capital that can grow up, be invested and upgraded that is the intellectual capital in their souls and minds as well as their relations with others and in the surrounding environment.

2. Historical Interest in Intellectual Capital

Not long ago, researchers, authors, and administration experts have not given the required importance and focus on intangible assets, except for dealing with some of them because of their impact on the business of several organizations such as patents, trademarks and intellectual property. The reason behind to lack of interest in identifying and addressing these assets, most specifically the concept of intellectual capital, can be attributed to:

- 1- The difficulty of measuring this capital and turning it into real and genuine capital.

- 2- The fear of being involved in an ambiguous and vague issue, since the intellectual capital is intangible asset whose impact on organizations is difficult to be clearly determined or identified.

The increasing consideration given to the intellectual capital can be due to the latest developments or what is called "Information Revolution", the growing importance of the knowledge role, and the interest in capacities, skills and individuals' knowledge being the real drivers for innovation, value and creativity. Such individuals are considered the "knowledge Makers" who are not employees of the organizations but their partners. Consequently, the intellectual capital has become the core of interest of giant technology companies which strongly depend on its employees' knowledge and capacities as bases for their progress and competitive advantage.

Such new change towards the intangible assets, most specifically the intellectual capital witnessed a rapid growth during the 1990s in the last century, mainly the focus of boosting the significance of organizations by their cognitive/intellectual assets. The emphasis also has been changing from natural resources investment into investing in intellectual resources and assets. Additionally, there is a decline in applying the law of decreasing revenues which relates to material commodity and an increase in applying the law of increasing return gained by knowledge and the intellectual capital.

Available literature related to the intellectual capital indicate that the term "intellectual capital" has been firstly introduced in 1990 by Ralph Stayer, a manager of Johnsonville Company for Foods, when he said: "In the past, natural resources were the most important national wealth components and the most significant assets of the companies, then capital represented by money and fixed assets became the most important components of companies and society. But now, natural resources, money and fixed assets are replaced by intellectual capital which is the most important component of the national wealth and the most expensive asset of corporates."

One of the reasons behind the upsurge of interest in the intellectual capital is the organizations' increased interest in attracting talented workforce capable of adding value to their abilities, capacities, talents and ideas that make them distinguished and highly qualified. Hence, some researchers believe that intellectual capital is a strategy that aims to shift from focus on the general category of workers to the so-called privileged or distinguished category, which represents an intellectual and knowledge-based asset that contributes in improving and upgrading the organizations' position and performance. In this regard, we dare say that the escalating consideration and interest given to intellectual capital is the result of many benefits gained by organizations, as it leads to achieve the following advantages:

- 1- Increasing creative capacity in organizations.
- 2- Attracting customers and strengthening their loyalty to their organization.
- 3- Enhancing competitiveness advantage of rendering timely and well-upgraded products, and reducing the time required to yield new products.
- 4- Reducing costs in order to sell products at competitive prices.
- 5- Improving and upgrading productivity.

In general, the intellectual capital requires that organizations adopt two different strategies:

- 1- **Defense Strategy**, which requires that organizations defend their intellectual property associated with the intellectual capital, which may include patents, property rights, trade secrets, and others. This entails legal action in order to protect and defend those rights.
- 2- **Offensive Strategy**, which is based on creativity, innovation, and constant enhancements relating to the nature of work or producing new products, so as to strengthen the competitive advantage of the organization.

This indicates that the strategy of intellectual capital is one of the most important functional strategies in modern organizations, which seek to become excellence-based organizations that are capable of accomplishing quality achievements.

The interest of intellectual capital in the Arab World began in the mid-1990s of the last century and this interest started by holding several scientific seminars and conferences that address the subject of the intellectual capital and highlighting its importance, development and preservation. Many scientific contributions relating to research and studies were submitted by academics or interested experts, besides other studies conducted by universities and various organizations interested in intellectual capital.

Among the most important scientific contributions is a book titled "*Intellectual Capital-Methods of Measuring and Techniques of Preservation*" issued by the Arab Administrative Development Organization (ARADO) in 2003, authored by Adel Al-Mafriji and Ahmed Saleh. The book was mainly focused on clarifying the concept of intellectual capital and the most important scales and measures used in its assessment.

In 2009, Sa'ad Al Enezi and Ahmed Saleh published a book titled "Management of Intellectual Capital in Business Organizations". In his book "Human Resource Management, Modern Management of Intellectual Capital", (Mustafa, 2004) stated that intellectual capital is the basis of development and outstanding production and the source of innovations and inventions that enhance the competitive advantage of organizations. He also considered the intellectual capital the most precious asset of contemporary organizations. Abbas (2004), in her article titled "The Correlation between Intellectual Capital and Inclusive Quality Management" stressed the need to give more attention to intellectual capital being the basis of achieving inclusive quality in organizations and accomplishing excellence. In the sixth chapter of his book "Knowledge Management- Concepts, Strategies and Processes", (Najm, 2008) discussed the issue of intellectual capital as an intangible asset, which contributes considerably to increasing the market value of organizations.

Globally, the interest in this modern concept has been increasing steadily and studies tend to address the impact of the intellectual capital on the development of organizations and on the community in general. For example, Joia

(2000) conducted a study in Brazil to measure the impact of the intellectual capital on the development of education technology there. Carroll and Tansy (2000), also studied the impact of the intellectual capital on the economic success accomplished by the Internet companies in America. Additionally, Prennan & Conell shed light on the intellectual capital applications in the domain of national policy-making for each country. In Australia, a research made by Petty and Guthrie (2000) indicated that the best strategy to be adopted by large companies in Australia has to take into account the identification and clarification of items relating to intellectual capital in their annual reports. In the Netherlands, the interest in the intellectual capital was early in the mid-1980s in the last century. A study of (Bukh *et al.*, 2001) was made on a group of Dutch companies indicated that the subject of intellectual capital was one of the most important issues which have a strong impact on the business of such firms. These companies are keen to set certain and clear criteria to deal with the intellectual capital and its measurement approach to guarantee efficient handling of this issue.

For the purpose of making comparisons between different countries regarding their interest in the intellectual capital, the researchers (Ho and Williams, 2003) conducted a study on a sample comprising (286) companies in South Africa, Sweden and England. The study examined the correlation between the physical capital and the intellectual capital, and detected the interest of the boards of directors in these companies in giving more focus on the intellectual capital.

3. Methodology of the Research

The methodology of the researcher was based on purely theoretical presentation aiming to shed light on the schools that addressed the intellectual capital from a functional and professional perspective. Moreover, he researcher seeks to examine the possibility of measuring the intellectual capital as an intangible asset which is possessed by the company and thus makes it unique and distinguished in terms of its market share and market position regarding the quality and significance of its intellectual capital. In this perspective, the researcher attempts to answer the main question of this paper, which includes:

The first main hypothesis: the intellectual capital strategy is one of the most important functional strategies in modern organizations, which seek to transform into organizations based on excellence and high quality achievements. The intellectual capital consists of three categories of intangible resources: human, organizational and relational resources.

The following sub- hypotheses are:

Sub-Hypothesis 1: The human resources (human capital) represent the first resource of the intangible resources/assets of the organization's intellectual capital in order to accomplish excellence and high standard achievements.

Sub-Hypothesis 2: The organizational resources (explicit knowledge, systems, work methods and procedures) represent the second resource of the organization's intangible resources/assets in order to accomplish excellence and high standard achievements.

Sub-Hypothesis 3: The relational resources (social capital: the organization's relationships with customers, suppliers and stakeholders) represent the third resource of the company's intangible intellectual capital in order to accomplish excellence and high standard achievements.

The second main hypothesis: The intellectual capital is responsible for determining the company's market value because it is related with intangible assets and plays the key role in maintaining and promoting the company's reputation and its position.

The following sub- hypotheses are:

Sub-hypothesis 1: The customer capital is the first factor that helps promote the company's reputation and its position regarding its impact on determining its market value.

Sub-hypothesis 2: The structural capital is the second driver for promoting the company's reputation and its position relating to its impact on determining the company's market value.

Hypothesis 3: The human capital is the third element which helps promote the company's reputation and its position regarding its influence in determining the company's market value.

4. Concept of Intellectual Capital

The domain of intellectual capital is one of the modern concepts that have been the core of interest since the nineties (1990s) of the last century, but because it is newly introduced, the definition of its concept is still subject to further research and study. Moreover, it is still at an early phase that requires more discussion, detection, and development as there is no proper agreement on its definition or components. Furthermore, many interested thinkers believe that intellectual capital is the same as human capital, as they do not distinguish between the two concepts.

The intellectual capital involves a group of workers who have distinguished knowledge, expertise and accomplishments that empower them to become the strategic resource to the organization wealth and prosperity as well as the community development in general. In his book titled "Intellectual Capital: New Wealth of Organizations" the researcher Stewart identified it as a cognitive and intellectual package which comprises: human capital, structural capital and customer capital. This agrees with the definition of the Joint Canadian Group as knowledge and strategy leaders, who stated that the intellectual capital is composed of: human capital, customer capital, and structural capital. This definition is also similar to what (Yassin, 2007) has suggested, that the concept of intellectual capital consists of three categories of intangible resources:

- ❖ Human Resources which represent the human capital

- ❖ Organizational Resources that represent explicit knowledge, systems and work styles and procedures
- ❖ Relational Resources that relate to the organizations’ ties with customers, importers and stakeholders, and it is also called the Social Capital.

Yondet defined the intellectual capital stating that it includes unique and distinguished capabilities of certain worker’s organizations, which enable them to give intellectual contributions, empower these organizations to increase their productivity and achieve high performance levels compared to their counterparts. Malhotra defined the intellectual capital as: a collective mental power which represents a package of knowledge, information, intellectual properties and experience that are considered the main raw materials of the modern economy. Furthermore, Endres believes that the intellectual capital represents knowledge assets that have the potential to transform technology from research into excellent and successful manufacturing.

Sullivan defined the intellectual capital as: the knowledge that turns into profit. The OECD has stated that the intellectual capital incorporates the economic value of two categories of intangible assets, namely, the organizational capital (structural capital) and human capital. Osterland described it to be a form of the Knowledge Capital, and a form of intangible assets. In this definition, the researcher argued that the three concepts have the same meaning. The researcher Ulrich regarded it as: a set of skills available in an organization and have a sprawling knowledge that empower the organization to compete globally by its competitive advantage in responding to customers’ requirements.

Thus, the intellectual capital incorporates all knowledge capacities of the organizations that help them achieve their goals and it consists of ideas, inventions, technology, general knowledge, computer soft wares and programs, designs, data skills, processes, creativity and applications in all organizations. The intellectual capital is knowledge that can be converted into profits.

In his book Knowledge Management (Concepts, Strategies and Processes), Najem cited the differences between the physical capital and the intellectual capital. He summarized these differences in Table (1):

Table-1. The difference between the physical capital and the intellectual capital

| Data | Physical Capital | Intellectual capital |
|-----------------------|--|--|
| Basic trait | Material, concrete and visible | Incorporeal, intangible and invisible |
| Site or location | Inside the company | -In individuals’ minds |
| Representing model | Machinery | -In individuals |
| Revenues/returns | Decreasing | Increasing |
| Wealth type | In resources | In thoughtfulness and attentiveness |
| Individuals | Laborers and craftsmen | Knowledge seekers and professional workers |
| Value | Value of utilization and value of exchange | Value of exchange during utilization |
| Strength and weakness | Longstanding utilization (weakness) | Course for self-reflection and consolidation (power) |

Source: Najem, Najem Abboud (2008). Knowledge Management (Concepts, Strategies and Processes), Second Edition, Amman: Al-Warraq Publishing and Distribution, p.289.

5. Components of the Intellectual Capital

Business organizations focus on the process of recognizing their market value because this determines the success or failure of their industry, as the market value of some companies represents more than double of their book value. This applies mainly on companies that are considered high-tech companies, and which rely primarily on implied and declared knowledge in their various operations and activities. The market value of the company is mainly based on: the financial capital and the intellectual capital. Though the financial capital measurement is an easy process, the process of identifying and measuring the intellectual capital is the most difficult problem. This can be attributed to the difficulty in identifying the capital components of the intellectual capital accurately, and hence it is hard to convert those components, as they are intangible assets (unmeasured and uncalculated), into intangible capital.

There are many classifications provided for the intellectual capital, and they include the components of the intellectual capital, amongst which are the following:

- 1- **Edvinsson and Malone's** classification which applies to Sweden's Scandia Insurance Company, that consists of five sets of intellectual capital measures, the first of which relates to financial characteristics, and the other four represent the components of the intellectual capital:
 - a) Capital of the process.
 - b) Customer capital.
 - c) Capital of renovation and development.
 - d) Human capital.
- 2- The classification of **Karl E. Sviiby**: which divided the intellectual capital assets into:
 - a. External Structural Capital, which includes alliances and relationships with customers, partners, suppliers and other external parties that the company deals with.
 - b. Human Capital, which includes capacities, knowledge, skills, expertise, and other assets that individuals possess.
 - c. Internal Structural Capital, which includes systems, processes, bases, data, internal documents and others.

- 3- **Y. Malhorta's** classification: This classification is similar to that stated by **Edvinsson and Malone** and is based on the fact that the intellectual capital consists of four components:
 - a. Capital of the process
 - b. Customer capital
 - c. Capital of renovation and development
 - d. Human capital
- 4- **Thomas Stewart** classification. Stewart: The most common and used classification, where Stewart identified three components of the intellectual capital, namely:
 - a. Structural Capital, which represents the explicit knowledge of organizations, including systems, patents, databases, procedures, learned lessons, organizational culture, etc. The structured capital is characterized by representing all the values that are maintained in the organization, even if individuals or employees leave work.
 - b. Human Capital, which represents the knowledge possessed and generated by employees, including capabilities, competencies, expertise, education, skills, training, and other talents of the personnel in the organization, which are considered implicit knowledge of individuals.
 - c. Customer Capital, which represents the value acquired from satisfied customers, who feel loyal to the company, as well as the added value by reliable suppliers, as well as external sources that provide added value to the company because of its distinguished relationships.
- 5- **Despres & Channvel** Classification: According to this classification, the intellectual capital consists of four components:
 - a. Human capital.
 - b. Structural capital.
 - c. Economic activity assets, which include the operations' facilities and distribution network of the organization.
 - d. Intellectual assets, including patents, trademarks, trade secrets and other intellectual properties that require legal protection.
- 6- **McKinsey & Winkelen** classification: The two researchers identified a set of equations to measure the different types of capital which represent the intellectual capital:

First: The equation of the measurement of the intellectual capital:

$$\text{Intellectual Capital} = \text{Human Capital} + \text{Structural Capital}$$

Second: The equation of the measurement of the structural capital:

$$\text{Structural Capital} = \text{Customer Capital} + \text{Organizational Capital}$$

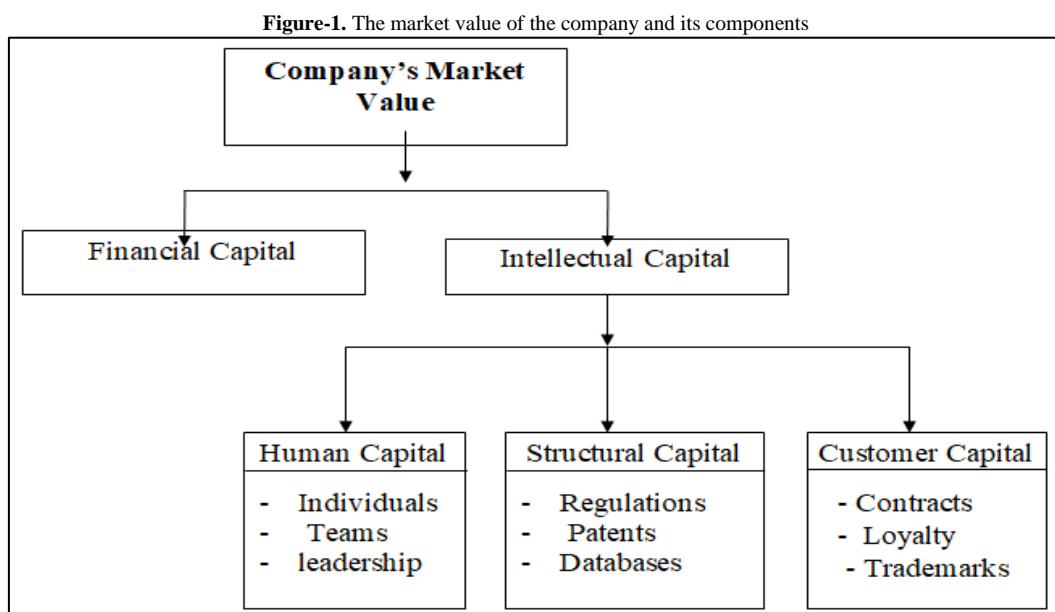
Third: The equation of the measurement of the organizational capital:

$$\text{Organizational Capital} = \text{Innovation Capital} + \text{Process Capital}$$

Fourth: The equation of the measurement of the innovation capital:

$$\text{Innovation Capital} = \text{Intellectual Property} + \text{Intangible Assets}$$

As aforementioned, the market value of the company consists of the financial capital and the intellectual capital. While financial capital determines the book value and the physical position of the company in accounting records, the intellectual capital is responsible for determining the company's market value because it is related to intangible assets and plays the key role in promoting the position of the company. This correlation can be represented as shown in [Figure \(1\)](#):



Source: (Najm, 2008). Knowledge Management Concepts, Strategies and Processes, Second Edition, Amman: Al-Warraq Publishing and Distribution, p 295.

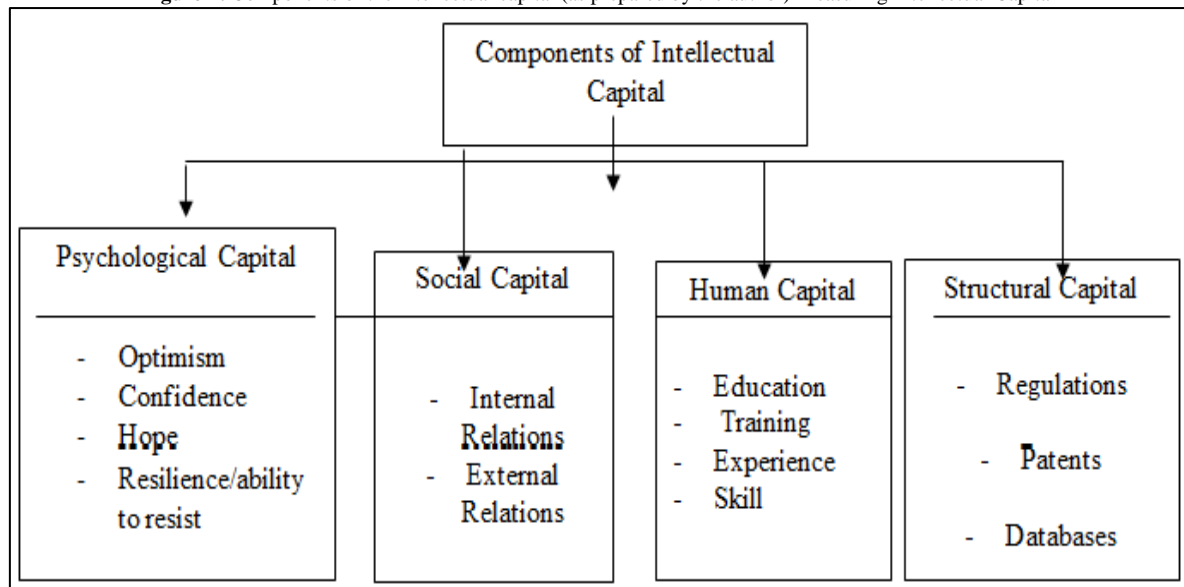
In this regard, it is worth mentioning that the view relating to the customer capital has been evolving, and this concept has become more inclusive and exceeds the relationship with customers. The concept of social capital

emerged, which includes the organization's internal and external relations and thus, the new concept (Customer Relationship) has become part of the organization's correlation with external parties, including customers.

Furthermore, a new concept connected to the psychological status of workers in organizations is emerging. Some realize it as part of the intellectual capital, as it is called (Psychological Capital) which consists of optimism, confidence, hope, and resilience. According to this modern approach, the intellectual capital consists of:

- 1- Structural Capital
- 2- Human Capital
- 3- Social Capital
- 4- Psychological Capital

Figure-2. Components of the intellectual capital (as prepared by the author) Measuring Intellectual Capital



The components of the intellectual capital can be explained in (figure 2):

Despite the high importance of the intellectual capital, and despite its great contribution to increasing companies' market value, we still notice that there is an obvious deficiency in introducing measurement applicable methods that can be also disseminated, compared with the measurement methods applied on other physical assets. This is due to the fact that the intellectual capital is an intangible asset which value may change from one organization to another and from one measurement case to another, and this is the main reason behind the absence of specific and clear measurement criteria.

In this context, many attempts have been made by researchers and those interested in measuring the intellectual capital. The most significant study was conducted by Edvinsson and Malone. However, the large number of indicators presented in their model made it a difficult model for application and generalization. The researchers used (120) indicators divided into five groups to measure the intellectual capital. All together, the most important and most widely used applicable models and scales were categorized by the researcher Najem into the following groups:

First: Descriptive measures which describe characteristics and traits, and focus on the surveys, opinion polls and attitudes. These criteria are used as bases for research questionnaires designed for this purpose; however, they are criticized for their inaccuracy and the lack of objectivity.

Second: Standards and models related to intellectual capital and intellectual property, which focus on the measurement of intellectual capital and its basic components: structural capital, human capital and customer capital. These scales are related to converting knowledge and intangible assets of the company and its various departments into forms of intellectual property, as this is the most specific and easier to use in achieving better results of companies. These measures include:

- Intellectual capital model, which measures every component of intellectual capital components.
- The model of converting intangible assets into intangible capital.
- Information directory - communications.
- Methodological approach to evaluate intellectual assets.

Some experts argue that these measurements have deficiency in some areas since they include some domains and calculate few components of intangible knowledge assets, such as (patents, trademarks and copyright) whereas they do not cover other areas, such as trade secrets that are protected by the force of law in order to hinder converting them into general knowledge.

Third: market value scales and models: They focus on the difference between the book value of the knowledge assets and their market value, or the difference between the market value of the company and the equity rights of the shareholders. These measurements are more dependent on financial and accounting fundamentals, such as the ratio of the market value to the book value and the intangible value. These scales do not include or all components of the intellectual capital that contribute in increasing the market value.

Fourth: Models and scales of the return on knowledge (ROA). These measures are based on the ROA calculated by dividing the pre-tax revenues on the tangible assets of the company, then comparing them with the average or the mean of the business or industry. The difference is considered a return on knowledge. Amongst these measurements are: the calculated intangible value, cognitive capital gains, value-added models (return on knowledge). However, they gauge the gross total of the components without specifying the contribution of each component separately.

Furthermore, many international organizations and institutions have tried to introduce intellectual capital standards or scales, including the World Bank, the Organization for Economic Cooperation and Development (OECD) and the European Commission. Their contributions led to setting up accounting standards for the intellectual capital. The Information Club of the most famous French institutions also conducted a study in 2006 on the assessment and measurement of the intellectual capital, and the results revealed that it consists of:

- 1- Relational Capital which includes relations with customers, suppliers, investors and partners.
- 2- Organizational Capital which involves procedures, curricula, techniques, culture, values and policies.
- 3- Structural capital that comprises trademarks, patents, and protected techniques.

Discussion on measuring the intellectual capital

The first main hypothesis argues that the intellectual capital strategies one of the functional strategies in modern organizations which seek to achieve excellence and high quality achievements. This argument is approved by Edvinsson and Malone who used the descriptive scales and measures to highlight the importance of the intellectual capital in modern organizations' strategies by exploring the opinions and attitudes of the targeted samples. Despite the weakness in the questionnaire which was the tool of the study, the models related to the intellectual capital and the intellectual property were more accurate and easier to use in generating better results to justify the increase in the organizations' financial return. The researchers applied a set of scales to convert knowledge into intellectual property and the intellectual capital model which measures every component of the intellectual capital components. They also applied a model to convert intangible assets into intangible capital and the methodological approach to evaluate intellectual assets. These models calculated some intangible cognitive assets such as: (patents, trademarks and copyrights). Nonetheless, these scales only calculate some components of the intangible knowledge assets, such as (patents, trademark, and copyrights), but do not calculate other factors such as trade secrets that are protected by the power of law in order to prevent converting them into public knowledge.

The scales and the models of the market value, which focused on the difference between the book value of knowledge assets and their market value, or the difference between the company's market value and the property rights of shareholders, since these scales are mainly based on financial and accounting fundamentals. However, such standards do not cover all components of the intellectual capital which contribute in increasing the company's market value. The scales and models of the return on knowledge are based on calculating the return on the organizations' intangible assets (ROA), then compare it with the industry mean and the difference will be considered a return on knowledge. Among these scales are: the calculated intangible value, gains of knowledge-based capital and the models of added value (return on knowledge). Some researchers criticize these scales and benchmarks because they focus on the overall features of components and do not focus on identifying the contribution of every component separately. Hence, we dare say that the argument of Edvinsson and Malone was serious and the most accurate compared with other types of measurements of the intellectual capital.

The second main hypothesis: This hypothesis assumes that the intellectual capital is responsible for determining the company's market value because it is related with intangible assets and plays the key role in maintaining and promoting the company's reputation and its position. The classification provided by Edvinsson and Malone was applied on the Swedish Scandia Insurance Company taking into account the measurements that represent the components of the intellectual capital, namely: the customer capital, the capital of innovation and development and the human capital). Karl Earl Svieby divided the intellectual capital assets into: External structural capital which includes allies and relationships with customers, partners, importers and suppliers and other external parties who deal with the company. Then, the human capital which consists of capacities, knowledge, skills, expertise and other properties of individuals, and finally, the internal structural capital which includes systems, processes, databases, internal documents and others.

Y. Malhorta classification is similar to that of Edvinsson and Malone which is based on the assumption that the intellectual capital contains four components: process capital, the customer capital, the capital of innovation and development and the human capital. However, Thomas Stewart classification is the most applicable and common, as Thomas identified three components of the intellectual capital: the structural capital, which represents the organizations' explicit knowledge, and includes: systems, patents, databases, procedures, learned lessons and the organization culture. The structural capital is distinguished for representing all values maintained by the organization, even after the employees leave their work in this organization.

The second component is the human capital which represents workers' knowledge and includes their capacities, competences, expertise, training and other career skills. Finally, the third component is the customer capital which represents the extent of clients' satisfaction and the employees' loyalty to the company. It also represents the added value generated by suppliers who promote the company's trade and other external sources that provide the company with added value for their distinguished correlations.

According to the classification of Despres & Channvel, the intellectual capital consists of four components including: the human capital, the structural capital, and the economic activity assets (which comprise processes' facilities and the organizations' distribution network) and the intellectual assets (that consist of patents, trademarks, trade secrets and other intellectual properties which need legal protection).

Mckenzie & Winkelen developed a set of equations to measure various types of the capital which if added together they constitute the intellectual capital. These equations are explained as follows:

First: The equation of the measurement of the intellectual capital:

Intellectual Capital = Human Capital + Structural Capital

Second: The equation of the measurement of the structural capital:

Structural Capital = Customer Capital + Organizational Capital

Third: The equation of the measurement of the organizational capital:

Organizational Capital = Innovation Capital + Process Capital

Fourth: The equation of the measurement of the innovation capital:

Innovation Capital = Intellectual Property + Intangible Assets

The researcher concluded that that the company's market value consists of physical capital and the intellectual capital. The physical capital determines the book value and the physical assets in accounting registers, whereas the intellectual capital is responsible for determining the company's market value since it is correlated with intangible assets and plays a vital role in promoting its reputation and position.

Although the intellectual capital has a high significance in enhancing the company's market value, it is still so hard to develop applicable means and mechanisms that can be generalized in the measurement of the intellectual capital as it was the case with other physical assets. This is due to the fact that the intellectual capital is an intangible asset which value can change from one organization to another and from one measurement case to another, and this is the main reason behind the difficulty in finding out specific and clear benchmarks/scales to assess the intellectual capital. Descriptive measures/scales describe characteristics and features and focus on opinion polls and attitudes' survey. They are also used by some research papers and questionnaires that are designed for this purpose. However, these scales are inaccurate and they lack objectivity.

Furthermore, the benchmarks related to the intellectual capital and the intellectual property focus on the measurement of the intellectual capital and its key components, and converting intangible knowledge and intangible assets into intellectual property forms, as this process is more specific and easier to use for the purpose of upgrading the results accomplished by companies. Nonetheless, these scales only calculate some components of the intangible knowledge assets, such as (patents, trademark, and copyrights), but do not calculate other factors such as trade secrets that are protected by the power of law in order to prevent converting them into public knowledge.

The scales and the models of the market value, which focused on the difference between the book value of knowledge assets and their market value, or the difference between the company's market value and the property rights of shareholders, since these scales are mainly based on financial and accounting fundamentals. However, such standards do not cover all components of the intellectual capital which contribute in increasing the company's market value.

Finally, the scales and models of the return on knowledge which are based on calculating the return on assets (ROA), but these scales calculate the overall features of the components without identifying specific contribution of each component separately.

International authorized bodies tried to conclude and identify some standards for the intellectual capital, amongst them were: the World Bank, the Organization for Economic Co-operation and Development (OECD) and the European Commission, and they were able to develop accounting standards for the intellectual capital.

Taking into consideration the momentum in the definitions of the intellectual capital, its components and the attempts to identify its measurement, the researcher tried to make comparison among the best schools that addressed this important issue. However, specific issues relating to companies and the nature of the market made it impossible to come up with certain results that can be generalized when making comparison among these companies. Hence, the researcher recommends that researchers and parties interested in building up and upgrading companies' capacities to exert intensive efforts to boost investment in human capital for its key and influential role in accomplishing excellence and enhance the position of these companies

6. Conclusion

The interest in the intellectual capital achieves gains and benefits for organizations, such as increasing organizational creativity, attracting customers and strengthening their loyalty to the organization and enhancing competitiveness because of timely produce of quality products. Additionally, the intellectual property reduces the time required to introduce and process new products and minimizes costs and this inevitably leads to improved productivity of these organizations. The researcher stresses that the intellectual capital is one of the most vital component of the national wealth components, the most valuable assets of nations and therefore the most effective and influential factor. Moreover, the intellectual capital strategy is one of the most important functional strategies in modern organizations which seek to achieve excellence and high performance, based on the fact that such capital is an amalgamation of ideas, inventions, technology, general knowledge, computer soft wares and programs, designs, data skills, processes, creativity and applications in all organizations. The intellectual capital is knowledge that can be converted into profits. Likewise, the intellectual capital is responsible for determining the market value of the company since it is related to the intangibles and plays a key role in promoting the company's position. It also provides scales, standards and models related to intellectual capital and intellectual property, which focused on the measurement of intellectual capital and its basic components: structural capital, human capital and customer capital, which is related to these standards such as converting knowledge and intangible cognitive assets in the company and its various sections into different forms of intellectual property. This is more specific and easier to use in order to achieve better and quality results for the company. Concluding, we dare say that these scales and measurements

include: transformation of knowledge into intellectual property, model of the intellectual capital, which measures every component of intellectual capital components, as well as the model of converting intangible assets into intangible capital, and the methodological technique of assessing intellectual assets.

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