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Analytical study of models for classification and measurement of intellectual capital

دراسة تحليلية لنماذج تصنيف وقياس رأس المال الفكري

Etude analytique des modèles de classification et de mesure du capital intellectuel

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ملخص:

تهدف هذه الدراسة إلى تحليل نماذج تصنيف وقياس رأس المال الفكري، اعتمادا على المنهج التحليلي للدراسات السابقة التي أجريت على عنصر رأس المال الفكري باعتباره من أهم متغيرات اقتصاد اليوم القائم على المعرفة.

وتوصلت الدراسة إلى أنه هناك اختلاف في نماذج تصنيف مكونات رأس المال الفكري والتي بدورها أدت إلى ظهور عدة نماذج قياس لم يلقى أي منها لحد الأن الاجماع بسبب الطبيعة الديناميكية لرأس المال الفكري.

الكلمات المفتاحية: رأس المال الفكري؛ رأس المال البشري؛ رأس المال الهيكلي؛ رأس مال العلاقات.

Abstract :

This study aims at analyzing the models of classification and measurement of intellectual capital based on the analytical method of previous studies conducted on the element of intellectual capital as one of the most important variables of today's knowledge-based economy.

The study concluded that there is a difference in the models of classification of components of intellectual capital, which in turn led to the emergence of several measurement models, none of which has yet received consensus due to the dynamic nature of intellectual capital.

Keywords : intellectual capital; human capital; structural capital; relationship capital;

Résumé :

Cette étude vise à analyser les modèles de classification et de mesure du capital intellectuel basés sur la méthode analytique des études antérieures menées sur l'élément du capital intellectuel comme l'une des variables les plus importantes de l'économie basée sur la connaissance d'aujourd'hui.

L'étude a conclu qu'il existe une différence dans les modèles de classification des composantes du capital intellectuel, ce qui a conduit à l'émergence de plusieurs modèles de mesure, dont aucun n'a encore fait l'objet d'un consensus en raison de la nature dynamique du capital intellectuel.

Mots clés : capital intellectuel ; capital humain ; capital structurel capital relationnel ;

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Introduction:

The measurement of the value of institutions currently usually depends on the book entry. According to which, the value of the institution is measured through the financial information published in its financial statements, but relying on this entry has sparked many discussions and criticisms because it does not reflect the real value of the institutions due to its limitation to measuring tangible assets. Some are only intangible assets. This is what has led many to say that accounting must think of developing to keep pace with the current economic life, which is characterized by the dominance of knowledge and information technology economics. The current accounting thought is still closely related to the era of the physical economy, in which the machine and the physical means are considered as the most important components of it, although today's economy has become more dependent on intellectual assets whose value has exceeded the value of material assets, especially among service institutions. This is what prompted many researchers to try to study the gap between the values of the physical assets shown in the accounting statements and the market value of these institutions and try to explain why the investor is willing to pay sums of money that far exceed the value of the institution's physical assets. All studies on this topic have agreed that this difference between the market value and book value is due to intangible intellectual assets that are not mentioned in the accounting statements that achieve a competitive advantage for one institution over another.

- **Research problem:**

Despite the recognized importance of intellectual capital in today's economy, the process of measuring it witnesses many difficulties and differences among researchers. Therefore, this study attempts to answer the following main problem: **What are the differences between the classification and models Measurement to intellectual capital? What is the best scale and rating model?**

- **Study hypotheses:**

To answer the problem at hand; the study sets out the following hypotheses:

H1: The multiplicity of models of the components of intellectual capital has resulted in multiple measurement models, which makes it more difficult to choose the appropriate measure.

H2: Due to the dynamic nature of intellectual capital and the difference in its components from one institution to another, there is no single model that is applicable to all institutions.

- **The importance of studying:**

The importance of this study lies on the fact that it is related to a fundamental variable in today's knowledge-based economy, which is the intellectual capital that has become a source of great interest today on the part of researchers and managers, as it is one of the scarce resources that should be attracted, developed and preserved. The importance of the study also lies on the fact that it focuses on the element of measuring intellectual capital, which is the main obstacle for institutions to recognize and disclose in their financial statements because the thing that cannot be measured; cannot be managed, recognized, or disclosed.

- **Objectives of the study:**

The study aims at conducting an analysis of the various classification and measurement models of intellectual capital, trying to find differences between them, and identify the best ones.

- **Study Approach:**

Regarding the nature of the topic, and in order to achieve the research objectives, reliance will be placed on the following research approaches:

- Descriptive method: To study the topic from a theoretical side;
- Analytical method: To evaluate the various models for classification and measurement of intellectual capital;
- The comparative curriculum: To study the differences between the various models;
- The inductive approach: To prove the validity of the proposed hypotheses.

- **Study structure:**

To address the problem of this study, this research paper will be divided into three main parts:

- The first part is devoted to the theoretical study of the concept of intellectual capital in terms of definition, characteristics and importance;
- The second part is devoted to study models for classifying the components of intellectual capital;
- The third part is devoted to studying models for measuring I.C.

1- Theoretical rooting of intellectual capital:

In this element, the theoretical rooting of intellectual capital will be addressed by addressing its various structural, functional and accounting definitions, as well as its importance and various characteristics.

1-1. The concept of intellectual capital and its importance:

The concepts related to intellectual capital differed and raised a lot of controversy because of the multiplicity of viewpoints associated with it, and the different directions and sides of its study. There are those who look at it from an administrative side and others look at it from a financial, economic or accounting side. This is what led to a difference among researchers themselves in developing an agreed definition of I.C, and the reason for this difference can be attributed to a set of factors, including:

-The novelty of the topic of intellectual capital;

-The diversity of researchers 'fields in their study of intellectual capital.

There are those who deal with it as knowledge management and an added value for the institution, and there are those who study it through its components and methods of measurement and management. Moreover, there are those who study it in terms of its impact on the performance of institutions and their competitiveness;

-Lack of agreement on the components and elements of I.C.

-Intellectual capital is linked to other scientific branches such as business administration, psychology, sociology ... that leads to different definitions according to the different scientific branch that the researcher follows.

As a result, three directions can be drawn up in developing definitions of intellectual capital:

1-1-1. The first trend: structural definitions:

This trend in developing a definition of I.C depends on the components of intellectual capital and the elements upon which it is built.

Therefore, we find that there are those who define it as the capital that consists of human capital, structural capital, and relationship capital, such as McKenzie (Mckenzie, 2004), Sveiby (Sveiby, 2001) , Stewart (Stewart, 1997, p. 52) , Guthrie (Guthrie, 2001, p. 29) , McElroy (Mcelory, 2002, p. 118) , Chen (chen J, 2004, p. 28),... and others.

Others define it as the capital that consists of human capital; relationships capital and scientific assets (including intellectual assets and intellectual property), such as Despres (Despres Charles & Chauvel D, 2000, p. 317), Malhorta (Malhorta, 2001, p. 18) , brooking (Brooking, 1997, p. 12), Mitchell (Mitchell, 2010, p. 82),... and others.

By studying these constructive definitions of intellectual capital, we find that there is a quasi-collective agreement on some components and a difference in others. Human capital and relationship capital (there are those who call it social capital) are almost collectively agreed upon as one of the basic components of intellectual capital. While with regard to structural capital, there are those who separate it into other types such as scientific assets, renewal and development capital, organizational capital, creative capital, and in our view all these elements are parts of structural capital.

Therefore, we say that intellectual capital defined constructively as the capital that consists of human capital, structural capital, and relationship capital, and this is the classification that we will rely on in our study.

1-1-2. The second trend: Functional definitions:

According to this trend, I.C is defined depending on the results achieved or to be achieved and the role it plays in the institution. From the definitions of this trend, we find that there are those who define it as a source for achieving wealth and maximizing enterprise profits, such as Bontis, Pablo.

Some researchers define the IC as a source that facilitates the adaptation of the institution in its changing environment and guarantees a competitive advantage if it is able to control it and improve its management such as Zesolt (Zesolt, 2003, p. 32), Edvinson (Edvinsson & Malone, 1997, p. 22).

Others describe it as a strategic resource that enables the institution to correct its weaknesses, enhance its strengths, and achieve high levels of performance compared to similar institutions in terms of physical assets, such as Mayo (Mayo, 2000, p. 42) , Guthrie (Guthrie, 2001, p. 8).

These definitions have in common the fact that they define intellectual capital based on its role and importance within the institution. This importance can be briefly mentioned in the following points:

- It is considered as a source of wealth; Intellectual capital currently considered as the main maker of wealth, unlike what was in the material economy, where machine and land were the source of wealth creation;
- It contributes to maximizing enterprise profits by ensuring that it has a competitive advantage in the market through its innovations and its contribution to improving the enterprise's productivity

and reducing costs. Therefore, we find that some studies express it in terms of competitive capital or competitive assets.

- It ensures the establishment to adapt to the economic variables of the environment in which it operates and under conditions of uncertainty;

1-1-3. The third trend: accounting definitions:

The owners of this trend relied on developing a definition of intellectual capital based on an accounting view that depends on how it measured or disclosed in the financial statements.

We find those who define it as the difference between the institution's market value and its book value (Chen, 2004, p. 159).

Others defined it as intangible assets that do not appear in the financial statements of the company even though these assets represent a value from the investor's point of view that is willing to pay them in addition to the book value in exchange for buying this company or part of it. (Ashton, 2005, p. 19) and (Mayo, 2000, p. 62).

It is also defined as the difference between the company's market value and the cost of replacing the company's assets (de Pablos, 2002, p. 23).

Others define it as goodwill resulting from achieving extraordinary profits or above the normal rate of return on investment prevailing in the field of activity in which the company operates (Shill, 2009, p. 4) and (Xera, 2001, p. 15).

Thus, IC can be defined depending on the three previous trends as the monetary value added to the value of the physical assets, which the investor is willing to pay because of what the company has in terms of human; structural and relational intellectual assets that are not disclosed in the financial statements but have a role in obtaining financial flows, significant in the future through its ability to enhance the competitive position of the company.

1-2. Characteristics of intellectual capital:

The most important obstacle standing in the way of accounting for IC, whether in terms of recognition, measurement and disclosure, is due to its characteristics that differ greatly from the characteristics of physical capital, and the most important of these characteristics can be mentioned in the following points:

-It is characterized by being intangible and expressing operations and focusing on the future, unlike physical, tangible capital expresses events and focuses on past events;

-It is characterized by a high degree of risk compared to physical assets due to the large interval between investing in it and collecting cash flows associated with it (الغول, 2009, p. 30);

-Increases with use; as the knowledge economy is considered an economy of abundance, the opposite of the material economy, which is characterized by depreciation, as the greater the use and employment of intellectual capital, the greater the discovery of other knowledge (نجم, 2005, p. 141).

-Intellectual capital is characterized by scarcity and cannot be easily imitated, nor can it be substituted for it;

2 -The components of intellectual capital:

As mentioned earlier; there is a difference between researchers about the components of I.C, so we will choose the model that divides intellectual capital into three basic components: human capital, structural capital and relationship capital. Stewart is the first who developed this division in 1997 and has since received support from a large number of researchers.

2-1. Human capital:

it's concept: Bontis defined human capital as the sum of the organization's capabilities to extract the best solutions from the knowledge of its workforce, and it can develop through brainstorming, re-engineering processes and improving personal skills (Bontis, 2000, p. 63).

the components of human capital: Despite the agreement among researchers that human capital is considered one of the most important components of intellectual capital, there is a difference between them in determining the components of human capital. In this regard, we will try to limit its components based on a group of studies and calculate the number of iterations, and the studies that have been relied on are studies of: (Chauvel,2000)**;** (Edvinson lief, 1997); (Seveiby, 1998); (Malhorta, 2003); (Brooking, 1997); (Stewart, 1997); (Guthrie, 2000); (Mayou andrew, 2000); (Elory, 2002); (Sveiby, 1997); (Brooking A, 1997); (Edvinsson & Malone, 1997); (Guthrie & Petty, 2000); (Xera, 2001); (Mayo, 2000); (McElory, 2002).

After analyzing these eighteen studies, the number of occurrences of the components of human capital can be stated in the following table:

Table -1- Frequencies of the Human Capital Components

Element	Number	%	Element	Number	%
Skills	**11**	**61%**	Capacity	**10**	**55%**
Knowledge	**13**	**72%**	experience	**12**	**66%**
innovation and creativity	**8**	**44%**	Employee satisfaction	**2**	**11%**
Motivation	**1**	**5%**	Leadership	**1**	**5%**
staff	**1**	**5%**	wisdom	**1**	**5%**
Education	**1**	**5%**	Work teams	**5**	**27%**
Competencies	**2**	**11%**	Qualifications	**2**	**11%**

Source: Prepared by researchers.

It is evident from this table that the basic components of human capital are the most recurring elements: knowledge, experiences, skills, capabilities, innovation, creativity and work teams.

2-2. Structural (regulatory) capital:

it's concept: Structural capital is the basis by which human capital can perform its tasks. Structural capital is embodied in a set of operational, manufacturing and administrative systems that enable the institution to move, use human capital and ensure optimal use of its performance. We find that some researchers have used other vocabulary to denote structural capital, such as: infrastructure assets (Brooking), Innovation capital (Joia), Internal structure capital (Sveiby), Structured assets (Sullivan), Structural resources (Harrisson), Operations capital (Chen)...

Stewart defines Structural Capital as the knowledge that is not transferred home at night at the end of business hours, in contrast to human capital, and that it includes processes, activities, and policies that represent all of an organization's expertise (Stewart, 1997, p. 12).

Components of structural capital: as with the components of human capital, the components of structural capital are also different among researchers. By relying on previous studies that we have classified the components of human capital, the basic components of structural capital can be stated depending on the number of iterations, as shown in the following table:

Table -2 - Frequencies of Structural Capital Components

Element	Number	%	Element	Number	%
Administrative operations	**9**	**50**	Information Systems	**7**	**39**
Organizational Structure	**4**	**22**	Enterprise culture and values	**8**	**44**
Strategies	**1**	**5**	Buildings	**3**	**16**
Software	**2**	**11**	Copyrights	**1**	**5**
Investments	**1**	**5**	Patents	**2**	**11**
Trademarks	**2**	**11**	Information Systems	**1**	**5**

Source: Prepared by researchers.

Here, we notice that the basic components of structural capital are: administrative processes, the organization's culture and values, information systems, and the organizational structure.

2-3. Relationship capital:

It's concept: Researchers call it several other synonyms, such as the external structure (Brooking, Xera), External Capital (Seiby), Relational Capital (Joia), Relational Resources (Fletcher), Customer Capital (Saint onge).

It refers to the relationships that bind the organization with stakeholders such as suppliers, government agencies, investors, customers, distribution channels, and strategic alliances.

Components of Relationship Capital

Based on the aforementioned studies; the components of relationship capital can be extracted depending on the number of iterations as follows:

Table -3 - Frequencies of Relationship Capital Components

Element	Number	%	Element	Number	%
Relationship with customers	**8**	**44**	Strategic alliances	**5**	**27**
Relationship with investors	**1**	**5**	Relationship with suppliers	**5**	**27**
Customer satisfaction	**4**	**22**	Relationship with departments	**1**	**5**
Market intensity and share	**1**	**5**	Distribution channels	**1**	**5**
Competitive capabilities	**1**	**5**	Conventions	**1**	**5**

Source: Prepared by researchers.

Through this table and after merging the relationship with customers with the satisfaction of customers as expressing the same relationship, we find that the total number of occurrences for the relationship with customers is twelve (12) iterations, which represents the largest percentage of the number of iterations. Therefore, we find that many studies focus on relationship capital on the relationship of the institution to the customer only, and it is called the client capital, and it becomes clear from the previous table that the components of relationship capital are the relationship with customers, the relationship with suppliers and strategic alliances.

3- Models for measurement of intellectual capital:

Proceeding from the idea that what cannot be measured cannot be managed; In view of the great importance that intellectual capital occupies in today's economy, it has become imperative for accounting to keep pace with this change in the business environment, as the existing accounting systems are directed to dealing with tangible assets and only a few intangible assets. Therefore, we note that there are great efforts being made in the academic and professional fields to try to reach the foundations and models for measuring intellectual capital and its components, and despite the

great progress that has been made in this field, there is still no agreement on developing a unified measurement model that has general acceptance.

3-1. The concept of accounting measurement of IC:

The Association of American Accounting measurement defined accounting measurement as "the correlation of numbers with past, current and future events based on past or current observations and according to specific rules." Which means that the accounting measurement must be in line with the assumptions and recognized accounting principles and it requires the presence of the knowledge, experience and skill necessary for those who practice accounting measurement.

As for the accounting measurement of in IC, and before defining it, it must be noted that there is a difference between the measurement and evaluation of IC. The concept of measurement focuses mainly on how the institution measures its performance and how to disclose it in order to help this information improve management knowledge. As for the concept of evaluation, it is mainly concerned with determining the economic value of the institution and its tangible and intangible assets, and it is usually directed to external parties (العنزي& صالح, 2012, p. 274).

So the accounting measurement of IC is a process of measuring the economic benefits that the institution achieves not from its material assets, but from the implicit and explicit knowledge that the members of the institution possess, whatever their position, in addition to the economic flows that come from the relationships that it has with others.

3-2. The importance of measuring intellectual capital and problems associated with measurement:

Researcher Achtone (Ashton, 2005, p. 41) says "Institutions that are able to create and use a set of financially justified measures to guide their knowledge management activities will lead them to excel in the long term" (زلماط, 2017, p. 139). From this, it is noticed that the good management of I.C creates a competitive advantage for the institution compared to its counterparts from other institutions. However, good management and management of this resource is not possible if there are no means for measuring, evaluating and evaluating it for use in making decisions and preparing business plans from this point of view. Therefore, the error in measuring the intellectual capital leads to evaluate the new shares without their real value.

Despite this great importance to measure intellectual capital, it faces many difficulties and problems, including:

-The lack of an efficient financial market for most of the items of intellectual capital that would allow the market value to be known;

-The low level of objectivity and reliability of intellectual capital items due to the difficulty of determining their material value and relying on personal judgment in their evaluation.

-The relative importance of the components of intellectual capital among institutions, as one of its components may be very important for a company while it is not important for another company, which leads to the inability to objectively compare between institutions.

-The difficulty of evaluating each component of I.C separately due to the overlap between them, which leads to a comprehensive assessment of its value and this, is inconsistent with the requirements of IAS 38, which stipulates capitalizing intangible assets separately;

-A high degree of uncertainty about the expected benefits from elements of intellectual capital.

Today, we find many serious attempts to establish a correct basis that enables intellectual capital to be measured due to the importance it has acquired, some of which can be mentioned through the following points:

- Achieving a measurement of the value of intellectual capital enables us to determine the value of the institution more accurately. In the knowledge economy, knowledge constitutes a large part of the value of the institution. We find today that some institutions do not possess large physical capital, yet we find their value on the stock market to be very large, such as Microsoft. Facebook company;
- The process of evaluating and measuring intellectual capital is useful in linking knowledge to performance and determining the role and impact of intellectual capital components in achieving the organization's strategic goals through indicators of competitiveness, business innovation, organization growth, market share,...;
- It contributes to providing decision makers with information on the quality of intellectual capital, which leads to reducing the state of uncertainty, which contributes to increasing the efficiency of management (علوان, 2018, p. 22).
- Determine the expected return on investment in intellectual capital components;
- Enhancing trust with external parties, especially shareholders and lenders, thus ensuring continuity of financing (زلماط, 2017, p. 56);
- Measuring intellectual capital provides quantitative measures of the behavior of individuals within the organization that are used to predict their behavior in the future. It is also considered one of the tools for identifying strengths and weaknesses in employees' performance, which contributes to developing plans to revitalize their performance and develop their efficiency.
- Intellectual capital measurement models enable the measurement of many components that are not measured by traditional accounting methods, such as measuring human capital, structural capital, and others. These models provide the organization with tools to accurately measure its performance.

3-3. Classification of intellectual capital measurement models:

According to the increasing importance of intellectual capital, many researchers have tried to develop models and measures that can be relied upon in measuring it. However, despite their multiplicity, these models have not received general acceptance, and when analyzing the reached measurement models, we find that among them are what are descriptive measures that include non-financial indicators and we find another type of model that contains financial indicators.

The researcher Roos notes stressed the need to build an effective model for measuring I.C that includes the presence of both financial and non-financial indicators in a way that reflects the institution's operations in light of the effects of the knowledge economy (De Roos, 2005, p. 30)

The researchers differed in the method of classifying these models, as the author classified them Pazdzior 2012 to collective models and analytical models; That is, he classified the measurement models by focusing on the direction of the measurement process, whether through aggregation or analysis. The collective models depend on calculating the differences between the market value and the book value of the institution, while the analytical models depend on analyzing the causes of the increase in profits to arrive at results related to the Intellectual capital.

As for Williams and Luthry have categorized the sizing models into four main groups:

- **Direct measurement models; Market value models**; Return on assets models ROA and Scorecard templates;

According to this classification, these measurement models can also be classified into:

- **Financial methods:** These are direct measurement models, market value models and return on assets models.
- **Non-financial methods:** These are scorecard models.

While rated it Evaggelia in 2007 to static valuation models that calculate the total value of I.C at a specific point in time, and mobile appraisal models that estimate the value of investments in knowledge assets at all times.

However, others see that the intellectual capital classification models are classified into four main groups:

- **Descriptive methods**; Metrics and models related to I.C and intellectual property; Market value models; and Return on knowledge models. As for the researcher Nazari 2014 has classified the measurement models into two types (Nazari, 2014, p. 117):

- **Management Models:** Models are prepared to measure intellectual capital at the micro level according to each element of intellectual capital, based on extracted from within the institution. Management models can be divided into two types: Direct methods for measuring intellectual capital and the Balanced Scorecard Method.

- **Market models:** Preparing models for measuring intellectual capital at the macro level unlike

Based on the foregoing, we can classify the models for measuring intellectual capital into two basic types:

- **Non-financial models:** They are models that depend on non-financial descriptive indicators that are useful for analyzing, developing, activating and maintaining intellectual capital, and these models are useful for decision-making purposes at the internal level of the institution only.

- **Financial models:** They are the models that depend on quantitative financial indicators for the various components and elements of intellectual capital. These models are useful in evaluating and measuring intellectual capital in a monetary way and disclosing it in the financial statements, whether compulsory or supplementary, and these financial models are useful at the external level, especially for investors.

That is, the ideal model for measuring intellectual capital should consist of non-financial and financial indicators that are practically applicable.

Conclusion:

The trend towards a knowledge-based economy has led to many changes in administrative and economic concepts with the emergence of the term I.C as a source of competitive advantage, then that today's institutions are working hard to manage and develop it efficiently in order to

benefit from its advantages. Considering that accounting is the language of economics, it must cope with these Changes in the business environment.

Through the foregoing, it was found that the term intellectual capital still raises a lot of controversy either in terms of its concept and definition, or in terms of its components and elements. Although there is almost an agreement in the recent period that it consists of three components (human capital, structural capital and relationship capital), there is still debate about the components and indicators of each component. This matter greatly affected the endeavors to reach an agreed upon measurement model that enjoys general acceptance, as despite the multiplicity of measurement models developed by many researchers, there is still no agreement on a specific measurement model. There are those who prefer to use descriptive indicators that help in managing intellectual capital, and there are others who prefer to use quantitative indicators that allow the measurement and evaluation of intellectual capital in monetary terms. The reason for the difference among researchers is due to the dynamic nature of intellectual capital and the large number of indicators involved in its formation, as well as the difference in its nature from one institution to another.

Through this study, we reached a set of findings and recommendations as follows:

First: Hypothesis testing

1. The multiplicity of indicators used in the formation of the elements of intellectual capital as shown in Tables (1,2 and 3) This makes it difficult to find a unified concept for it, and it also makes it difficult to develop a standardized measurement model that has general acceptance which confirms the validity of the first hypothesis.

2. The reason for the multiplicity of indicators of intellectual capital is due to its nature, which is characterized by continuous and rapid renewal, as well as to the difference in the structural structure of institutions. What may be considered important for one institution may not be the same for another institution; this is what confirms the second hypothesis.

Second: results

1. The reason for the absence of a single concept and definition of IC is due to the multiple approaches to its study, as there are those who study it from an administrative, social, economic or accounting aspect.
2. Managers tend to apply descriptive methods in measuring intellectual capital because they provide indicators that allow them to preserve, develop, develop and control intellectual capital.
3. Investors and analysts prefer to apply quantitative methods in measuring intellectual capital, given that they allow justification of the gap between the book value and the market value of the institution's shares, which help them in making decisions.
4. The difficulty in measuring IC and the absence of legal texts require institutions to disclose it in their financial statements leads the latter to not pay attention to measuring and disclosing it;
5. The financial statements and reports prepared in accordance with the currently recognized accounting principles are not sufficient to provide information on the intellectual capital, which creates a gap between the real resources of the institution with its various components and what is disclosed. This is a fundamental deficiency in the accounting function.

Third: Recommendations

1. The necessity to develop international accounting standards in line with the changes in today's economy while setting new standards concerned with intellectual capital;
2. The perception of intellectual capital must be changed from being an expense to treating it as an investment asset;
3. Working to organize an international conference that includes all researchers and those interested in the field of intellectual capital to come up with a descriptive model for the components of intellectual capital, and then work on developing an agreed measurement model.
4. Establishing laws that compel institutions, especially those listed on the stock exchange, to disclose their intellectual capital.

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