

Enhancing Financial Statement Quality Through Intellectual Accounting

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Date of receipt: 04/09/2024

Date of acceptance: 30/11/2024

Abstract:

This study aims to identify the role of intellectual accounting or intellectual capital with its three dimensions (human capital, structural capital, relational capital) on the quality of financial statements of the study institution.

To achieve the study objectives, the article is divided into a theoretical framework where key concepts related to the subject are discussed and an empirical aspect where a questionnaire was administered to a sample of 35 employees in the finance and accounting department of Sonelgaz in Ain Temouchent and Sidi Bel Abbes. Data were processed using SPSS 26 statistical software.

The study revealed several findings including the lack of a unified definition for intellectual capital due to its novelty, components, and measurement methods posing challenges particularly in assessing intangible assets. Ultimately, traditional accounting systems were found inadequate in capturing intellectual capital and disclosing it in financial statements.

Keywords: Intellectual Accounting, Human Capital, Structural Capital, Relational Capital, Financial Statements Quality.

Jel Classification Codes :E22, G32, M41.

1. INTRODUCTION

In recent years, the contemporary world has witnessed remarkable progress in many technological aspects, partly due to the significant role played by human resources in this progress, as they are an essential part of the production factors that contributed to enhancing the production process. This role has led to the development of economic units in various fields, prompting these institutions to increasingly rely on qualifications, competencies, and knowledge expertise. In response to this development, institutions began to focus on the concept of intellectual accounting or what is known as intellectual capital accounting, which aims to measure and evaluate the actual value of intellectual resources and use them effectively to achieve strategic objectives.

The study problem can be posed in the following main question: How can intellectual capital accounting contribute to enhancing the quality of financial statements?

To answer the main question, a set of sub-questions were formulated:

- Is there a unified definition of intellectual capital and its types?
- What is the importance of preparing financial statements for the institution's intellectual capital?
- What are the methods of disclosing information related to intellectual capital in financial statements?

To answer the research problem, the following main hypothesis was formulated:

- There is a statistically significant effect of intellectual capital on the quality of financial statements.

Under this hypothesis, the following sub-hypotheses were formulated:

- There is a statistically significant correlation between human capital and the quality of financial statements.
- There is a statistically significant correlation between structural capital and the quality of financial statements.
- There is a statistically significant correlation between relational capital and the quality of financial statements.

We can say that intellectual capital has become a fundamental element in the success of institutions, as it significantly contributes to determining

their competitive position in the business market.

However, research in this field reveals significant challenges facing institutions in estimating the value of intellectual capital and representing it correctly in financial statements. This challenge is crucial for accountants whose decisions increasingly rely on information related to intellectual capital. Therefore, this research will focus on studying the theoretical concept of intellectual capital, the accounting methods that can be adopted to measure and represent it in financial statements, and the challenges that may face this process.

2. Methodology

To study the research problem and test the hypotheses, the theoretical part relied on the descriptive analytical method, which involves collecting information about the research topic, analyzing it, and trying to derive facts from it.

The practical part relied on the case study method by using a questionnaire directed to the members of the study community.

To achieve the study objectives, the study was divided into two main axes:

1. Theoretical axis: It included concepts related to intellectual capital and the quality of financial statements.

2. Practical axis: It included a case study of Sonelgaz Company for Electricity and Gas Production in Ain Temouchent and Sidi Bel Abbes.

Research and studies in the field of measuring intellectual capital or intellectual capital accounting are still in their infancy because this topic is relatively new in the accounting field. It emerged with the knowledge economy, where knowledge became the main driver for creating value, wealth, and increased competition. Researchers have focused on intellectual capital management and its importance, measurement, and disclosure from various perspectives.

1. (2020، جعفر فالح، العامري): "Intellectual Accounting - Theory and Application"

This book provides a detailed review of the conceptual framework for intellectual accounting and the selection of accounting models for measurement and disclosure. An empirical study using the Lev (1971)

model measured the intellectual assets of Al-Ruwad Industrial Company and linked them to the company's value.

2.(2019، عزيزة و فاضل الربيعي): "The Role of Intellectual Capital in Enhancing the Quality of Accounting Information"

This study analyzed the role of intellectual capital in enhancing the quality of accounting information using intellectual capital efficiency as an independent variable.

3. (2010، نور، القشي، و قراقيش): "Intellectual Capital: Importance, Measurement, and Disclosure"

This study addressed various perspectives on the importance, measurement, and disclosure of intellectual capital, focusing on human resources as the most important resource.

4. (الساكني): "Intellectual Capital and Challenges Facing Accountants in Measuring It"

This study aimed to highlight the theoretical propositions related to the concept of intellectual capital and its importance, accounting approaches for measuring it, and the challenges faced by accountants.

5. (lounissa & fortas, 2021): " **Capital intellectuel : innovation et performance des entreprises**"

This study showed the importance of intellectual capital in the new economy, especially its impact on business performance through innovation.

6. (danka & bernard): " **Understanding corporate value: managing and reporting intellectual capital**"

This study addressed current methods and models used to evaluate and measure intellectual capital, targeting specialists who want to improve measurement and management of intellectual capital.

7. (minovski & jancevska, 2018): " **The rôle on intellectual capital and its accounting recognition and measurement**"

This study examined the need to modify accounting theory to provide a unified and comparable approach for recognizing and measuring intellectual capital in financial reports.

3. Theoretical grounding

The concept of intellectual capital emerged with the knowledge economy in the 1990s. It was considered one of the valuable assets that achieve sustainability and competitiveness for institutions (Stewart, 1997).

However, this concept was not absent before the 1990s; it was known as "goodwill" and included all intangible assets of the institution (Sullivan, 2001, p. 23).

The delay in dealing with intellectual capital until the 1990s is due to two main reasons (2013, عمر احمد, p. 240):

1. Its intangible nature makes it difficult to measure and evaluate, and it was not considered real capital for a long time, except in cases like patents and trademarks.
2. Traditional accounting systems viewed it as short-term costs rather than an important investment.

3.1. Definition of Intellectual Capital

Many researchers have provided various definitions for intellectual capital, including:

1.(العامري و جعفر فالح، 2020، صفحة 9): Intellectual capital is useful knowledge for economic units, including modern technological processes, patents, and employee expertise.

2. (Stewart, 1997, p. 5): Intellectual capital is knowledge, information, and intellectual property rights that can be used to produce wealth and achieve competitive advantage.

3. (lounissa & fortas, 2021, p. 601): Intellectual capital includes tangible knowledge, experience, organizational technology, customer relationships, and professional skills that provide a competitive advantage in the market.

3.2.Components of Intellectual Capital

Researchers and professional organizations have different opinions on the components of intellectual capital. Most agree that it consists of:

1. Human Capital: It is related to human resources and includes the knowledge, skills, expertise, and capabilities of the organization's employees. In this context, the level of formation and qualification of human capital is a key strategic factor in fostering overall investment development (Daoud Kheira, 2024, p. 395).
2. Structural Capital: Also known as organizational capital, it includes non-human assets owned by the organization (lounissa & fortas, 2021, p. 601), such as intellectual property, infrastructure, internal organization, and social relations.

3. Relational Capital: It includes all resources related to the organization's external relationships, such as customer satisfaction, loyalty, and engagement (Stewart, 1997, p. 78).

3.3.Measuring Intellectual Capital

Measurement refers to a set of procedures followed to determine the availability of certain characteristics in a person and judge their ability to perform specific tasks and activities (2016, فرحاتي, p. 260). The importance of measuring intellectual capital can be summarized as follows:

- It enables the organization to understand the market value added by intellectual capital.
 - It allows identifying individuals with unique creative capabilities.
 - Modern models of intellectual capital measurement can measure many components not covered by traditional models.
 - Measuring intellectual capital provides a better understanding of intangible assets and their importance in creating value for the organization.
 - It communicates the measures to external parties.
- Researchers and professional organizations have different methods for measuring intellectual capital due to its unique nature (سعد منشدة، 2014، صفحة 24). Some of the methods include:

1. Cost Models: Widely accepted in accounting and management, it involves calculating the market value of knowledge by understanding its cost.

2. Market Value to Book Value Model: This Model was proposed by (Stewart, 1997), it is based on the difference between the market value and the book value of the organization's capital.

3. Economic Value-Added Model: (Stewart, 1997)also provided this Model It calculates the economic value added by adjusting the announced profit for the costs related to intangible assets.

4. Human Resource Cost Accounting Model: This Model was proposed by (Malhotar , 2003) It calculates the impact of hidden costs related to human resources that reduce the organization's profits.

5. Calculated Intangible Value Model: This Model was proposed by (Stewart, 1997), It calculates the additional return on fixed assets to

determine the return on intangible assets.

6. Knowledge Capital Revenue Model: It calculates knowledge capital revenue as a percentage of ordinary revenue divided by the expected revenue of book assets.

7. Value Added Intellectual Coefficient Model: This Model was proposed by (Malhotar , 2003) It measures the amount of intellectual capital and its efficient use based on the relationship between three main elements: employed capital, human capital, and structural capital.

The challenges of measuring intellectual capital can be categorized into two main groups:

1. Challenges related to the nature of intellectual capital itself, including difficulties in defining its components, recognizing economic events, and predicting outputs.

2. Challenges related to traditional accounting perspectives, such as the lack of indicators and measures for intangible assets and knowledge management activities.

3.4.Financial StatementsQuality

The importance of preparing financial statements for intellectual capital includes:

- Providing a comprehensive view of the value and performance of intellectual capital in the organization.
- Attracting investors and shareholders by demonstrating how the organization uses intangible resources to achieve growth (minovski & jancevska, 2018, p. 71).
- Guiding strategic decision-making by providing information on the effective use of intangible resources.

3.5.Disclosure Methods of Intellectual Capital

Disclosure of intellectual capital involves providing sufficient information about it to the organization and related parties objectively and timely. It includes presenting all related information to help stakeholders make informed decisions (185 صفحة، 2017، (رباحي).

Methods of disclosing intellectual capital include:

1. Additional Statements: Preparing traditional financial statements along with additional ones that include non-financial information related to intellectual capital (سعد منشد،)

(2014، صفحة 25).

2. Present Value Approach: Using the market value of the company minus its book value to determine its intellectual capital.
3. Composite Approach: Evaluating intellectual capital based on the market value and internally by the organization.

4. Field study

The study community consists of employees of the finance and accounting department of Sonelgaz Company for Electricity and Gas Production in Ain Temouchent and Sidi Bel Abbes. A total of 35 questionnaires were distributed: 17 in Ain Temouchent (48.57%) and 18 in Sidi Bel Abbes (51.42%). The sample was completed in Sidi Bel Abbes due to the insufficient sample size in Ain Temouchent.

4.1. Data Collection Tool

To investigate the measurement of the variables, a questionnaire (study tool) was built in the following stages:

- Introduction: Aimed at introducing the study topic and clarifying its purpose.
- Part One: Included personal and job-related data of the study sample (gender, age, educational level, job level, seniority).
- Part Two: Included two axes:
 - Axis One: Data on intellectual capital and its three main dimensions, with 8 items in each dimension.
 - Axis Two: Data on intellectual capital and the quality of financial statements, with 8 items.

A five-point Likert scale was chosen, which is widely used for measuring opinions due to its simplicity and balanced grading. The answers were translated as follows:

Table 1. Likert Scale

Category	Score	Approval Level
(1_1.80)	Strongly Disagree	Very Low
(1.80_2.60)	Disagree	Low
(2.60_3.40)	Neutral	Medium
(3.40_4.20)	Agree	High
(4.20_5)	Strongly Agree	Very High

Source: Prepared by the researchers

4.2. Validity of the Study Tool

The validity of the study tool refers to its ability to include all the necessary elements for analysis and the clarity of its items to ensure they are understood by users. The Spearman correlation coefficient was used to verify this, with a value of 0.765 for both axes, indicating strong internal consistency and validity for measurement purposes.

4.3. Reliability of the Study Tool

After verifying the validity of the study tool, its reliability was tested using Cronbach's alpha coefficient, which was found to be 0.966, indicating a high degree of reliability and stability, allowing the results to be generalized to the entire study community.

4.4. Analysis of Personal Information

- Analysis by Gender

The study found that the percentage of males exceeded that of females, with 54.3% males and 45.7% females, indicating no significant disparity, attributed to the nature of the department in the study institution.

- Analysis by Age

The highest percentage was for the age group 36-45 years, at 42.9%, indicating that most are in an age range capable of providing good performance for the institution.

- Analysis by Educational Level

The dominant category according to the educational level was bachelor's/master's degrees at 74.3%, indicating that most employees of the study institution possess scientific qualifications.

- Analysis by Job Level

The dominant category according to the job level was the cadre level at 54.3%, indicating that most employees in the study department are from the cadre level.

- Analysis by Seniority

The majority of the sample had seniority between 11-15 years, at 34.3%, indicating that most have considerable seniority and experience.

5. RESULTS AND DISCUSSION

- The arithmetic means and standard deviation for the questionnaire axes.

5.1.Intellectual Capital Dimension

Table 2. Human Capital Data

Axis	Dimension	Number of Items	Mean	Standard Deviation	Response Level
Intellectual Capital	Human Capital	08	3.4962	1.0449	High

Source: Prepared by the researchers based on the study sample responses and SPSS outputs.

It is evident from the table that the mean value of the respondents' answers concerning human capital is 3.49, with a standard deviation of 1.044. This indicates that the level of agreement was high for this dimension."

Table 3. Structural Capital Data

Axis	Dimension	Number of Items	Mean	Standard Deviation	Response Level
Intellectual Capital	Structural Capital	08	3.2175	1.1138	Medium

Source: Prepared by the researchers based on the study sample responses and SPSS outputs.

It is evident from the table that the mean value of the respondents' answers concerning structural capital is 3.2175, with a standard deviation of 1.1138. This indicates that the level of agreement was moderate for this dimension.

Table 4. Relational Capital Data

Axis	Dimension	Number of Items	Mean	Standard Deviation	Response Level
Intellectual Capital	Relational Capital	08	3.34	1.104	Medium

Source: Prepared by the researchers based on the study sample responses and SPSS outputs.

It is evident from the table that the mean value of the respondents' answers concerning structural capital is 3.34, with a standard deviation of 1.104. This indicates that the level of agreement was moderate for this dimension.

Table 5. Financial Statement Quality Data

Axis	Dimension	Number of Items	Mean	Standard Deviation	Response Level
Financial Statement Quality	----	08	3.32	0.987	Medium

Source: Prepared by the researchers based on the study sample responses and SPSS outputs.

It is evident from the table that the mean value of the respondents' answers concerning the second axis was 3.32, with a standard deviation of 0.987. This indicates that the level of agreement was moderate for this axis.

5.2. Hypotheses Testing

- Main Hypothesis

Null Hypothesis (H0): There is no statistically significant effect of intellectual capital on the quality of financial statements at a 5% significance level.

Alternative Hypothesis (H1): There is a statistically significant effect of intellectual capital on the quality of financial statements at a 5% significance level.

- Sub-Hypothesis One

Null Hypothesis (H0): There is no statistically significant effect of human capital on the quality of financial statements at a 5% significance level.

Alternative Hypothesis (H1): There is a statistically significant effect of human capital on the quality of financial statements at a 5% significance level.

- Sub-Hypothesis Two

Null Hypothesis (H0): There is no statistically significant effect of structural capital on the quality of financial statements at a 5% significance level.

Alternative Hypothesis (H1): There is a statistically significant effect of structural capital on the quality of financial statements at a 5% significance level.

- Sub-Hypothesis Three

Null Hypothesis (H0): There is no statistically significant effect of relational capital on the quality of financial statements at a 5% significance

level.

Alternative Hypothesis (H1): There is a statistically significant effect of relational capital on the quality of financial statements at a 5% significance level.

6. Conclusion

Owing to technological advancements and the rapid development of the external environment, coupled with the heightened activity of institutions in both local and global markets to maximize profits and enhance their value, intellectual knowledge has emerged as one of the most critical assets contributing to organizational excellence and success.

The era of knowledge and information technology has provided enormous opportunities for institutions to benefit from intellectual capital and turn it into a competitive advantage, even in the face of continuous changes and technological developments.

This article highlights the role of intellectual accounting (intellectual capital accounting) in enhancing the quality of financial statements by addressing the historical development of intellectual capital, its various definitions, components, and measurement methods. It also discusses the importance of presenting intellectual capital in financial statements and methods of disclosure.

After statistical analysis, we reached the following conclusions:

- The emergence of intellectual capital coincided with the knowledge economy, where knowledge became the main driver for creating value and wealth and increasing competition in institutions. This shift in perspective towards human resources from mere costs to assets with current and future returns.
- There is no unified definition of intellectual capital due to the novelty of the topic.
- Various methods of measuring intellectual capital exist due to the diverse components, facing several challenges and difficulties in determining the value of intangible assets.
- Measuring intellectual capital is complex due to the difficulty in evaluating knowledge assets.
- There is a lack of quantitative measures that can be used to accurately and objectively measure intellectual capital.

- Preparing financial statements for intellectual capital helps attract investors and shareholders, as they can understand how the institution uses intangible resources to achieve growth and return on investment.

- The disclosure of intellectual capital in financial statements is not widely accepted due to differences in accounting systems between countries.

We tested the study hypotheses and concluded:

- Intangible assets usually do not appear fully in traditional financial statements, but they have significant economic value. Proper assessment of these assets can affect the financial reporting of the institution, as improper accounting may lead to an inaccurate evaluation of the institution's actual value, thus not providing a clear and comprehensive view to external parties.

- Human capital represents the knowledge, skills, and capabilities of individuals within the institution. Disclosing these elements in financial statements enhances their quality, providing a precise and transparent picture of the institution to external parties, thereby enhancing trust and understanding of the institution's financial performance and situation.

- Structural capital includes patents, trade secrets, trademarks, information systems, databases, and software. Accurate and comprehensive disclosure helps achieve a precise picture of the institution for investors and other parties.

- Relational capital directly affects the quality of financial statements by improving business and financial relationships with suppliers and customers, leading to cost savings and additional costs such as transportation or storage, building trust and understanding with various parties, thereby enhancing the institution's stability and financial growth opportunities.

Based on the findings, we propose several suggestions to develop and enhance intellectual capital in institutions, thereby facilitating the enhancement of financial statement quality, as follows:

- Institutions should treat intellectual capital as a strategic resource, maintaining it as an active element in their success, especially given the significant technological development in the business environment.

- Institutions should increase efforts to support creativity and

innovation processes and maintain human resources with exceptional knowledge capabilities by encouraging them and providing opportunities for innovation.

- Institutions should continuously develop their organizational structure to create a supportive environment for intellectual capital development.

- Institutions should continue developing new products and services and conduct ongoing surveys to understand their customers' changing desires.

- Traditional accounting systems should be updated or new systems created to keep pace with technological development and effectively measure intellectual capital.

7. Références

- Danka, s., & bernard, m. (s.d.). understanding corporate value : managing and reporting intellectual capital.
- Daoud Kheira (2024). Improving The Investment Climate: Examining Strategies Through A Literature Review. *Journal of Studies in Economics and Management*, 7, (01).
- Lounissa, m., & fortas, f. (2021). capital intellectuel; innovation et performance des entreprises . *JEFB*, 6 (1).
- Minovski, z., & jancevska, l. (2018). the role on intellectual capital and its accounting recognition and measurement. *journal of contemporary economic and business Issues*, 5 (1).
- Stewart, T, A (1997). Intelleectual capital: the new wealth of organization business quarterly.
- Sullivan. (2001). value_driven intellectual capital: how to cohvertintangible corporate assets in to market value. New york.
- حسين هادي عنيزة ، رباب عدنان فاضل الربيعي. (2019). دور راس المال الفكري في تعزيز جودة المعلومات المحاسبية. *مجلة الكلية الاسلامية الجامعة، المجلد 01، العدد 54*.
- سعود جايد مشكور العامري، ناصر الغانمي جعفر فالح. (2020). *المحاسبة الفكرية - نظرية و تطبيق*.
- صبرينة رباحي. (2017). المحاسبة عن راس المال الفكري في ظل التوجهات المحاسبية المعاصرة. *الادارة و التنمية للبحوث و الدراسات، المجلد 06، العدد 02*.
- عبد الناصر نور، ظاهر القشي، و جهاد قرايش. (2010). راس المال الفكري: الاهمية و القياس و الافصاح (دراسة فكرية من وجهات نظر متعددة). *مجلة كلية بغداد للعلوم الاقتصادية، العدد 25*.
- عمر احمد همشري. (2013). *إدارة المعرفة الطريق الى التميز والريادة*. عمان :دار صفاء للنشر والتوزيع.
- فرحاتي ل. (2016). رأس المال الفكري : نماذج القياس المحاسبي_دراسة نظرية. *مجلة الدراسات الاقتصادية و المالية، المجلد 09، العدد 01*.
- محمد سعد منشد. (2014). اثر القياس و الافصاح عن راس المال الفكري على مستخدمي القوائم المالية. *مجلة المثني للعلوم الادارية و الاقتصادية، المجلد 03، العدد 07*.