Elaboration of accounting financial report on structural capital

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Abstract

In the past few years it has been questioned the problem of quantifying and accounting the value and explaining the components of the organization’s intellectual capital. There are many companies that rely on intangible assets to make profits and gain competitive advantage but the current financial situations don’t capture - and cannot capture - the main key factors of the value that dominates the new economy. This article aims to show what intellectual capital represents, which are its components and after a preliminary research in a Romanian metallurgical enterprise it suggests a way of determining and accounting one of its components: structural capital.

Keywords: intellectual capital; alternative accounting; intangible assets, accounting financial report, structural capital

1. Introduction

In a society where the market value of a company is given in proportion of 75-85% by its intangible assets, it can be said that the current accounting does not provide sufficient relevant information to make long term managerial decisions. In the last years, traditional management – based on the analysis and interpretation of accounting data – has turned out to be incapable to assess and express, in a clear and correct manner, real performance of the entities involved (Manea, 2011). After a research on the accounting treatment of intangible assets in the International Financial Reporting Standards (IFRS) we have observed that intangible assets related to human, structural and relational capital, such as innovation and creativity, quality of processes and technology, communication and cultural capital; customer relationships and loyalty, knowledge, experience and skills of employees and staff, general knowledge, the quality of processes, products and services in the new economy are those that have become the main source of wealth for most companies and yet we don’t find it reflected in current financial statements. All these intangible elements that generate or will generate future benefits to the enterprise will be treated as intellectual capital - hidden intangible assets. To accounting intellectual capital is necessary to measure it. To measure it is necessary to know exactly what we are attempting to measure.

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In order to achieve this goal, we consider the most appropriate the classification of intellectual capital in: human capital, structural capital, relational capital.

Human capital is the total amount of staff abilities and concentrates skills (knowledge, skills, talent and know-how), attitude (behavior, satisfaction, motivation, performance and ethics) and intellectual agility (innovation, imitation, adaptation).

Structural capital is the physical and organizational structure, property of the enterprise, which supports human capital and facilitates knowledge transfer. Structural capital consists of internal processes capital and research, development and innovation capital. Internal processes capital is related to quality of processes, products and services that gives the company its competitive advantages. R&D capital include investments that are made in developing new products, new technologies.

Relational capital includes clients’ portfolio, relations with competitors, suppliers, shareholders, governments and public administrations, other stakeholders and their impact on business. Relational capital is composed by commerce capital and communication capital. Commercial capital includes relationships with customers and suppliers, and their satisfaction, market share, etc. Communication capital includes marketing activities.

In the following we will present the methodology and results of the research conducted between 2006 and 2009.

2. Establishment of external financial report elements on structural capital

Concerning the structural capital, and starting from its components, we’ll list and we’ll explain the indicators used for its determination. Efficiency indicators of structural capital will be calculated based on the methodology developed by Nevado and Lopez (2007).

The case study was conducted in a major metallurgical enterprise in Romania, which name we can not disclose for confidentiality reasons.

2.1 Internal processes capital

*Investments in quality, prevention and evaluation.* By investing in quality, prevention and evaluation we mean investments in: (Nevado & López, 2007)

1. Verification: investments made before launching a product on the market designed to prevent non-quality costs;
2. Maintenance: activities related to the development of all instalation and machinery that require an increased productivity;
3. Investments in the quality department;
4. Investments in improving the quality of suppliers and retailers, in conjunction with reducing delivery time and avoiding a possible break in production chain;
5. Mid-ambient made for environment protection.

Investments in evaluation are needed to design tests and inspection activities that serve to detect possible errors in production before the products reach their customers.

In our case, investments in quality, prevention and evaluation were calculated using the following formula:

\[
\text{Direct cost} / \text{Direct hours} \times \text{Total hours for quality} + \text{Investments in environment protection}. 
\]

As we can see, investing in quality, prevention and evaluation have an increasing trend reaching from 654.327 lei in 2007 to 1.663.250 lei, more than double in 2009.

*Suggestion index.* It is sought to quantify the degree of employee participation in company decisions by the arithmetic mean of the results of questions about the company’s policy to encourage suggestions, suggestions made and their evaluation. The final result shows a low value of index, being placed in the first 3 years under 50% and in 2009 a maximum value of 52.77%.

2.2. Research, development and innovation capital

*Investments in computer equipment.* Consist of investments in computers and other electronic equipment, including software and hardware. Values taken into account are those in 208 accounts (Other intangible assets -
software amount) and 214 (Furniture, office equipment, protection equipment and others - computer equipment amount). This indicator reaches a maximum point in 2008 with a value of 513.156, then experienced a sharp drop in 2009 to 103.334, the lowest value recorded since 2006 until now.

*Investments in research, development and innovation.* Includes all expenditures on R&D and innovation generated in the company under the following aspects:

1. Production and technological processes involving growth and improvement of technological capabilities of the enterprise;
2. Designing new products and improvement of existing ones;
3. Systems improvement;
4. New markets.

Investment in research, development and innovation performed by the company are inexistent, its value being 0.

*Investment in developing and launching new products.* Here are considered the investments made when designing and launching new products/services relating to the financial year.

*Technological index.* In determining this indicator are considered the result of the questions regarding the computer system (hardware and software), management and convenience of the workspaces, equipment and furniture. We are witnessing to a positive trend of technological index from 65.63% in 2006 to 82.5 in 2009, with a slight decline at 64% in 2007.

*Investments in computer equipment/total assets.* It refers to the percentage of investments held in the computer equipment in total assets of the company for each year considered.

3. **Determining the value of structural capital**

To measure intellectual capital we will use two types of indicators:

- **Absolute indicators:** they express the level, aggregate volume and modifications (in absolute value) of the phenomenon analyzed in different periods of time. Absolute indicators are expressed in units of measurement of the analyzed characteristic (in physical units, value, etc).

- **Relative indicators or efficiency indicators:** they are calculated as a ratio and reflect the proportion of absolute levels of the terms of chronological series of intervals. They allow a comparative analysis of the evolution of different phenomena expressing the variation in percentages or ratios.

Once established the absolute and relative indicators for measuring intellectual capital components, we see ourselves reaching the model implementation phase. To calculate the intellectual capital of an organization we will start from the equation used by Edvinsson and Malone being able to make comparisons (Edvinsson & Malone, 1999):

\[
\text{ORGANIZATIONAL INTELLECTUAL CAPITAL} = \text{IXC},
\]

where:

- \( C \) = value of intellectual capital in monetary units – obtained by some representative indicators
- \( I \) = coefficient of efficiency needed by the company to use intellectual capital
- \( I = n / x \), where
- \( x \) = number of indicators
- \( n \) = sum of decimal values of the nine efficiency indicators used by Skandia

This method can be criticized, being very useful in determining the total value of intellectual capital and it’s not giving big importance on determining his components. A determination of intellectual capital on each component helps to determine the proportion of capital contributed by each party. Nevado & Lopez (2007) agree with it, proposing an equation for each capital, explaining what those absolute and relative indicators composing this equation are. The equation used by them is

\[
I = C \times i
\]

where:

- \( I \) = intangible asset that will be achieved
- \( C \) = absolute indicators involved in its formation
- \( i \) = average value of indicators involved in its formation (efficiency indicators).

To determine the intellectual capital we start from Nevado & Lopez’s Integrated analysis model, calculating intellectual capital, resulting, in turn, human capital, and structural capital with its components: processes capital, relational capital, communication capital, R & D capital. Below we describe the methodology for calculating the components of intellectual capital based on the indicators established in the previous subsection.
Internal processes capital is determined based on quality, prevention and evaluation investment, corrected by arithmetic average of the following efficiency indicators: suggestions index, training index and customer satisfaction index. The result shows a development policy of this capital, having a continuous increase until 2009 when it reaches a value of 1,321,285.

**Internal processes capital** = Investments in quality, prevention and evaluation * {(Suggestions index + Training index + Customer satisfaction index)/3}

To determine the research, development and innovation capital were considered as absolute indicators the investments in information and communication technologies corrected with technological index value. The value of other absolute indicators used such as investment in research, development and innovation, investments in developing and launching new products, investments in developing of processes was not considered because it was invalid. The results obtained show a drastic drop of research, development and innovation capital in 2009 from a peak of 345,867 in 2008 to 85,250 in 2009.

**Research, development and innovation capital** = (Investments in research, development and innovation + Investments in developing processes and launching new products + Investments in computer equipment) * Technological index

**Structural capital** was determined as the sum of internal processes capital and research, development and innovation capital. The results obtained show a policy of developing the structural capital, being in a continuous growth in the years 2006-2009, reaching 1,406,535 in 2009.

**Structural capital** = Internal processes capital + research, development and innovation capital

Considering the absolute indicators and efficiency by which were determined the values of structural capital components, we prepared a summary of these indicators and values of structural capital, synthesis which we called “Accounting financial report on structural capital”.

<table>
<thead>
<tr>
<th>Table 1: Accounting financial report on structural capital</th>
<th>2006</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
</tr>
</thead>
<tbody>
<tr>
<td>Indicators</td>
<td>2006</td>
<td>2007</td>
<td>2008</td>
<td>2009</td>
</tr>
<tr>
<td>1. <strong>Processes capital</strong></td>
<td>218,109</td>
<td>638,866</td>
<td>809,967</td>
<td>132,128</td>
</tr>
<tr>
<td>Investments in quality, prevention and evaluation</td>
<td>654,327</td>
<td>916,989</td>
<td>114,235</td>
<td>166,325</td>
</tr>
<tr>
<td>Index of suggestion</td>
<td>0.3690</td>
<td>0.3666</td>
<td>0.4114</td>
<td>0.5277</td>
</tr>
<tr>
<td>Administrative efficiency/Revenues</td>
<td>0.6885</td>
<td>0.7785</td>
<td>0.791</td>
<td>0.8735</td>
</tr>
<tr>
<td>Index of clients satisfaction</td>
<td>0.8943</td>
<td>0.945</td>
<td>0.924</td>
<td>0.982</td>
</tr>
<tr>
<td>2. <strong>Research&amp;Development capital</strong></td>
<td>123,492</td>
<td>101,646</td>
<td>345,867</td>
<td>85,250</td>
</tr>
<tr>
<td>Investments in research, development and innovation</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Investments in computer equipment</td>
<td>186,263</td>
<td>158,822</td>
<td>513,156</td>
<td>103,334</td>
</tr>
<tr>
<td>Investments in developing and launching new products</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Investments in development of processes</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Investments in computer equipment/total assets</td>
<td>0.0005</td>
<td>0.0004</td>
<td>0.0012</td>
<td>0.0002</td>
</tr>
<tr>
<td>Tecnological index</td>
<td>0.6563</td>
<td>0.64</td>
<td>0.674</td>
<td>0.825</td>
</tr>
</tbody>
</table>

Intellectual capital is an important part of the market value of the enterprise on which we conducted the present research. The size of the impact on intellectual capital on the market value of the enterprise may be the result of the importance given to its investors.

By enabling the mandatory incorporation of the Intellectual Capital Report as an appendix to the financial statements should include the following advantages:
- Improves the quality of accounting data;
- Allows comparability;
- Allows the achievement of certain coherence between accounting and current economy;
- Allows correlation of present with company’s future;
- Encourages economy development.

Besides these advantages we must also consider the possible limits of the report on intellectual capital. It can provide valuable information to competition, information that may not be of public interest, it leaves space to a possible manipulation of information by the company and increases the operational costs as a result of new regulations and bureaucracy.

**Conclusion**

The current accounting system takes historical information and aims to control and to govern the enterprises or organizations using only financial measures that allow precise calculation of results. But we already saw that is no longer enough the information given by current financial statements and therefore it is necessary a complementary position on intangible assets that can help to establish the policy and decisions of the company. Thus we can combine control with strategy but we need an information system to evaluate and manage the enterprise.

The rising question is where and when information on intellectual capital should be published, information that we have treated as “External financial report on structural capital”. Our proposal helps this report by showing how it is calculated and how it should be a report regarding one of the most important components of intellectual capital: structural capital. We consider the most opportune time to publicate this report would be once with the annual financial statements, appearing as an appendix to this compulsory. For this thing to happen, considering the specificities of each national sector, it will be necessary to develop and regulate one report model for each and one of these national sectors.

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