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# СТРАТЕГІЧНИЙ ПРОЦЕС В ОРГАНІЗАЦІЇ У КОНТЕКСТІ СТРУКТУРНИХ ЗМІН У СВІТОВІЙ ЕКОНОМІЦІ

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УДК 338.242.46

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## INTANGIBLE FACTORS OF A COMPANY'S MARKET VALUE CREATION: MEASUREMENT AND EVALUATION

**Abstract.** In the given publication the role of intangible resources is considered as a crucial strategic asset which creates a company's market value, and the sequence of the D.Andriessen method is disclosed for the evaluation of the market value of Latvian pharmacy listed company JSC 'Olainfarm'. The result of the evaluation is being compared with the results gained from applying traditional methods as method of discounted cash flows, balance value and capitalization method. The measurement and evaluation of the potential value of intangible assets or intellectual capital is the most important source of information and analytical support for ensuring the strategic management of the company.

**Keywords:** intangible assets, company's market value, core competences, intellectual capital

### Introduction

In the conditions of economic globalization the effectiveness of the company's activities is dependent from the ability to react flexibly to the market demand of consumers. Therefore, the competitive strategy should foresee the increase of business value, which will allow to ensure a high image of the company, strengthen the investment attractiveness of the company, attract additional volumes of financial resources, as well as to use other efficiency factors.

Traditional methods of company value evaluation that are based on the use of financial reporting indicators do not allow to take fully into consideration the internal development factors of the company as personnel, knowledge, technologies, research and development, brand. In innovational economics the intangible factors influence the company's financial results, its competitiveness and business value more than tangible factors. The current stage of development of the world economy is characterized by the fact that the essential part of added value is created by engaging the intangible and innovative resources into production sphere which in the scientific literature are defined as «intellectual capital».

During the last decades in the economic scientific literature the different approaches to the measurement and evaluation of intangible resources of the company were created,

which can be used for the evaluation of the market value. One of them is the intangible asset evaluation method which is based of the identification of core competencies and key success factors developed by G.Hamel and K.Phalaral. Later the given method was developed by D.Andriessen, which has developed the mathematical model of evaluation of core competencies that are creating the value of the company's intellectual capital.

However, the use of evaluation models of intellectual capital in practice have certain difficulties which are associated with the lack of common view on the nature and content of intellectual capital, the common approaches in the questions of recognition, classification, evaluation and disclosure of the information on the intangible assets as one of the element of company's financial reporting. Nevertheless, in the opinion of Hamel and Phalaral 'the fight for the future will not begin not with the battle for the market share, but for intellectual leadership' [1]. Therefore, the measurement and evaluation of the potential value of intellectual capital is the most important source of information and analytical support for ensuring the strategic management of the company.

The *aim* of the paper is to attempt to evaluate the company's market value, using Intellectual Capital measurement approach, thus identifying and emphasizing unique role played intangible factors in the market value creation.

For attaining the aims set, various research methods were used during the development of paper. *The methodology* of the research includes a qualitative, theoretical research approach, involving a literature review, collecting data from JSC 'Olainfarm' published financial reporting, data analysis and drawing conclusions. Market value was calculated using traditional discounted cash flow and net assets approaches. The results of evaluation have been compared to JSC Olainfarm market capitalization value. As a general approach used for intellectual capital evaluation, the method based on the theory of core competencies developed by Andriessen&Tissen was chosen [2].

Intangible assets the essential part of a company's market value

According to IAS 38, Intangible asset is an identifiable non-monetary asset without physical substance [3]. With the occurrence obvious of the concepts 'New Economy', and 'Knowledge Economy', the role of the accounting category 'Intangible Assets' rises. In many scientific publications intangible assets are presented as the most important company resource *missing* on the balance sheet, because traditional accounting classification and valuation methods of intangibles can no longer adequately determine the real value of companies. Some authors consider intangible assets as *mysterious* accounting category. Baruch Lev stresses their peculiarities: 'Intangibles are different: unique assets, not traded in organized markets, hazy property rights (training employees, supply channels), deficient information (in-house training, fair value of R&D)' [4].

A set of Intangibles of a company depends on the specifics of the industry and business model. In the following classification Intangibles acquired outside (intellectual property) are seoreted from Intangobles created in the company:

- Intellectual property (Intangible assets with legal or contractual rights including patents, trademark, designs, licenses, copyrights, film rights, mastheads);
- Separately identifiable intangible assets (Information systems, networks, administrative structures and process, technical knowledge, human capital, brands, trade secrets, internally generated software);
- Non-separable identifiable intangible assets (Goodwill — prior intangible investments embodied in organisations, management expertise, geographic position, monopoly market niche).

**In economics literature, Intangible assets are defined as «Intellectual Capital», which is involved in process of the creation customer and stockholder value. As a**

response to the above issues, several companies have focussed on the concept of *Intellectual Capital (IC)*, and adopted new tools for classifications and identification of Intangible assets as a driver for company's value creation. Intellectual capital is a term with various definitions. A short overview of the definitions of intellectual capital is listed in Table 1 [5].

Table 1: Some definitions of Intellectual capital

Author	Definitions of intellectual capital
Leif Edvinsson	A source of <i>intangible assets</i> that often don't appeared on the balance sheet (Edvinsson, 2000).
Annie Brooking	<i>Intellectual capital</i> is the differences between the book value and what somebody is prepared to pay for it (Brooking, 2001).
Thomas A. Stewart	<i>Intellectual material</i> — knowledge, information, intellectual property, experience — that can be put to use to create wealth (Stewart, 2002).
Baruch Lev	<i>Intellectual capital</i> is the combination of the human, organizational and relational resources of an organization (Lev, 2002).
Patrick H. Sillivan	Knowledge that can be converted into profit (Sveiby, 2002).
Anatoly Kozirev and V. Makarov	The term <i>intellectual capital</i> is mostly used by managers in the sphere of human resources and asset management, by marketing specialists when creating the favourable image of the company to attract investors as well as by professionals preparing the estimates of business based on intellect with the aim of its sale or purchase (Kozirev, 2003).
Berhard Marr	The term <i>intellectual capital</i> implies combined intangible value essential (vital) for the company existence (Marr, 2005).

Different views on the essence of Intellectual Capital present the summary of experience of managing value factors in certain companies. At the same time, literature on economics contains common approaches to the structure of Intellectual capital, which incorporates three components:

- Human capital;
- Structural/Organizational/Internal capital;
- Relational/External capital [6].

Excess of company worth is defined as the second part of market value that is represented by mentioned above three components that develop the nature of goodwill. Goodwill represents materialized value of company success factors, such as its competitive advantages and unique combinations of technologies.

Classification of Intellectual Capital lays the basis of the models of its measurement. Every measuring model is based on certain combinations of elements of Intellectual Capital, and therefore is unique.

#### **Intellectual capital measurement methods**

The author of the paper pays attention to the existing problems of measuring of Intangible assets, the reason of which in most cases is impossibility of application of quantitative methods to measurement of Intellectual capital. In the Table 2 are summarized the views of international researches on the essence of Intangible Assets and to systematise the approaches practised by foreign companies when measuring Intellectual Capital.

Intangible assets don't create value by themselves. By the opinion of R.Kaplan 'their value comes only in context of the organization and has to be linked to organizational strategy and to all the other intangible and tangible assets the organization has' [8].

Table 2

## INTELLECTUAL CAPITAL MEASUREMENT METHODS [7]

<p><b>Market Capitalization Methods (MCM):</b></p> <ul style="list-style-type: none"> <li>• Market-to-Book Value (Stewart, 1997; Luthy, 1998)</li> <li>• Tobin's q (Stewart, 1997; Bontis, 1999)</li> <li>• Investors assigned market value (Standfield, 1998)</li> </ul>	<p><b>Return on Assets methods (ROA):</b></p> <ul style="list-style-type: none"> <li>• <b>Economic Value Added (Stewart, 1991; Young, 2000; Stern, 2001)</b></li> <li>• Value Added Intellectual Coefficient (Pulic, 2000)</li> <li>• Knowledge Capital Earning (Lev, 1999)</li> <li>• Human Resource Costing &amp; Accounting (Johansson, 1996)</li> </ul>
<p><b>Scorecard Methods (SC):</b></p> <ul style="list-style-type: none"> <li>• Human Capital Intelligence (Fitz-Enz, 1994)</li> <li>• Intangible Assets Monitor (Sveiby, 1997; Marr, 2004)</li> <li>• Balanced Scorecard (Kaplan &amp; Norton, 1992)</li> <li>• Skandia Navigators (Edvinsson &amp; Malone, 1997)</li> <li>• IC Index (Roos, Dragonetti, Edvinsson, 1997)</li> <li>• Knowledge Assets Map (Marr &amp; Schiuma, 2001)</li> <li>• Value Chain Scoreboard (Lev, 2002)</li> <li>• Holistic Value Approach (Sveiby, 2004)</li> </ul>	<p><b>Direct Intellectual Capital methods (DIC):</b></p> <ul style="list-style-type: none"> <li>• Intellectual Assets Valuation (Sullivan, 2000)</li> <li>• Total Value Creation (Anderson &amp; McLean, 2000)</li> <li>• Technology Broker (Brooking, 1996)</li> <li>• Accounting for the Future (Nash, 1998)</li> <li>• Human Resource Statement</li> <li>• The Value Explorer (Andriessen &amp; Tiessen, 2000)</li> </ul>

The former companies have developed their own methods to measure and monitor intangibles for management purposes, and to disclose what they consider adequate stakeholder information. In this case is needed to show the role of Intellectual capital report, where the information about Intangible assets in context of company's strategy is disclosed.

### Calculation of JSC Olainfarm value based on Intellectual capital

Company success is derived from unique core competences creating by intangible assets. The challenge is to precisely identify these competences among all the knowledge and expertise possessed by the company and its personnel. As a general approach used for intellectual capital evaluation, the method based on the theory of core competencies developed by Andriessen & Tissen was chosen. In the Table 2 it is presented as the Value Explorer method. According to this theory core competencies are the basis for development of core products which are then used to develop a larger number of products that are sold to end-users. Core competencies arise from integration of different technologies and coordination of diverse production skills. The theory presupposes three tests for identification of core competencies within the organization. Analysis of core competencies shows that they primarily consist of intangible resources like skills, tacit knowledge, values, norms, patents and processes. The method of evaluation of intellectual capital is based on the formula developing by Andriessen [9].

$$V_{cc} = \left[ \sum_{t=1}^S \frac{CM \times (1+P)^t}{(1+i)^t} \right] \times R, \quad (1)$$

where  $V_{cc}$  = Value of Core Competence

$S$  = Sustainability (years)

$CM$  = Contribution Margin

$P$  = Potential in future ( %)

$R$  = Robustness ( %)

$i$  = Cost of capital

The formula to calculate the value of a core competence is based on the principle that the value of a core competence equals:

***Added value \* Competitiveness \* Potential \* Sustainability \* Robustness***

This formula means that the value of a core competence equals the added value of the core competence for the customer, given the current competitive environment, the growth that can be expected in the coming years (potential), and the number of years for which it can be exploited (sustainability). This is then corrected by a factor showing whether there is a risk that the company will lose the core competence prematurely (robustness). Methodology of evaluation includes seven logical steps that are presented below.

*The first step — income projection*

Upon identifying core competences, it is necessary to make income projections that are attributable to each competence. In order to project income generated by each of the core competencies starts is necessary to identify primary products to which the core competencies make contribution. It has been identified that company has three main product groups: 1) Brand/brand generic products; 2) Generic products; 3) Substances.

*The second step is evaluation of contribution gross margin of these products.*

For the projection of future contribution margin a potential factor was estimated, based on the expected growth rate of the product earnings. The future growth is primarily based on forecasted potential of 3—4 products that are currently at the launch stage or have recently been launched. Basing on the sales structure by geographical segments and groups of production in 2009, and opinions of the financial manager был calculated Geomean growth rates [10] by product groups. From discussion with financial executives of the company the following gross margin level are determined (in per cent from revenues): Brand products — 85 %; Generics products — 75 %; Chemical products — 60 %.

*The third step is estimating of contribution margin by product groups*

Contribution margin by product group has been calculated as gross margin less operating costs. The contribution margin of the products needs to be allocated to the underlying core competencies.

*The fourth step — determining of income allocation*

To determine this contribution a competence-product matrix is constructed. In each cell of the matrix the contribution each competence makes to the product is assessed using a simple scoring mechanism: no contribution (0), supporting contribution (1), substantial contribution (2), essential contribution (3). The result of income allocation is shown in the Table 3.

Table 3

ALLOCATION OF CONTRIBUTION MARGIN (COMPETENCES) IN PRODUCT GROUPS

	Brand/or Brand generic prod		Generic product		Chemical substances		Margin, LVL (Latvian Lat)
	Number	%	Number	%	Number	%	
New product development	3	33	1	25	2	33	4,343,284
Product promotion	3	33	1	25	1	17	4,290,784
Production technologies	3	33	2	50	3	50	4,890,592
Total	9	100	4	100	6	100	13,528,661

*The fifth step — Useful life estimations*

The authors consider that useful life of intangible assets is equal to the length of process from product development until product registration validity expiry that for pharmaceutical products equals to 5 years [13].

*The sixth step — Income capitalization*

The discount rate used by the valuation model reflects a weighted average cost of capital calculated from cost of debt and cost of equity. In addition to that a Robustness Factor is calculated for each core competence, which is based on the specific risk profile of the core competence involved. So, an additional 20 % risk of losing the core competence is added.

The Robustness Factor is calculated as a risk of losing the core competence. For JSC Olainfarm Robustness factor of core competences presented below: New product development — 80 %; Product promotion — 80 %; Production technologies — 100 %.

*The seventh step — Value calculation*

Last step in calculating the value of the core competencies is estimating the expected growth rate of the contribution margin of the core competencies. This growth rate is based on the income projection that was made for each of the product groups and is called the Potential Factor. The potential growth of each product group as projected under the geomean growth rate by product groups presented below: New product development — 11 %; Product promotion — 10 %; Production technologies — 15 %. Applying Formula 1 to JSC Olainfarm results in a total value of its core competencies of LVL 42.5 mil, that are divided by each core competence in particular it Table 4 below:

Table 4

**DISTRIBUTION OF VALUES AMONG CORE COMPETENCES**

Core competences	Value, LVL	Value, %
New product development	12,066,169	28
Product promotion	11,572,045	27
Production technologies	18,863,813	44
Total	42,502,027	100

Upon valuation of the company, the calculated market values are summarized in the Table 5:

Table 5

**SUMMARY OF CALCULATION OF MARKET VALUES FOR JSC OLAINFARM**

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Patrick H. Sullivan	Knowledge that can be converted into profit (Sveiby, 2002)

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Berhard Marr	The term <i>intellectual capital</i> implies combined intangible value essential (vital) for the company existence (Marr, 2005)

It was revealed that intellectual capital showed a value higher than values established using traditional valuation methods of discounted cash flow and net assets, as well as higher than estimated market capitalization.

### Conclusions

Basing on results of this paper, the authors draw following conclusions:

1. Intangible factors are an essential part contributing to the market value of the company. Evaluation of the potential value of intangible assets or intellectual capital is the most important source of information and analitical support for ensuring the strategic management of the company.

**2. Traditional valuation methods are based on using historical accounting information and forecasted market estimations and characterized by the following:**

- describe current position of a company;
- involve high extent of subjectivity and management estimates;
- do not reflect potential generated by unique company's competences;
- do not allow expecting return on investment in R&D, employee training, information technology, brand, and other intangibles.

The result: there is growing disconnection between market value and financial information.

3. Intellectual capital includes all non-accountable intangible assets that in aggregation from core competences those drive success of the company and are integral part of real market value of a company. Due to difficulties in identification of elements of intellectual capital, the market value on the basis of its intellectual capital can be most precisely established by the management of a company. However, it is worth noting, that a real market value of a company can only be determined at the acquisition of a company.

4. Applying evaluation approach based on calculation of IC to JSC Olainfarm have been used measurement approach (key performance indicators) and evaluation approach (from the theory developed by D. Andriessen). It has been identified that value obtained through valuation of intellectual capital is ~6 % above value obtained through discounted cash flow method and significantly higher than current market capitalization.

5. From the obtained results it can be concluded that the company still has significant potential for increasing its value and its shareholders' wealth in the future. This information is very useful for strategic decision-making as it gives insight into the relative importance of the core competencies and their underlying intangible resources for the future of JSC Olainfarm. It was revealed that the ability and technical competence of the company to reproduce chemical cycles has the greatest intellectual capital contribution, exceeding intellectual capital to develop new products and product realization capabilities in new markets.

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Стаття надійшла до редакції 19.05.2011 р.

УДК 339.6

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### СТРУКТУРА СТРАТЕГІЧНОГО НАБОРУ ПІДПРИЄМСТВА

**Анотація.** Обґрунтовано структуру стратегічного набору підприємства. Запропоновано методичний підхід щодо формування групи стратегічній розвитку людських ресурсів підприємства.

**Ключові слова:** стратегічне управління підприємством, стратегічний набір підприємства, кастомізація, стратегія розвитку персоналу.

Після вступу України до СОТ національні підприємства стали тісніше пов'язані з процесами, які протікають на світових ринках. Серед них головне місце займають: конвергенція технологій, широке застосування інформаційно-комунікаційних технологій, скорочення життєвого циклу товарів та послуг, розширення їх пропозиції, глобальна конкуренція та ін.

У сучасних умовах зростає роль стратегічного управління підприємством.