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АНАЛИЗ НА ИНТЕЛЕКТУАЛНИЯ КАПИТАЛ И НЕГОВИТЕ КОМПОНЕНТИ СПОРЕД ПОКАЗАТЕЛИТЕ НА МОДИФИЦИРАН БАЛАНС

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ANALYSIS OF INTELLECTUAL CAPITAL AND ITS COMPONENTS ACCORDING TO THE INDICATORS OF MODIFIED BALANCE

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Abstract

The article defines the content of indicator analysis of intellectual capital according to the modified balance sheet item. For such analyses, there has been refined the structure of modified balance sheet and taken into account the possibility of using qualitative (non-financial) indicators of intellectual assets evaluation. These intellectual assets, unlike the intellectual resources, are also subject of cost (financial) assessment according to the standards of accounting and reporting.

Keywords*: intellectual resources assessment, intellectual asset evaluation, intellectual capital analysis, indicator analysis of modified balance*

JEL Codes: *M10*

1. Introduction

Differences in the organization of companies activities and the levels of intellectual capital among world countries have formed financial (cost or "North

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American") and non-financial (qualitative or "Scandinavian") approaches to intellectual capital assessment. That, in turn, has defined various approaches to the intellectual assets evaluation in national and international standards of accounting and reporting. The difference between approaches to assessment and management of these objects is explained by the presence or absence of the ability to assess their value. So, the financial (cost) evaluation is the subject only to such intellectual assets as intangible assets and goodwill. For all the rest intellectual resources the qualitative (non-cost) assessment is mainly used.

At the same time, using the same valuation approaches towards different intellectual assets makes it possible to compare their analysis and evaluation of intellectual capital in general, but requires a common information base and the relevant procedures of the analytical calculations.

The purpose of the study is to determine the analysis indicators content of intellectual capital according to the qualitative indicator of the modified balance.

2. Analysis of recent publications on the issue

The review of scientific papers relating to the management and evaluation of intellectual holdings (assets and resources) has confirmed the conclusion as for the absence of unified methodology and the need to use certain methods depending on tasks of the enterprise management and its assets (Bruking, 2001; Grytskov, 2015; Kasych, Khimych, 2013; Platonov, 2012; Tobin's). Meanwhile scientists link the use of certain group techniques with features of activity of industrial enterprises, as well as the ratio of the value of its intangible and tangible assets.

Despite the use of different approaches and methods of intellectual capital evaluation in general and its separate components, the obtained results can be used to summarize the information and compile the modified balance sheet (Platonov, 2012). The modified balance consists of two parts: financial, which reflects the tangible assets and sources of their formation according to the requirements of financial reporting and accounting, and non-financial, which reflects "soft" intellectual resources with intangible values.

2.1. Uninvestigated parts of general matters defining

The lack of analysis of intellectual holdings, which are valued at cost and quality indicators, does not allow to compare their evaluation in terms of capitalization (conversion into assets) and intellectual capital for its components.

2.2. The main part and its substantiation

The financial part of the modified balance sheet is formed in accordance with the provisions of accounting standards (form №1 NP (c), BO), and contains information about the value of intangible assets as enterprise intellectual assets (NSA 8). Therefore, the relevant indicators of this form must be considered when dealing with intellectual capital. For easy special pleading of calculations such indicators are presented in table 1 including line codes.

Table 1. Displays information about intangible assets in the Balance sheet, that drawn up in accordance with financial accounting standards and reporting according to form 1 (financial part of the modified balance)

Assets (resources, tangible or recognized value)		Liabilities	
I. Non-Current assets	Line	I. Equity	Line
Intangible assets*	1000	...	...
…	…	…	…
Goodwill (as an additional item of balance)	100X	III. Current liabilities and provision	
...	...	...	..
Balance	...	Balance	…

(*) Rights to use natural resources and property, rights to commercial designations, industrial property, copyright and related rights.

The need to use a general information base on the analysis of all types of intellectual holdings requires qualitative indicators of relative or rank-order (point) scale measurements along with their value in balance sheet of the form № 1. So, in terms of information technology testing procedure, quantitative and

qualitative assessment (possibilities of capitalization) of the invention, the development results, ideas and other intellectual assets in case having the Internet access is based on information systems transfer of technology and information resources. The professionals have testing results upon placing the data about the available intellectual assets in these information systems and they are analogous to the results of sociological surveys and expert assessments.

The non-financial part of the modified balance sheet provides information about the intellectual resources and sources of their intangible value. Its preparation is not regulated by standards of accounting and reporting and therefore imperceptible cost is estimated on quality indicators (using the relative or ranking scale).

For convenience and taking into account the accepted techniques of balance sheet analysis there has been suggested such a form of non-financial part of the modified balance (table2).

Table 2. Non-financial portion of the modified balance sheet, which is made using non-financial (non-standardized) methods of assessment

Resources with intangible value	Line	Potential liabilities	Line
"Soft" intangible or intellectual resources that may eventually be recognized as assets in accordance with standards of accounting and reporting, including:	100	*Organizational capital*, which is formed due to internal resources in the future can turn into equity in accordance with the standards of accounting and reporting, including:	400
information systems and technology	110	process capital	410
documentation without property rights (copyright): scientific, educational, technical,technological	120	part of the innovation capital which is created for private use by a business entity	420
high-tech products without rights to industrial property objects (products, services. technology)	130		
"Soft" intangible or intellectual resources, which are not recognized as assets according to standards of accounting and reporting:	200	Undisposed property, which is created through external resources or through external financing:	500

knowledge and experience of the staff	210	human capital owned by staff	510
national and international, as well as civil rewards of employees	220		
corporate culture and socio-psychological climate	230		
information and communication	240	customer capital indirectly controlled through relationships with the subjects of the market of goods and services, as well as representatives of contact audiences	520
documentation without property rights (copyright): scientific, educational, technical, technological	250	part of the innovation capital which is created by the entity in the order of another enterprise	530
high-tech products without rights to industrial property objects (products, services, technology)			

(*) compiled by the authors according to the materials (Bruking, 2001; Platonov, 2012; Stuwart, 2007; Edvinsson, Malone, 1997)

There has been suggested a trend analysis and calculation of coefficients for the modified balance analysis. The trend analysis, as known, on the basis of the relative deviations of balance indicators for some time of performance-base period (normative, standard or benchmarking indicators) makes it possible to identify the main development trends in dynamics, in particular indicators of intellectual resources and indicators of their value formation.

The coefficients calculation is based on correlation determination (ratios) between balance indicators (its lines). The possibility to compare them, for example, with the average coefficients; similar ratios for the previous accounting periods or the factors of the competing companies increases the value of the results of intellectual resources analysis (assets). Explanation of these calculations and these coefficients interpretation are given in table3.

According to the study (Grytskov, 2015) a modified balance was composed (table 4 and 5) and its analysis was performed. Otherwise intangible

assets with their financial part are presented using quality indicators that are determined by the results of the expert assessment.

*Table 3. The calculation of coefficients for the analysis of intellectual resources (assets) and sources of value creation indicators of the modified balance **

Ratio	Numerator contents (№ line in the table1 or 2)	Denominator content (№ line in the table 1 or 2)	Intended use
Capitalization rate			
Relative capitalization rate	Current intellectual resources which can be acknowledged (line 100 of table 2) and made because of such standards of accounting and reporting (line 1000 + line100X table1).	Current intellectual resources, which cannot be recognized as assets according to the standards of accounting and reporting (line 200 table2).	Determines the potential level of capitalization of enterprise.intellectual assets
Actual capitalization rate	Intellectual assets, recognized to be assets for the period (line 1000 + line 100X table1).	Current intellectual resources, which can be recognized as assets (line 100 of table 2)	Evaluates the actual ability of the enterprise to capitalize intellectual assets.
General capitalization rate	Intellectual assets, recognized to be assets for the period (line 1000 + line 100X table 1).	Current intellectual resources (line 100 + line 200 table 2) and the current intellectual assets (line 1000 + line 100X table1).	Determines the overall capitalization level of enterprise.intellectual assets
Structural rate			
Process capital rate	Average annual capital process assessment (according to the data of line 410 of the table 2 at the beginning and end of the period).	Average assessment of intellectual resources [(according to the data of lines 100 and 200 table 2 at the beginning and end of the period) and assets (according to the data of lines 1000 and 100X table 1 at the beginning and end of the period)].	Determines the percentage of information systems and technologies in the general assessment of all intellectual resources and assets of the company.
Innovation capital rate	Average annual evaluation of innovative capital (according to the		Determines the percentage of innovative products in the total evaluation

	lines of 420 and 530 of table2 at the beginning and end of the period).		of all intellectual resources and assets of the company.
Human capitalrate	Average annual evaluation of human capital (according to the lines of 210-230 of table 2 at the beginning and end of the period).		Determines the percentage of human resources in the general assessment of all intellectual resources and assets of the company.
Customer equity rate	Average annual evaluation of customer equity (according to the lines of 240 of table 1 at the beginning and end of the period).		Determines the percentage of information resources and recognized as an asset of goodwill in the general assessment of all intellectual resources and assets of the company.
The ratio of the Cstructural components generated by internal and external sources	Average annual assessment of the capital created by domestic private sources (according to line 400 table 2 at the end and the beginning of the period).	Average annual assessment of capital created at the expense of borrowed or external sources (according to line 500 table 2 at the beginning and end of the period).	Defines the ratio between the parts of intellectual capital, that is equal to equity and debt capital.

(*)own collaboration

Table 4. The financial part of the modified balance

Assets (resources of tangible or recognized value)			Liabilities		
I. Non-Current assets	Line	Amount	I. Equity	Line	Amount
Intangible assets (brands and marks, licensing terms, franchise)	1000	11,0	...	...	...

Goodwill (as an additional item of balance)	100X	11,5	III. Current liabilities and provision		
...	...	...	...	...	...
Balance	...	...	Balance	...	...

Table 5. Non-financial part of the modified balance

Resources of inappreciable value	Line	Amount	Potential liabilities	Line	Amount
"Soft" intangible or intellectual resources that may eventually be recognized as assets according to the standards of accounting and reporting, including:	100	74,5	*Organizational capital*, which is formed due to internal resources and in the future can turn into equity according to the standards of accounting and reporting, including:	400	85,5
information systems and technologies	110	64,0	process capital	410	75,0
documentation without property rights (copyright): scientific, educational, technical, technological	120	10,5	part of the innovation capital which is created for private use by a business entity	420	10,5
high-tech products without the rights to industrial property objects (products, services. technology)	130	-			
"Soft" intangible or intellectual resources, which are not recognized as assets according to the standards of accounting and reporting:	200	93,4	Netcordia property, which is created through external resources or through external financing:	500	104,9
staff knowledge and experience	210	11,2	human capital assets owned by staff	510	50,9
national, international, and civil rewards of employees	220	33,2			

corporate culture and socio-psychological climate	230	6,5			
information and communication	240	-	customer equity which is indirectly controlled through relationships with the target market entity, as well as representatives of contact audiences	520	11,5
documentation without property rights (copyright): scientific, educational, technical, technological	250	42,5	part of the innovation capital which is created by the entity in the order of another entity	530	42,5
high-tech products without the rights to industrial property objects (products, services, technology)					

The results of the calculations and their interpretation are given in table6, which indicate a relatively high level of capitalization rate of intellectual assets for domestic enterprises in the development sector: total capitalization rate is 12 per cent. At the same time, a similar ratio for the world's leading companies in the field of IT-technologies and computer equipment production can vary in the range from 5 to 50 percent in 2014 (Goncharenko, Grygoruk, 2014).

In addition, the results demonstrated naturally high level of specific importance of separate components of intellectual capital, namely, process and innovation capital, which constitute the organizational capital of the enterprise (company), as well as human capital. For calculations, the values of the corresponding rates in the sum are practically equal to 100 %, which is consistent with the conclusions of experts in the field of intellectual capital management (Kendyuhov, 2008; Kasych, Khimych, 2013) concerning the greatest importance of the organizational and human capital for achieving strategic objectives and development of a business entity.

Table 6. The results of the intellectual resources analysis (assets) and sources of creation of their value according to the modified balance indicators

Rate	Calculation	Explanation (interpretation of indicators)
Capitalization rate		
Capitalization relation rate (Cr)	(74,5+22,5):93,4 =1,03	Normal value of this indicator can be considered more than 1.0. According to the calculations the potential level of capitalization of intellectual assets is relatively normal, as intellectual holdings that are already capitalized and can be such, are almost equal to holdings that do not qualify for capitalization.
Capitalization actual rate (Ca)	22,5:74,5=0,3	The obtained result value suggests that the recognition in the financial accounting rate of return (annual percentage rate) intellectual assets are 30% of intellectual resources that can be capitalized.
Capitalization common rate (Cc)	22,5:(74,5+93,4+2,5)= 0,12	The obtained value of the index suggests that the recognition in the financial accounting rate of return (annual percentage rate) intellectual assets account for 12 % of all intellectual assets without their opportunities to capitalize.
*Structural rate *:*		
Process capital rate (PC)	75,0:190,4=0,39	The proportion of process capital in the form of information systems and technology in the general assessment of all intellectual assets of the company is 39 percent.
Innovation capital rate (Inc)	53,0:190,4=0,28	The proportion of innovative capital in the form of innovative products in the general assessment of all intellectual assets of the company is 28 percent.
Human capital rate (HC)	50,9:190,4=0,27	The proportion of human capital in the general assessment of all intellectual assets of the company is 27 percent.
Customer capital rate (CC)	11,5:190,4=0,06	The proportion of customers capital in the form of information resources and recognized as an asset of goodwill in the general assessment of all

		intellectual assets of the enterprise is 6 percent.
The ratio of the structural components of intellectual capital (IC), formed by internal and external sources (IIC/EIC)	85,5:104,9=0,82	The ratio between the parts of intellectual capital which are equal respectively to equity and debt capital is 82 percent. Similarly indicators of financial analysis with such indicators characterizes a fairly high level of funding for their own intellectual assets.

(*) while calculating rates there were accepted the data of the moment of balance sheet instead of the average annual data.

3. Conclusions and prospects for further research

The discussed procedure analysis of modified balanceindicators according to the assets of the intellectual holdings and capital allows at the same time to implement the "Nordic approach" in the assets valuation at noticeable cost in quality and "American approach", which includes sources evaluation without tangible value reflecting them in the balance.

At the same time, the analysis quality of intellectual holdings and capital (trend analysis or the rate analysis) depends on the accuracy of their previously held non-financial evaluation, technique improvement of which is a promising direction of research of intellectual capitalmanagement. In addition, the rate analysis according to the modified balance assets requires further developments aimingto establish their normative values.

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