

The Disclosure of Intellectual Capital in Universities: Stakeholder Approach

M. A. Vakhrushina

Department of Accounting, Analysis and Audit,
Financial University under the Government of the Russian
Federation,
Moscow, Russia
MAVakhrushina@fa.ru

A. A. Tolcheeva

Department of Accounting, Analysis and Audit,
Financial University under the Government of the Russian
Federation,
Moscow, Russia
AATolcheeva@fa.ru

Abstract— The disclosure of Intellectual capital becomes urgent for universities, because of the fact that knowledge is the main output and input in these organizations. Furthermore, universities have ever-increasing external demands for greater transparency about the use of their intellectual capital in the globalization context. This case requires to pay particular attention to respecting universities' stakeholders interests when designing a reporting system. The aim of the present study is to provide the Intellectual capital report for Russian universities based on analyzing existing disclosure experience in national universities and comparing it with international practice through a specific system of indicators. Our proposal for an intellectual capital report is intended to be a practical guide to help the Russian universities to provide a greater transparency and comparability in the higher education sector of Russia.

Keywords—*intellectual capital; universities; intellectual capital report; disclosure of intellectual capital; stakeholders.*

I. INTRODUCTION

The intellectual capital (IC) have become a major issue not only for academics, but also for regulators, investors, enterprises and other groups of stakeholders during the beginning of the new information age. Since the importance of IC and its essential value has been realized, the need to manage this capital emerged. Although most of the existing managerial techniques and methods of the IC analysis refers to private firms, growing interest has extended from private organizations to public ones, such as universities. This latest tendency is due to the fact that universities' main strategy and goals are the production and dissemination of knowledge, furthermore their most important investments are in human capital and research activities (Canibano and Sanchez, 2004) [3].

In the context of this extension and a number of different changes, Russian higher education institutions are interested in increasing the level and quality of their flexibility and transparency. Social changes, such as the appearance of the new groups of stakeholders (for example, the business sector and society in general), has changed the informational needs, demanding more detailed information about universities' activities. Economic and political changes related to the harmonization of the national university system with the

"Bologna Process"; increasing the level of internationalization of education has called for and provided justification for the greater transparency of Russian universities as well.

The problem of IC disclosure has been a topic of great interest within academic and business societies in Russia in the last decades. Several mechanisms of corporate communication such as Integrated reporting and Sustainability reporting were adapted and used by Russian companies to disclose data about IC to stakeholders. Nevertheless, the issue of IC information disclosure in Russian universities has not been analyzed.

The main aim of this research is to analyze IC information disclosure practices of Russian universities and to compare existing IC report models in international practice through a specific system of indicators. The paper provides recommendations on preparation of IC report for universities in Russia the aim of which is to present essential information about IC and to assist stakeholders to make the correct decision.

The paper is structured as follows. Section II briefly discusses the relevant research on IC, illustrating the form of IC within university sector, an overview of the importance of its disclosure to stakeholders and the most relevant international experiences dealing with IC reporting initiatives in universities. Section III is devoted to describing research methodology and to provide the results of the implementation of ongoing Austrian and Spanish universities' practice in IC disclosure adapting it for Russian universities. Finally, Section IV draws some preliminary conclusions.

II. LITERATURE REVIEW

In this section, the definition of IC and its components as well as the importance of IC reporting in terms of stakeholder's demand are presented and previous research on IC disclosure in universities are addressed.

A. Defenition of the IC of university

According to the European Commission (2006) [13], IC is defined as a combination of intangible activities and resources that permit the organization to transform another type of

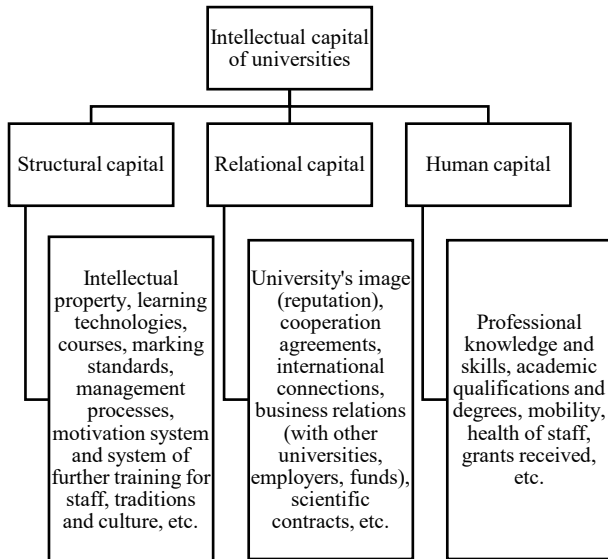
resource (physical, financial and human) in a system which creates stakeholder value.

Although scientific literature indicates that there are different ways to compose IC elements, however there is a generally accepted approach to divide IC into three basic subcategories: structural capital, relational capital and human capital (RICARDIS, 2006 [13]; Canibano & Sánchez, 2004 [3]; MERITUM, 2002 [7]; Stewart, 1998 [16]).

In the case of universities, we could explain the components of IC in the following way:

- Structural capital represents a part of the IC related to the internal process of communication, dissemination and management of knowledge (scientific, academic, technical, etc.) in universities and includes organizational procedures, motivation systems, faculty’s culture, databases, intellectual property, publications and so on.
- Relational capital is a part of the IC defined as the wide set of external relationships (economical, institutional, political, etc.) of universities (Sanchez et al., 2006) [14].
- Human capital is a component of IC referred to the knowledge of the universities personnel (professors, researchers, administrative staff, etc.), their skills, competencies, education and experience.

In order to best summarize the elements of each part of universities’ IC, we combined the existing views of foreign and Russian researchers and propose the categories and their content as shown below (Fig. 1).



Source: personal research.

Fig. 1. Three aspects of universities’ Intellectual Capital Approach.

B. Review of previous studies and initiatives on IC disclosure in universities

Although the IC management and reporting concept was

first developed within industry in the 1990s, it was soon adopted by public organizations including higher education institutions due to its overall significance (Mouritsen et al., 2004) [8]. The main reasons for disclosing the IC information by universities facing competitive and globalization challenges are the following. Firstly, the primary input and output of universities is knowledge, which consists of intangibles and intellectual properties. So, IC reporting might provide a link between universities and its stakeholders giving them full access to essential information about the intangibles and intellectual properties. The second reason is that measuring and reporting IC using a set of indicators can help to identify the elements which are not working in line with the identified strategic goals of universities and in turn can help in improvements (Fazlagic, 2005) [5]. And the last main one is that allocation of intangible resources and documenting knowledge-based processes can support performance and provide the management stakeholders with new qualitative and quantitative information (Warden, 2003) [20].

Austria has been the first country where the concept of IC disclosing has been adopted widely for universities and research organizations. In 1999 the Austrian Research Centers (ARC) published an IC report for the entire organization. This model used accepted categorization of IC (structural, relational and human capital) and an indicator-based approach. The aim of this report was to give a clear overview of organization’s knowledge flows and to provide interested parties and potential customers with information about its IC potential (ARC, 1999) [1]. In 2002 other IC initiative in Austria was introduced. The Austrian University Act (2002) [18] is obliging publicly financed universities to implement a IC reporting system that are unique worldwide, making Austria the first country to establish an IC by law.

Further the idea of IC reporting has gained an increasing attention in other countries. The Danish guideline for IC reporting (DATI, 2000) [4] was published in 2000 in the context of the project funded by Danish Agency for Trade and Industry. This guideline gives instruction on preparing an IC statement based on the experience of one hundred Danish companies which can be useful for universities area in term of starting IC statements development.

The MERITUM project (Guidelines for Managing and Reporting on Intangibles) funded by the European Commission was a set of guidelines for organizations explaining the potential tools of measurement and disclosure of intangibles which can be adopted to universities context (MERITUM, 2001) [7].

In 2004, a high-level expert group tried to encourage universities to participate in the efforts to develop IC managing and reporting concept, as a part of a strategy to make universities accountable towards their stakeholders and society as a whole (Sanchez et al., 2006) [14]. Thus, RICARDIS report (Reporting Intellectual Capital to Augment Research, Development and Innovation in SMEs) aims at pushing universities towards the adoption of new reporting

system improving both the transparency for stakeholders' demand and their knowledge management (European Commission, 2006) [7].

Other initiatives drawing attention to the importance of managing intangibles in public universities in order to improve their level of competitiveness were the Observatory of the European University report (OEU, 2006) [9], as well as ICU (IC Universities) model (2006), the last one focused on the specific case of the Autonomous University of Madrid.

Therefore, European countries partly started benchmarking on a set of common IC indicators to learn from each other. The MERITUM report emphasizes the importance of IC indicators development and lists the valuable characteristics that these indicators should have. First of all, it is usefulness, that means facilitating decision making for users. Then, it is relevance (understandability and significance). Thirdly, IC indicator should be reliable, this requires it to be verifiable and truthful. Also, indicators should have a feasible characteristic which means the information about IC can be obtained from the universities' information system. And, finally, IC indicator could be used as a benchmarking tool enabling comparison, such that users (stakeholders) can make comparisons over time and across different universities (MERITUM, 2001).

Thus, based on past international studies and experience, we consider that the existing guidelines along with further studies can provide a solid base for making IC reporting

possible for the Russian universities. Taking into account the fact that different universities might be in different stages of development, or that their strategy might have been severely affected by external environment factors at some point, we understand the need for adjustment in current practice to the specific need of the stakeholders of the particular education institution.

C. The importance of IC reporting for stakeholders

Originally the term "stakeholder" was meant to generalize the notion stockholder. The classic definition of stakeholders was given by E. Freeman (1984) [6], he defined them as "any group or individual who can affect or is affected by the achievement of an organization's purpose". Stakeholder Engagement Standard AA1000 (2011) [15] clarified this term pointing that stakeholders have influence on organization's activities, products or services and associated performance.

During this research, it has become clear that currently operating universities have a variety of stakeholders which can be classified into internal and external groups. In Table I we summarize and categorize all possible existing types of stakeholders in the context of universities. A list of internal stakeholders includes consumers of the provided educational services, universities' internal communities and staff. External stakeholders are presented by applicants, employers, government authorities, other universities, research and social organizations, media and providers.

TABLE I. CATEGORIZATION OF TYPES OF UNIVERSITIES' STAKEHOLDERS

Internal stakeholders	
Consumers of provided educational services	Undergraduates (BSs), postgraduates (MSs), PhD students, participants of the training courses
Internal communities	Union organization, student council
University staff	Teaching and research staff, administration and service staff, university governors
External stakeholders	
Applicants	Pupils, other applicants as well as their relatives and friends who capable to influence on their choice for selection of the university
Employers	Enterprises of various sectors of the economy
Government	Government authorities, public bodies, which financing universities and/or control their performance
Other universities	Higher education institutions competing for consumers of similar educational services
Research organizations	Research organizations or foundations that fund scientific projects
Social organizations and associations	Voluntary, public organizations, political parties, employment agencies, alumni's unions, artistic and professional associations
Media	Radio, TV, newspapers, online media, universities rating agencies
Providers	Construction contractors, suppliers of materials, equipment, energy, utilities

Source: compiled and adapted from Stakeholder Engagement Standard AA1000 (2011) [15].

According to stakeholder theory universities should discharge accountability to their stakeholders and reduce the information asymmetry. This can be achieved by focusing on the quality of disclosure of IC information which is in the interest of users and meets their need. In order to meet the requirements of administration staff or university governors, the IC report of universities should disclose indicators which characterize their special advantages, and potential triggers for more effective use of IC. Disclosure of information about operational stability, university's reputation, the quality of human capital and opportunities for professional and career growth as well as represent the interest of teaching and

research staff and internal communities. Actual and potential consumers of provided educational services, concerns related to stability and reputation of university as well as including data submission about reputation and professional skills of teaching staff, and position in the international universities ranking. A set of IC indicators which present universities' efforts and achievements in implementing scientific research, social, voluntary and other projects would be a crucial step toward providing useful information about IC to research organizations, social associations and other universities. The most demanded data by stakeholders from the group of media, providers and public bodies is information about university's

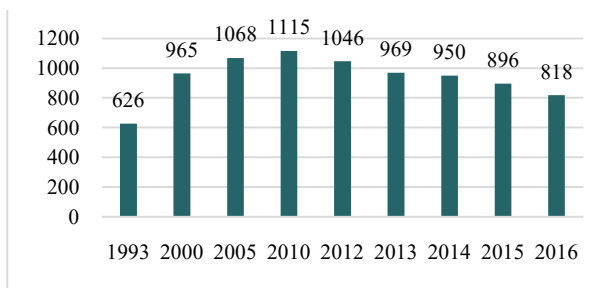
image, its role in sustainable development of the region and promoting the employment of population alongside the role in the development of national education system.

In our opinion, an improvement in the transparency of the Russian university reporting system would be achieved by the implementing a new form of reporting complementary to the current statements – the Intellectual Capital Report – which contains a set of indicators most demanded by different stakeholders’ according to the international practice while bearing in mind the experience of the Russian case as well.

III. CASE STUDY AND RESULTS

A. Russian universities

The main vision of contemporary policy of the Russian Federation is building up of the national innovation-oriented system integrating actions of public authorities, universities and business sector toward successfully addressing strategic national priorities. Russian universities have been going through many changes in the recent years and the way they are administered, funded and functioning is becoming more demanding. Even though the public expenditures on education as percentage of Russian consolidated budget has been increasing from 11,2% in 2011 to 17,3% in 2016 (Rosstat, 2016) [17], the reducing number of universities in Russia is of great concern (Fig. 2).



Source: previous research (Vakhrushina et al., 2017) [19].

Fig. 2. The number of higher education institutions in Russia for the period from 1993 to 2016.

Russian universities are under government funding and therefore they give higher attention to research and its success in order to get hold of more funds. Nowadays more universities are looking to exploit their IC in ways that would more directly bring them the capacity to adapt to changing circumstances, while yielding their competitiveness and transparency. Hence the main aim of this research is propose a set of IC indicators for reporting in Russian universities based on existing best practices of foreign universities.

B. Research methodology

The methodology identified the use of content analysis as most appropriate for researching IC disclosure in different types of reports of Russian universities, which are the most popular source of gathering data about IC elements. Content analysis has also been used in similar studies of IC disclosure in different countries (e.g., Italy, Denmark, Australia, UK, etc.). Our research covered 50 Russian universities listed in

“Top-50 Russian universities in the field of Economics and Management in 2016” on the “International group of rating agencies “Expert RA” website (RAEX, 2017) [11]. Reports which are publicly available on these universities’ websites for 2016-2017 academic year were content analyses, which revealed the set of IC indicators currently disclosing and covering the issues of interest to Russian universities’ stakeholders emerged. These identified indicators were combined with checklist used by Bezhani (2010) [2] and predefined by the Ministry for the mandatory reporting for universities in Austria consisting of 39 IC indicators, and the checklist of Ramirez et al. (2017) consisting of 31 IC’ indicators as well. Selected indicators are proposed were achieved a high value in foreign practice (Ramirez et al., 2017) [12], which implies that they are essential in the measurement of IC information in Russian universities. After this stage our checklist of IC indicators was complemented by indicators from the World University Ranking Methodologies: Academic Ranking of World Universities (ARWU), The Times Higher Education World University Rankings (THE), QS World University Rankings. Thereafter some adjustments were done, where some IC indicators were reformulated and others combined because they were too similar. And the finally, obtained checklist of IC indicators was tested in one of the Russian university in order to see how it worked in reality.

C. Results

Here follows a consideration of the principal results obtained through the empirical study of the aim previously established.

None of the universities in Russia creates a separate document entitled IC report and mostly do not use the term “Intellectual capital”. Annual self-reporting statements of universities predominantly monitor mandatory structure according to the Ministry of Education and Science framework and contain separate information about IC and intangible processes.

The quality of other types of reports (e.g., annual reports, chancellor’s reports, social reports) of each Russian university is very different, both in terms of the level of quality of the information disclosed, and in terms of its appearance and attractiveness. There is no one common technique adopted for of IC disclosure, universities use various information transmission mechanisms such as charts, textual materials, absolute or relative indicators etc. This fact made the identification of the real amount and type of IC of each individual university more difficult.

By analyzing the above-mentioned experience in IC disclosure, we developed a checklist consisting of IC indicators which are divided between the categories of human, structural and relational capital, and classified as fundamental or essential for all groups of Russian universities’ stakeholders. Taking into account all key issues we designed an IC report.

The following table shows the final structure of the IC report for Russian universities proposed in this research

and tested on the data of Financial University under the Government of the Russian Federation (Financial University) (Table II).

TABLE II. PROPOSED MODEL FOR RUSSIAN UNIVERSITIES INTELLECTUAL CAPITAL REPORT

Elements	Indicators	2016	2017
HUMAN CAPITAL			
Academic and professional qualification of university staff	Ratio of academic and research staff with PhD or equivalent	81,94	81,01
	% of administrative, technical and auxiliary staff	n.a.*	n.a.
	Average age of academic and research staff:	83,38	83,56
	- Proportion of staff under 65 years of age		
	- Proportion of staff under 40 years of age	24,85	23,71
	Staff left the university per staff recruited	n.a.	n.a.
	Average duration of staff	n.a.	n.a.
	Number of participants in training programs	1677	n.a.
Scientific productivity	Academics with fellowship from other foreign universities per number of staff	0,65	0,7
	PhDs theses finalized on time or throughout the year, %	n.a.	n.a.
	Average number of publications per number of staff in journals indexed in systems:		
	- Web of Science	2,54	7,31
	- Scopus	9,52	15,29
	- The Russian Science Citation Index	1 111	1461
	Average number of citation of publications per number of staff indexed in systems:		
	- Web of Science	4,52	6,89
- Scopus	9,99	21,26	
- The Russian Science Citation Index	874	1 170	
STRUCTURAL CAPITAL			
Teaching management	Number of library recourses per total number of students	94,71	79,40
	Number of own periodicals	10	12
Efforts in innovation	The share of income derived from R&D in overall income of university	5,13	5,11
	Number of grants, awarded contracts per number of staff	2,14	2,6
	Number of conference hosted	173	n.a.
Intellectual property	Number of patents, data bases, know-how (intellectual property)	n.a.	n.a.
RELATIONAL CAPITAL			
Relations with students	Total number of students	19 201	18798
	Average score of first-year students in Unified State Exam	72,65	74,86
	Number of winners of international and Russian professional competitions entered without examination	167	105
	Student satisfaction index, %	88,2	85,3
	Percentage of graduates employed after university of throughout the year, %	80	80
Relations with business and public partners	Number of collaboration agreements with enterprises	300	1203
	Number of educational programmers with official mention of quality or with accreditation of social and professional organizations	n.a.	n.a.
Relations with other universities	Percentage of students received from foreign universities	5,78	6,06
	Number of collaboration agreements with foreign universities	103	122
University's reputation	Hits on Internet site	22348756	23465807
	Position on National universities ranking list (Interfax)	28	29 - 31
	Position in Academic Ranking of World Universities (ARWU)	n.a.	501+
	Position in Quacquarelli Symonds (QS) World University Ranking	n.a.	351-400
	Position in Times Higher Education (THE) World University Ranking	n.a.	801+

* n.a. = not available

Source: compiled and adapted from self-reporting statement, open-access data on the website of Financial University, public monitoring data of the Main informational-computing center [10].

The structure of proposed IC report for Russian universities can be easily understood by any non-specialized user. This report discloses the key IC indicators expressed in terms of a monetary value or other numerical expression, that could be clearly interpreted by each stakeholder in terms of the processes of IC creation, competitiveness of universities, their sustainability and the potential of their human capital. Moreover the proposed IC report could also act as an incentive for comparisons with points in the university's past or with other universities.

IV. CONCLUSIONS

The disclosure of IC information becomes critical issue for universities mainly due to the fact that their main goals are knowledge production and diffusion. In addition to this, universities have continuous external demands for greater transparency about the use of their IC in the current context of globalization. This situation requires paying particular attention to universities' different types of stakeholders and their respective information interests when designing their communication reporting system.

Based on the results of this research Russian universities is still at the early stages of IC reporting, as evidenced by amount of disclosed IC information in their current reports (annual reports, chancellor's reports, social reports, self-reporting statements, etc.) which was identified mostly in the narrative form. This situation created the need for an awareness and identification of the real amount and type of IC which is often highly difficult. Given that certain existing reports are seen as a formal document, it is recommended that Russian universities create another report, which is IC report, as a tool to enhance transparency.

Building on the results of leading practices and initiatives on IC disclosure from foreign universities, as well as methodologies of the World University Rankings (ARWU, THE, QS), we developed and propose IC report for Russian universities covering the issues of interest of their stakeholders. The structure of the IC report can be easily understood by any user and shows a set of indicators, which are considered essential components of IC of Russian universities in our empirical study and present useful information for stakeholders.

Based on the current trends faced by Russian universities, our proposed IC report is intended to be a practical application and easy to use, contributing to a greater transparency and comparability within the higher education sector of Russia.

References

- [1] ARC (Austrian Research Centers), *Wissensbilanz (1999)*. Available at: http://www.arcs.ac.at/publik/fulltext/wissensbilanz/ARCS_Wissensbilanz_1999.pdf (accessed 05 April 2018).
- [2] Bezhani I., "Intellectual capital reporting at UK universities", *Journal of Intellectual Capital*, Vol. 11, Issue: 2, 2010. pp.179-207.
- [3] Canibano L., Sanchez M.P., "Measurement, management and reporting on intangibles. State of the art", *Readings on Intangibles and Intellectual Capital*, AECA, Madrid, 2004, pp. 81-113.
- [4] DATI (2000), *A Guideline for Intellectual Capital Statements: A Key to Knowledge Management*, Danish Agency for Development of Trade and Industry, Copenhagen, 2000. Available at: http://www.juergendaum.com/articles/Danish_ICs.pdf (accessed 05 April 2018).
- [5] Fazlagic A., "Measuring the intellectual capital of a university", paper presented at Conference on the Trends in the Management of Human Resources in Higher Education, OECD Headquarters, Paris, 25-26 August, 2005. Available at: www.oecd.org/edu/imhe/35322785.pdf (accessed 05 April 2018).
- [6] *Freeman R.E., Strategic Management: A Stakeholder Approach*. Cambridge University Press, 2010. 292 p.
- [7] MERITUM Project (2002), *Guidelines for Managing and Reporting on Intangibles (Intellectual Capital Report)*. Madrid: Vodafone Foundation. Available at: http://www.pnbukh.com/files/pdf_filer/MERITUM_Guidelines.pdf (accessed 05 April 2018).
- [8] Mouritzen J., Larsen H., Bukh P. "Intellectual capital in the capable firm: narrating, visualizing and numbering for managing knowledge", *Accounting, Organizations and Society*, vol. 26, 2001, pp.735-762.
- [9] PRIME Project (2006), *Methodological Guide: Final Report of the Observatory of the European University*. Observatory of European University (OEU). Available at: http://www.finhed.org/media/files/01-THIRD_MISSION_poglavlje_125_169.pdf (accessed 05 April 2018).
- [10] Public monitoring data, Main informational-computing center, 2018. Available at: http://indicators.miccedu.ru/monitoring/_vpo/inst.php?id=1767 (accessed 05 April 2018) (in Russian).
- [11] RAEX (Rating Agency Expert RA), *Top-50 Russian universities in the field of Economics and Management in 2016*. Available at: https://raexpert.ru/rankings/vuz/vuz_2016/vuz_reputation_2016/#1 (accessed 05 April 2018) (in Russian).
- [12] Ramirez Y., Manzanque M., Priego A. M., "Formulating and elaborating a model for the measurement of intellectual capital in Spanish public universities", *International Review of Administrative Science*, vol. 83 (1), 2017. pp. 149-176.
- [13] RICARDIS: Reporting intellectual capital to augment research, development and innovation in SMEs (2006), Report to the Commission of the High-Level Expert Group on RICARDIS. Available at: http://ec.europa.eu/invest-in-research/pdf/download_en/2006-2977_web1.pdf (accessed 05 April 2018).
- [14] Sanchez M.P., Elena S., Castrillo R., "Intellectual Capital Management and Reporting for Universities: Usefulness, Comparability and Diffusion", extended abstract, 2006. Available at: <http://www.prime-noe.org/spip.php?page=bibliotheque> (accessed 05 April 2018).
- [15] Stakeholder Engagement Standard AA1000 (2011). Available at: <http://www.accountability.org/standards/> (accessed 05 April 2018).
- [16] Stewart T.A., *Intellectual Capital: The new wealth of organization*. Crown Business, 1st edit. 1998. 320 p.
- [17] The Federal State Statistics Service of the Russian Federation (Rosstat), "Russian in figures", statistical bulletin, 2017. 511 p. (in Russian).
- [18] University Organization and Studies Act (Universities Act 2002), Federal Ministry of Education, Science and Culture, Vienna, 2002. Available at: https://www.uibk.ac.at/index/finanzabteilung/ug2002_englisch.pdf (accessed 05 April 2018).
- [19] Vahrushina M.A., Tolcheeva A.A., Knyazuk N.D. Razvitie informacionnoj funkicii otchetnosti gosudarstvennyh vuzov: obosnovanie neobhodimosti, raskrytie vozmozhnosti [The development of the information function of the reporting of public HEIs: substantiation of the need, disclosure of the possibility], *Buhgalterskij uchet i nalogooblozhenie v bjudzhetnyh organizacijah* [Accounting and taxation in budget organizations]. 2017. No 5-6 (143-144), pp. 75-84. (in Russian).
- [20] Warden C., "Managing and Reporting Intellectual capital: New Strategic Challenges for HEROs", *IP Helpdesk Bulletin*, vol. 8, 2003. Available at: <https://www.iprhelpdesk.eu/Library> (accessed 05 April 2018).