Intellectual Capital Reporting in Higher Education Institutions as an Accountability Tool
Review of the Worldwide Practices

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Abstract

Higher Education Institutions (HEIs) are considered critical players in the knowledge-based society. Moreover, HEIs worldwide are going through the important transformation processes aiming to make them more autonomous, economically efficient and competitive. Universities worldwide have been called to (re)consider their role in society; to evaluate their mission and their interrelations with various stakeholders, as well as their contribution to democratic and sustainable society. At the same time they have to prove wise resource management, disclose properly their outcomes, and demonstrate high level of transparency and accountability in support of clearly defined and feasible goals. One of the main approaches to the assessment of performance, ensuring control and promoting accountability in HEIs has become IC reporting. Therefore, during the last decades the interest regarding intangibles and intellectual capital (IC) has extended from business organizations to public institutions such as universities and research centers.

The main objective of this paper is to analyze the accountability request geared towards universities as well as IC reporting as the answer to it. The aim is also the review and discussion of the qualitative and quantitative empirical research in IC reporting of universities worldwide. The conclusions of the research confirm that the practical implementation of IC reporting in universities is still a challenge for a practice. The pioneer initiatives concerning application of IC reporting in universities are important steps towards greater accountability; however they lag behind the needs of stakeholders and should be improved in order to be more comprehensive, comparable and systematic. Greater awareness and effective implementation of IC reporting in universities could improve their future potential, quality and competitiveness.

Keywords: Intellectual capital, reporting, accountability, worldwide practices.

Introduction

Universities play an important role in the society: they are essential partners of the knowledge creation and knowledge exchange networks, catalyst of innovation, suppliers of tangible outputs of research results, institutions providing consulting and advisory services. Knowledge in universities represents both the input and the output of their activities and as the consequence intellectual capital serves as a key resource for them. Moreover, nowadays universities are facing an increasingly competitive environment in which they operate. As it is underlined by Secundo *et al.*(2017) "since the 1990s, European universities have moved from

focusing exclusively on the two core missions, teaching and research, to gaining a leading role in economic growth and regional development". Therefore, there are growing expectations placed on universities by their stakeholders that request accountability for funds spending and related outcomes. Intellectual capital reporting could be an important tool to improve internal management of universiites and in the same time a tool of communication, transparency and accountability for external purposes.

The objective of this paper is twofold; firstly, to present and analyze the accountability request geared towards universities as well as IC reporting as the answer to it. The second objective is to review and discuss the qualitative and quantitative empirical research in IC reporting of HEIs worldwide.

The academic research in the area of IC reporting of universities is linked to numerous theories, like: resources theory, stakeholders' theory, legitimacy theory, and signaling theory as well as the New Public Management (NPM) and post-NPM. It also falls in line with the call of Bisogno *et al*. (2018) that 'IC in education needs to expand its boundaries so it does not lose its relevance, and thus be able to contribute to wider policy debates'.

This paper contributes to IC literature by providing an assessment of accountability requests toward universities and the comparison of IC voluntary disclosure practices by universities. It provides an insight into the findings of early adopters of the IC reporting concept in universities from eight different countries worldwide.

The analyzed IC reporting practices can also have practical implications: they may be used as an internal management tool, aiming at improving the performance of universities' management processes and may play a role of the external accountability tool, legitimizing the universities' activities and outcomes. The results of comparison of practices give important directions for future development of the concept of IC reporting by universities.

Accountability of universities – the increased need for transparency

Universities are operating in a rapidly-changing environment, as societal, technological, economic, ecological and political developments force them to adopt flexible structures that can adapt quickly to new demands (Sporn, 1999). The decision-making processes in universities have become increasingly complex. The development of knowledge economy and the growing turbulence and uncertainty in the environment of modern organizations impact also universities. The increasing importance and complexity of Higher Education Institutions (HEIs), resulting from changes in the funding modes of universities, internalization of universities, their increasing levels of institutional autonomy as well as new social demands geared towards universiites, result in the need for transparent and accountable explanation of universities' activities, the justification of the strategies implemented and the disclosure of their performance (Fijałkowska, 2017a). As a consequence, the "public accountability" of that became a key theme in public management reforms around the globe (Christensen and Lægreid 2011, p. 12) appeals strongly also to universities.

The term "accountability" has many connotations and definitions; it can be understood as the obligation of public sector entities to the citizens and other stakeholders to account, and be answerable to, democratically chosen supervisory bodies, for their policies, decisions, and actions, particularly in relation to public finances (World Bank Group, 2016 p. 30). In the context of public institutions accountability is a continues reliability and clarity of settlements (Sułkowski, 2016, p. 11). In higher education one of the most profound changes during the last couple of decades is the increasing interest in accountability (Stensaker and Harvey, 2011, p. 1). Regarding HEIs, accountability is about demonstrating that the resources available to institutions yield presumed education gains (Eaton, 2009, p. 1). Leville (2005, p. 10) claims that accountability is a systematic method to assure those inside and outside the higher

education system that colleges and universities – and students – are moving towards desired goals, whereas accountability system for higher education are the systematic collections of input, process, and outcome data, their analysis and information dissemination, contributing to internal and external decision making by policy maker, educational leaders, and other stakeholders in the higher education institution. Universities have a wide spectrum of stakeholders that ask for accountability; i.e. governors and legislators, internal governing bodies of universities, deans, professors, researchers, the general public, the community in which the university is located, accrediting bodies, media, students, their parents, alumni, business representatives, sponsors, social and civic organizations.

In recent years, a third mission, over to the traditional teaching and research functions has been added, meaning the purpose of contributing directly to social and economic development (Bratianu, 2009). Universities are considered critical institutional actors in national innovation systems within the knowledge-based economy (OEU, 2006, p. 231). Governments wish to assure that the actions of publicly funded universities are consistent with the social values of efficiency, equity, and academic quality (Dill, 2001, p.22). In many European countries, their governments provided universities with more autonomy concerning their organization structure, management, and budget allocation, however as they fund their activities, they need also evaluate and reward universities' performance, which demands measurements and reporting mechanisms. There are growing expectations facing universities that should account for both the use of public and private funds. They are expected to prove the compliance with a growing array of national regulations and guidelines. As the respond, they need to present evidence that they fulfill their various obligations and responsibilities, that the goals are being accomplished and that money was spent wisely.

Universities must acquire a model of governance to strengthen institutional autonomy, and in the same time they need to prove greater transparency and accountability toward society and increased control over the results. In higher education there are time-honored traditions relating to performance measurement that nowadays are boosted by the need of external accountability requirements that should be implemented into a system of financial accounting and reporting (Fijałkowska, 2016, p. 97). The increasing social concern about establishing procedures of accountability and ensuring information transparency in public universities prompted the need to disclose information on their intellectual capital (Corcoles and Ponce, 2013).

Intellectual capital of universities

Intellectual capital may be understood as a combination of intangible resources and activities that enable the organization to transform material, financial and human resources in a system capable of value creation. IC is forming a human, structural and relational capital. Universities are organizations whose capital is largely intangible, relying mainly on the knowledge that they create, hold and distribute. Knowledge is the main output and input in these institutions (Corcoles and Ponce, 2013, p. 114). "If a knowledge-based economy is characterized by the production, transmission and dissemination of knowledge, universities are unique in all these three processes" (Sánchez and Elena, 2006).

Intellectual capital associated to universities (ICU) refers to more specific aspects of an organization: human capital is the knowledge and experience of the staff, students and graduates, structural capital is knowledge integrated into the structure, processes and culture institutional/ professional and relational capital comprises relationships inside and beyond the university (Fazlagic, 2005). The components of the intellectual capital for universities are presented in the table 1.

Table 1: IC's components for universities

	Human capital	Organizational / Structural capital	Relational capital
Description	Knowledge that the human resources (teachers, researchers, PhD students and administrative staff) would take with them if they left the institution. **HC** refers to the intangible value that resides in the individual competencies.	The knowledge that stays within the institution at the end of the working day. **SC** Refers to the resources that are found in the organization itself.	All resources linked to the external relationships of the institution. **RC** refers to the intangible resources capable of generating value linked to the university's internal and external relations.
Examples	Expertise, knowledge and experiences of researchers, professors, technical and administrative staff and students' competencies.	governance principles, organizational routines, procedures, systems, cultures, databases, publications, intellectual property, research projects, research infrastructure, research and education processes and routines, university culture	"customers" relations, "suppliers" relations, all the activities and relations between university and non-academic partners: firms, non-profit organizations, public authorities, local government, and society as a whole

Source: own work based on OEU, 2006, Sanchez and Elena, 2006, Leitner et al, 2014

In order to measure each category, the financial and non-financial indicators have been developed. There has been also the differentiation between measurement of resources and activities introduced. The measurement of ICU may be run following frameworks proposed by different institutions (e.g. Danish Agency for Trade and Industry, 2003). Set of indicators that may be used in order to measure the ICU were proposed by e.g. Bueno, Morcillo & Rodríguez, 2002, Leitner 2004, OEU 2006, van Vught & Ziegele 2011 and Leitner et al, 2014. The measurement and reporting of IC at the universities falls into the general idea of Intellectual Capital Management (ICM) that is a set of managerial activities aimed at identifying and valuing the knowledge assets of the organizations, leveraging these assets through knowledge sharing, and creating new knowledge (Easterby-Smith & Lyles, 2003; Holsapple, 2003). IC management can provide an effective methodology to support governance mechanisms (Bornemann & Wiedenhofer, 2014) and should not be understood as 'yet another management tool', but should be at the core of the decision-making process (Secundo *et al.,* 2015) and can be developed especially to improve relational capital along the value chain (Bornemann & Wiedenhofer, 2014). All these activities are aimed at the improvement of internal management and increase in external transparency of university.

IC reporting in universities

The growing importance of intangibles and attempts to voluntary disclose information on them has underlined limits of financial reporting system (Sułkowski and Fijałkowska, 2013). Moreover, accountability of universities became a challenge for HEIs that have been required to provide performance indicators and assessments — empirical evidence of their value and achieved outcomes (Fijałkowska, 2017b). As an answer to this request the IC disclosure could be implemented. The IC report should contain information on the work carried out by the institution in order to develop, maintain and manage its intangible resources and activities (MERITUM, 2002). Its main objective is to help universities to identify and deliver information on strategy, aims, visions, activities and resources, based on (financial and nonfinancial) indicators. IC management and reporting systems should provide information about the specific strengths and value of the IC of an organization and addressed different stakeholders (Leitner *et al.*, 2014, p. 10).

The attempts and trials to disclose the IC of universities are taken by many universities worldwide. A first attempt to provide a homogenous and comprehensive framework for managing and reporting IC in universities was developed by the Observatory of European Universities (OEU). The aim of the Observatory was to develop a common framework for the IC reporting at universities. Fifteen universities and research institutes from eight European countries (Germany, Spain, France, The Netherlands, Hungary, Italy, Portugal and

Switzerland) have worked together during two years in order "*to develop a common framework and build a battery of indicators to measure and compare the intangible elements related to research activities. Its main objective was to provide universities and research centers with the necessary tools for the governance of research activities*" (Sanchez *et al.*, 2007, p. 5). As the result, the Strategic matrix was proposed which represents the relations between strategic and transversal issues (Autonomy, Strategic Capabilities, Attractiveness, Differentiation Profile and Territorial Embedding) and five thematic dimensions (Funding, Human Resources, Academic Production, Third Mission and Governance). The analysis of the inter-relations was made first by formulating key questions and then by suggesting precise indicators to answer such questions. As a result, a specific framework for IC reporting for European universities was developed. It was structured in a way to enable the three main sections of IC:

- Section reflecting the vision of the institution (strategic objectives, strategic capabilities and key intangible resources that are the driving forces of any enterprise).
- Summary of intangible resources and activities (intangible resources the institution can mobilize and the different activities undertaken to increase the value of those resources).
- A system of indicators; the 43 indicators proposed were classified following the most common and widespread IC taxonomy, into human, organizational and relational capital.

The main idea of all the works within OEU was the improvement of quality and competitiveness of universities as well as setting out the framework for comparisons. As it is underlined in the OEU Guidelines for the management of research activities „disclosure is the next natural step after management, in order to increase the quality of research systems as well as their transparency and competitiveness as required by the Bologna process" (OEU, 2006, p. 226). The intellectual capital disclosure results in a higher transparency of the institution, increased user satisfaction and improved credibility, image and reputation of the University. It is the lack of internal systems of identification and measurement of intangible elements the main reason for not disclosing information on intellectual capital (Corcoles and Ponce, 2013). The proposal of OEU (2006) points out that it is necessary to treat ICU report as new model to provide homogenized information, presenting IC information in a single document. The starting point for the preparation of ICU report is the defining the strategic objectives of University and then creation of appropriate indicators. OEU suggests that the ICU report should have three different parts which depict the logical movement from internal strategy (design of vision and goals of the institution) and management to the disclosure of a system of indicators. Besides indicators, it requests also the inclusion of descriptive elements that are crucial to contextualize and better understand the information provided by the indicators.

Worldwide application of ICU reporting

In the realm of practice, an increasing number of universities and research centers in Europe have developed IC management and reporting models (Leitner *et al.*, 2014). The majority of approaches and measurements/reporting practices were used on the voluntary bases. One of the most outstanding and longest experiences in preparation of IC reports is the Austrian Research Centers ARC in 2005. The ARC model and principles have become the main foundations for IC reporting in Austrian universities. The Austrian case is a remarkable example since it has established a law that includes the compulsory delivery of an Intellectual Capital Report (ICR) ("Wissensbilanz") by its publically funded universities since 2006. In ARC the focus is around five "knowledge goals": Knowledge Transfer, Interdisciplinarity, Research Management, Internationality and Spin-offs & Investments. It is worth mentioning that although Austrian public universities were the first in Europe forced by law to implement so called Knowledge Balance Sheets (KBS) and detailed intellectual capital reporting, these

organizations are relatively under-researched concerning new reporting practices and their consequences (Habersam et al., 2013).

Beside Austria, Spain has the most active community aiming to establish IC reporting for university sector (Leitner *et al.,* 2014). The Spanish experience concerning IC reporting is to a great extent based on the research performed by the Autonomous University of Madrid (AUM), as a pilot university within the PRIME Network of Excellence and OEU. Following the pioneer approaches, different European universities are beginning to manage their Intellectual capital through different models and disclose ICU reports. However, also outside Europe some countries demonstrate activities in ICU disclosure. The examples embrace Italy, Lithuania, Poland, Czech Republic, Romania, Greece, Latvia, New Zealand, Australia, the UK and Colombia. In the table 2 the main characteristics of qualitative and quantitative empirical research in IC reporting of universities are presented.

Table 2 Main characteristics of qualitative and quantitative empirical research in IC reporting of universities

Study	Country of Study	Scope of research	Methodology	Sample
Ramirez, Tejada & Manzaneque (2016)	Spain	Analyze the relation between IC reporting and transparency	Questionnaire divided into two main categories: analysis of current accounting information model in Spanish universities and importance of IC reporting	Members of the Social Councils of Spanish universities (327 questionnaires were returned, response rate of 28.09%)
Ramirez & Gordillo (2013)	Spain	Provide a model for recognition and measurement of IC	Questionnaire to identify the expectations of stakeholders regarding intangible elements	Members of the Social Councils of Spanish universities (247 questionnaires were returned, response rate of 22.57%)
Kuralova & Margarisova (2016)	Czech Republic	Analyze the extent and quality of IC disclosure in relation to the needs of one group of stakeholders - students	Content analysis using IC disclosure index , questionnaire to evaluate the importance of variables in IC disclosure index	26 annual reports of Czech public universities (content analysis), students of Czech public universities (595 questionnaires were returned)
Siboni, Nardo & Sangiorgi (2013)	Italy	Analyze what Italian public universities consider as IC in their performance plan (since 2009 performance plan with the section devoted to IC has become a mandatory document for universities).	Content analysis of IC in performance plans based on Danish guidelines, which divide information into 3 areas: management challenges, actions and initiatives and indicators	44 performance plans (out of 67 Italian public universities) published in the year 2011
Sangiorgi & Siboni (2017)	Italy	Analyze the amount and nature of voluntary IC disclosure	Content analysis of IC disclosure in voluntary Social Reports, questionnaire to evaluate the opinion on IC managing and reporting	17 Social Reports (content analysis), 95 universities' top managers
Low, Samkin & Li (2015)	New Zealand, Australia, UK	Analyze the quality IC voluntary disclosure and to indicate potential trend in IC reporting	Content analysis of IC voluntary disclosure	Disclosures from 90 universities (eight New Zealand universities, 38 Australian universities, and 44 UK universities)
Bezhani (2010)	UK	Analyze the amount and nature of voluntary IC disclosure	Questionnaire divided into two main categories: analysis of current accounting information model in Spanish universities and importance of IC reporting	Disclosure from 30 UK universities for 2005 academic year, 18 directors of finance (15% response rate) submitted valid questionnaires
Leitner & Warden (2004)	Austria and Germany	Analyze various aspects after the implementation of a model for IC reporting in two research organizations.	Case study analysis of the implementation and the usage of the model	Two research organizations ARC (Austria) and DLR (Germany), analysis has been conducted after 4 years of model implementation.

Source: own elaboration

In table 3 the main findings and conclusions of qualitative and quantitative empirical research in IC reporting of universities are presented.

Table 3. Main findings and conclusions of empirical research in IC reporting of universities

Study	Findings	Conclusions
Ramirez, Tejada & Manzaneque (2016)	High dissatisfaction with current accounting information practice, low usefulness, not relevant information about universities' activities, low level of universities' activities monitoring, high need of qualitative and quantitative information, like: quality of teaching, research and services, future resource distribution, future plans, high expectations of IC reporting: accounting information model will be more relevant, higher user satisfaction, better image of the university, promotion of public accountability and better comparability among universities.	Current accounting model does not provide relevant and useful information for the stakeholders of Spanish universities to monitor adequately and support decision - making process. There is a meaningful necessity for presenting information on IC.
Ramirez & Gordillo (2013)	The essential intangible elements for the stakeholders: human capital: academic and professional qualifications of the teaching and research staff, mobility of teachers and researchers, scientific productivity and teaching capacities and competences;	The implementation of the proposed model for measure and recognition of IC could help the stakeholders in decision - making process, in addition could be used as a tool for benchmarking analysis and comparative studies.
Kuralova & Margarisova (2016)	The average score for IC disclosure quality is 0.57, with the highest score for Relational Capital (0.71) and the lowest for Human Capital (0.47). From students perspective the most important information regarding IC are the cooperation of universities with future employers (Relational Capital), availability of information and communication services (Structural Capital), they find information for Human Capital as the less relevant.	Introduction of new IC reporting system to meet stakeholders' needs and to improve future potential, quality and competitiveness of universities.
Siboni, Nardo & Sangiorgi (2013)	Emphasis on aspects related to the development of relations with external partners (43.18%). Much attention is driven by the issues related to the increased in efficiency and very little to the customers' need and satisfaction. The most frequent is declarative information (66.12%) and the less - monetary information (0.70%).	All the management challenges suggested by Danish guidelines are reported, however with variable results for number of observations. It should be considered by each of the university to create a strategy for planning IC reporting.
Sangiorgi & Siboni (2017)	The most frequent component disclosed regarding IC is structural capital and the less one is human capital research and education. In majority, the top managers represent the good knowledge of IC and the awareness of its benefits. They also support the policy of introducing mandatory IC reporting for Italian universities.	Awareness of benefits related to the practices of IC managing and reporting. In framing the content for an IC report seems to be crucial taking into consideration the relevant fields of research to which universities are devoted (different frameworks for technical universities, medical universities, universities of art, etc.)
Low, Samkin & Li (2015)	The average mean of IC disclosure index shows that the highest quality among three countries belong to Australian universities (0.55, where the max value is 1) than New Zealand (0.51) and British (0.42). Regarding the three categories of IC reporting, in all countries the most disclosed one is external capital, than internal capital, followed by human capital. In the longitudinal analysis (three-year period 2009 - 2011) the quality of IC disclosure has increased in all three countries, however without any significant changes in IC reporting practices.	Australia and New Zealand also in previous studies are recognized as countries with high importance of IC reporting. The low level of improvement in the IC reporting quality within time probably is due to the fact that universities have already met the expectation of stakeholders and/or potential costs of improvement are too high for universities. Most information disclosed is narrative in nature.
Bezhani (2010)	Results of the questionnaire show, that the IC reporting has more importance for external purposes (like: showing that an institution is innovative), than for internal ones (generating innovation, creating a certain culture). Research (especially publication) is the category with the highest quality of disclosing (37%), followed by relational capital (18%) and human capital (14%). The lowest scored IC categories are knowledge transfer to the public (2%) and commercializing (6%).	The level of quality of IC disclosure is low. Most information has narrative nature. Confirmation of previous findings, that to provide more funds, the most discloses category is research and its quality. There is a scarce connection between IC reporting and universities' performance.
Leitner & Warden (2004)	Implementation of an IC measurement system should start with establishing corporate goals and strategies. The crucial issues on the stage of implementation are: defining the exact number of goals and indicators (not too many), confusion of the measures of different things, while using the same resources of information (one indicator can serve for more the one measure of IC).	The IC report can give the opportunity of variety of interpretations.

Source: own elaboration

The results presented in both tables above review the findings of empirical research concerning IC reporting practices in universities in eight countries worldwide, namely Spain, Czech Republic, Italy, New Zealand, Australia, UK, Austria and Germany. It is worth mentioning that the research aims in all the analyzed cases were similar, however all slightly different: they analyzed the relation between IC reporting and transparency, the amount and

nature of voluntary IC disclosure, the quality of IC voluntary disclosure and they were supposed to indicate the potential IC reporting trends as well as the IC disclosure in relation to the needs of stakeholders. The methodology applied in analyzed studies was various: content analysis, questionnaires and interviews or different compilations of this methods were applied. The benchmarks for the analysis were IC indexes that were elaborated usually individually by the researchers, however they were often drawing on experience of OEU, DATI or other guidelines (more on the IC reporting guidelines see: Fijałkowska, 2008). The empirical analysis reviewed in this study embraced the results of 687 questionnaires conducted with the management of the universities and 595 with students. There were all together 209 documents disclosed by universities that were analyzed in the empirical research presented in the tables above. The general findings indicate that in the majority of countries the most highly disclosed component of IC is relational, called also structural capital. The lowest level of disclosure on average concerns the human capital. This observation confirms the need of the fourth stage of IC research need; the main pillar of this stage is the necessity to discriminate and connect the human capital inside an organization with relational capital outside the organization (Dumay, 2013).The quality of disclosure among different countries in the analysis varies. The methods and approaches are different thereore the detailed comparability between countries is impossible. The empirical results presented in the analyzed researches appeal also in the majority of cases to the one-year observation. Therefore, neither the analysis within one country in time is possible. There is a lack of consistency, continuity and comparability. Therefore also transparency and accountability may be questioned. Empirical research analyzis brings also to the conclusions that IC reports lack the the information orientation on the needs of stakeholders. In some studies it was also underlined that the level of quality of IC disclosure is low, the information disclosed is mainly narrative, and it gives the opportunity of variety of interpretations. Many of the stakeholders that were interviewed and questionnaired indicated the awareness that the proper IC reporting framework application may have a great impact on the improvement of future potential, quality and competitiveness of universities.

Summary

Today universities must compete for qualified lecturers, talented researchers, research funds and determined knowledge lusting and world curious students. Ongoing changes in the higher education institutions worldwide, their globalization and internationalization, together with their greater autonomy, require major strategic changes in the institutional communication systems that should become tools of transparency, accountability and allow for better governance. IC reporting may be treated as the response to these needs. It focuses on the identification of intangible assets and tries to link them to the outcome of the universities, which is a new idea in the context of universities long history of assessing results of research and education (Leitner, 2002, p.13). ICU reporting leads to differentiation and is an answer to the challenges of increased national and international competition, transparency and accountability. Within the analysis of the empirical research concerning the IC reporting practices in universities one of the main observation is the existence of the stakeholders' awareness of the great necessity of ICU. They are generally not satisfied with the level and quality of information disclosed by universities and they express the need of more coherent and transparent information of universities performance. The implementation of an IC reports on a greater scale in the international context should definitively improve the information on values, inputs, outcome, efficiencies, development and performance of universities to the broad public and could help university management to better govern its previously invisible intellectual capital.

The empirical research on IC reporting in universities is developing, but there is a necessity of the more profound insight into the practices of universities. It is also necessary to

boost the awareness of universities to disclose the information on their IC. This may encounter many difficulties and barriers. The common framework could be useful in the context of benchmarks, comparisons and competition, however cultural and institutional factors may impede application of one international approach. The human factor is also very important; the human part of IC is usually the lowest scored in the IC of universities. It should be improved but at the same time it may encounter the strongest prejudices and objections as the well-educated and autonomous representatives of academic world may oppose to any set of indicators evaluating their performance. Still IC reporting in universities is a challenge. However, because of its importance more intensified efforts are necessary both in the area of developing a reporting framework as well as in the analysis of their implementation in practice. This could improve the quality of a Higher Education system; make it more transparent and more accountable in the context of the current changes and requirements concerning universities. These conclusions are consistent with opinion of Michalak *et al*. (2017) that 'more research in the area of IC management in the field of efficient management of IC at universities and follows Dumay and Garanina's (2013) call for the third stage of IC research, concerning the intensified investigation needs to explore how IC measurement and reporting is used for managing IC e.g. in universities.

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