THE INTELLECTUAL CAPITAL REPORT WITHIN UNIVERSITIES: COMPARING EXPERIENCES

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The paper focuses on the intellectual capital (IC) report in universities, a relevant theme actually for the growing interest in applying an IC approach in managing universities. The paper compares the experiences in reporting IC of two different university institutions, the Autonomous University of Madrid (UAM) and the Austrian Universities, to highlight pros and cons of the two different IC models employed. In order to compare these two experiences, firstly we analyzed, through a literature review, the state-of-the-art in measuring and reporting IC, then we focus on the IC measurement models used as framework by the two institution, finally we turned our attention to the IC reports issued by the two universities. Both experiences presented refer to advanced IC measurement models, but both suffer of some limits in applying the models in practice. Like all measurement and management systems that deal with knowledge-based processes, Austrian and UAM's IC reports face the methodological problems of measuring non-physical processes and outputs. In detail, Austrian IC reports lack of qualitative indicators, UAM's IC report lacks of efficiency-related and activities-related indicators.The main research limit is that the theoretical comparison has been carried out on two experiences, due to the lack of awareness of IC relevance in managing universities. The establishment of an ad hoc IC measurement model for universities could have both internal and external benefits. As regards the policy implications, Government, ranking universities by their IC, can get information about their strengths and weaknesses and using it to reallocate resources. This study contributes to broaden the research community's understanding about a relevant management (internal) and communication (external) universities' tool, the IC report, through the examination of two real life European universities experiences in disclosing intangibles. To the best of our knowledge, this is the first paper that focuses on comparing the two best university practices in reporting IC.

Key words: Intellectual capital, universities

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1.Introduction

In the actual knowledge-based economy, intangible assets are seen as essential elements to value creation in companies and to economic wealth (Lev 2001). Consequently, measurement and management of intellectual capital (IC) is becoming more and more critical (Veltri, 2007). Although the IC concept was first developed as a framework to analyze the contributions of intellectual resources in for-profit enterprises, it has been soon taken over by public and non-for-profit organizations, due to it overall importance (Mouritsen *et al.*, 2004; Kong and Prior, 2008). Actually, there is a growing interest in applying an IC approach in managing universities, since their main goals are the production and diffusion of knowledge and their most important investments are in research and human resources (Sánchez and Elena, 2006). Moreover, universities are increasingly considered key actors in the wider move towards an increasingly global and knowledge-based economy and this circumstance led supranational organisms to

promote the spread of IC management within universities. At the European level, in 2002 the European Association of Research, Managers and Administrators (EARMA) in collaboration with the European Centre for Strategic Management of Universities (ESMU) launched the initiative about IC in higher education institutions and research and technology organizations (HEROs) with the objective to raise awareness and disseminating good practice research in the field of IC management and reporting among universities and research organizations (Leitner, 2005). In Ricardis' report (Reporting Intellectual Capital to Augment Research, Development and Innovation in Smes), the High-Level Expert Group encourage universities to participate in the efforts to develop IC reporting culture, as a part of a strategy to make universities accountable towards their stakeholders, by improving both the transparency in governance and their resource management and strategies (European Commission, 2006). Necessities like the increasing stakeholders' demand for more transparency, the increasing competition between universities and firms, and a wider autonomy, push universities towards the adoption of new management and reporting systems which should necessarily incorporate intangibles (Sánchez *et al.*, 2009).

The main aim of the paper is to compare IC report model applied by Austrian universities, and the Intellectual Capital Report for Universities (ICU report) model applied by the Autonomous University of Madrid (UAM) in measuring IC through a specific system of indicators.

The remainder of the paper is organized as follows. Section 2 briefly discusses the relevant literature on IC, illustrating also the declination of IC within university sector. Section 3 describes research methodology, Section 4 provides the results of the comparison between Austrian and Spanish universities IC report, while Section 5 concludes the paper.

2.Literature review on the intellectual capital measurement models and their application to the university context

Intellectual capital literature comprises a lot of IC definitions (for all, see Tan *et al.*, 2008). The definition accepted in this paper considers IC as a dynamic system of intangible resources and activities, at the basis of the organization's sustainable competitive advantage. In general terms, all of the major players in the IC community share the idea that intellectual capital, from a qualitative point of view, can be divided into three categories: structural (or organizational), human and relational capital, further validated by Meritum Project (2002). Briefly, human capital consists of knowledge, capabilities, competencies, and skills possessed by the organization's workers, the organizational capital is constituted of structured knowledge possessed by the organization and is shareable (database, procedures etc.), while the relational capital is the totality of relations between the organization and its main stakeholders.

Methods for IC measurement can be classified in four basic categories (Sveiby, 2009): 1) Market capitalization; 2) Return on Asset; 3) Direct Intellectual Capital and 4) Scorecard. The first three model focus on the financial side of measurement and the monetary value of intangible assets, whereas scorecard approaches look for indicators able to measure intangible resources and activities. It is important to highlight that scorecard methods had an evolution going from pioneering IC measurement models such as Intangible Asset Monitor of Sveiby (1997) and Skandia Navigator of Edvinsson and Malone (1997) to advanced ones, such as Danish Ministry of Technology and Innovation guidelines (DMSTI, 2003), Meritum guidelines (Meritum, 2002) and Austrian Research Centre IC model (ARC) (Chiucchi, 2004).

In the *pioneering* models, attention is focused on the content of the IC subcategories. The vision behind is a typical accounting vision, according to which IC is an aggregate of intangible resources. The mainstay of these models is the IC value measurement and their main aim is to explain causes of the differential between accounting and market value, mainly attributed to IC. The *advanced* models adopt the evolved notion of IC as a dynamic system on intangibles resources based on knowledge. In these kinds of model attention is focused on the interactions

between the IC items, at the basis of the organization's value creation and on intangible activities essential to produce, maintain and develop intangible resources. The assumption behind these IC models is the knowledge management, their main aim is to identify the paths of the organization's value creation based on knowledge.

Universities are social institution which have gone through several stages of development in their long history. 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 (Brătianu, 2009). In Europe, universities are faced with numerous challenges caused by the political initiatives aimed to harmonize the different national university systems as well as new management modes proposed for universities (Leitner, 2004).

The instrument of IC report and the general methods for valuing intangible within universities finds its justification from one hand in the political and managerial challenges that require the implementation of new management and reporting systems in order to improve IC internal management and to disclose information to stakeholders, from the other hand in the consideration that national and supranational organisms recognize a central role to universities in the actual knowledge-based society (European Commission 2003; 2006). Moreover universities are knowledge producers per se: their most important output is knowledge incorporated in research results, publications and educated students (Sánchez and Elena, 2006).

Declining the IC categories in the context of universities, *human capital* is the knowledge of the researchers and non scientific staff of universities such as professors, researchers, PhD students, and administrative staff; *structural capital* comprises the governance principles and modes, the organizational routines and procedures, culture systems, databases and intellectual property; *relational* capital could be assimilated in the so-called third mission of the universities, which includes all the activities and relations between universities and non-academic partners, i.e., firms, non-for-profit organizations, public authorities, local government, and society as a whole (Leitner, 2004; Sánchez *et al.*, 2009).

On the basis of the advanced guidelines to report IC, some universities and research centres started to develop a report for describing their intellectual assets and knowledge flows (Brătianu, 2009). Among these, it is worthy to mention the Autonomous University of Madrid (UAM) experience (Sánchez and Elena, 2006; Sánchez *et al.*, 2009), since it applied the Intellectual Capital Report for Universities (ICU report) developed by the Observatory of European University on the basis of the advanced IC report models (OEU, 2006) and the Austrian Universities (Leitner, 2004; Altenburger *et al.*, 2005; Schaffhauser-Linzatti, 2004), whose IC reports reflect model and principles of the ARC, which is the most outstanding and longest experience in reporting IC in research centres. Starting from the above mentioned studies, our paper focused on the exploitation of the Austrian and UAM experiences in reporting IC.

3.Research methodology: analysing the IC measurement reference frameworks

In order to compare these two experiences, firstly we focused on the IC measurement models used as framework by the two institution, then we turned our attention to the IC reports issued by the two universities. Since it is a conceptual paper, the documental analysis appear to be the more adequate method to identify the key points of each reference model and to highlight which IC indicators are emphasized in the two different experiences.

As regards Austrian experience, the Austrian Ministry for Education, Science and Culture, in the course of the preparation of the new Austrian university law, settled a project team with the task to develop an IC report model for universities which met the specifics of their knowledge-production process in the new organizational and legal context of universities (Leitner, 2004).

The Austrian University Organization and Studies Act (Universitaetsgesetz 2002, further UG 2002) introduced an obligatory Intellectual Capital Report (further Austrian ICR).

Section 13, subsection 1 of UG 2002 states that "each university shall submit an intellectual capital report for the past calendar year to the Minister, by way of the university council, by 30 April of each year. This shall, as a minimum, present in itemized form:

1. the university's activities, social goals and self-imposed objectives and strategies;
2. its intellectual capital, broken down into human, structural and relationship capital;
3. the processes set up in the performance agreement including their outputs and impacts.

The corresponding Intellectual Capital Report Act determines its structure and design".

IC reporting for Austrian universities should fulfill two aims. First, it should provide internal information for the management of intangible resources. Second, it should provide external stakeholders with information about the effective use of IC (Schaffhauser-Linzatti, 2009). Additionally, since in the course of preparation of an IC report, universities have to discuss their strategy and aims and interpret IC indicators, the process of preparing an IC report foster universities to learn about their knowledge production process.

As regards the UAM experience, the Observatory of European University (OEU) ICU measurement framework is grounded in the Strategic Matrix developed within the OEU Project. From this Strategic Matrix, the 141 indicators have been reclassified into the categories of IC (Human, Organisational and Relational), creating a framework for the IC in universities (ICU framework). To create a homogenised IC Report specifically designed for universities and research centres, OEU team designed the ICU Report finding inspiration from DMSTI guidelines, Meritum experience, Ricardis project and ARC experience (OEU, 2006). ICU report comprehends three main sections: Section 1, "Vision of the institution", Section 2 "Summary of intangibles resources and activities, Section 3 "System of indicators". Section 1 illustrates the university mission in a narrative way. Following knowledge narrative of DMSTI guidelines, this section answers questions on the main objectives of the institution and the critical intangibles needed to reach these objectives. Section 2 describes the intangible resources that institution can mobilize and the different activities undertaken to improve the value of these resources, in doing so following Meritum guidelines. Section 3 provides a description of a system of indicators, related both to intangible resources and activities. IC indicators are both current and forward, have both an internal and an external aim, derived from university strategy and are in line with the characteristics required by Meritum guidelines to indicators (usefulness, relevance, comparability, reliability, feasibility).

4.Reasearch results in comparing Austrian and UAM experiences

The IC measurement model

The Austrian ICR follows the Schneider/Koch model which has been developed and applied by the Austrian Research Centers Seibersdorf (ARC), in turn inspired by the Meritum guidelines (Leitner, 2005). Being the archetype of IC models especially applied by research organizations, it represents a *process-oriented* approach, since it visualizes the university knowledge production process and the role of IC as input of the process. The Austrian IC report model, following ARC model, hereby ideally sets itself against the *structure-oriented* model, focused on the classification of the different forms of IC, on their content and on their relations.

Figure 1 – The IC reporting model for Austrian Universities
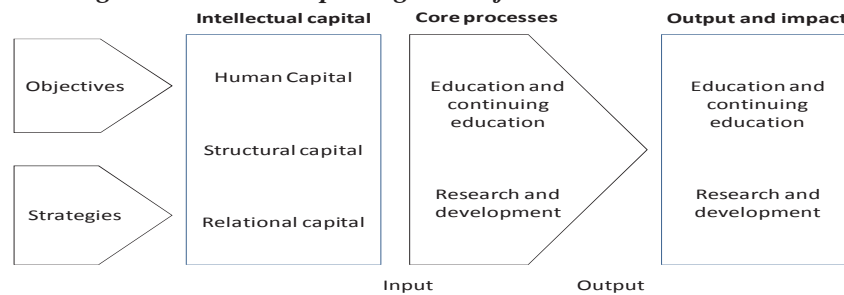
Source: our adaptation of Leitner (2004)'s model

The IC measurement model followed by OEU team in preparing the ICU model is mainly inspired by the DMSTI and Meritum guidelines. The ICU report assigns a central role to the knowledge strategy, from which derive IC indicators and focuses both on intangible resources and activities that university has to carry out to develop intangible resources. The main distinctive point of the ICU model is the use of activities related indicators, its main limit is its focus on the content of IC categories and on the definition of IC indicators. This limit is common to all structure oriented model that do not allow the visualization of the IC role in the university's knowledge process.

IC indicators

In both models, IC indicators derive by a logical input-output process, starting from the strategy definition and activities' identification to carry out to develop and maintain university's IC. Moreover, in both models IC indicators are divided into the well known categories of human, organizational (structural) and relational capital. Nevertheless, in the ICU report applied by UAM, the IC subcategories mix input and output IC indicators, while the IC model of Austrian universities visualizes the separation between input IC indicators (included in the IC subcategories), process IC indicators and output (or impact) IC indicators. These last two are divided into teaching and research indicators. For instance, in the Austrian IC report model the number of researchers is an example of input IC indicator, the number of ongoing evaluated research is an example of process research IC indicator, the number of scientific publication is an example of output research IC indicator. On the contrary, in ICU report, number of researcher is included in the human capital indicators, the number of scientific publication is included in the organizational capital, the number of ongoing evaluated research is not included at all, because the model does not consider process indicators at all. Summarizing, the Austrian IC report model show clearly the role of IC as input of the knowledge-production process and separates IC indicators in teaching and research indicators. The main research limit is that the theoretical comparison has been carried out on two experiences, due to the lack of awareness of IC relevance in managing universities.

5.Conclusions

Both experiences presented refer to advanced IC measurement models, but both suffer of some limits in applying the models in practice, since the links with the institutions strategy and the role of IC in the knowledge process are hidden in the Austrian universities IC reports (wissenbilanz) and in the UAM's IC report (Schaffhauser-Linzatti, 2009). Like all measurement and management systems that deal with knowledge-based processes, Austrian and UAM's IC reports face the methodological problems of measuring non-physical processes and outputs. In detail, Austrian IC reports lack of "soft" and qualitative indicators, relative for instance to the

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employees' satisfaction, climate, image (Altenburger *et al.,* 2005), while the UAM's IC report lacks of efficiency-related and activities-related indicators (Sánchez ans Elena, 2006).

We think that IC report is an important tool expressive of new management control, on which universities and government should invest: comparability is possible in the future on the international level if the indicators will be selected according to commonly accepted definitions or conventions in the science community. Moreover, it will be faced and managed problems related to the structural differences that can hinder comparison (national differences in university systems, size of universities, their degree of specialization, their different stages of development in IC measurement) and if it will be addressed practical questions such as how to collect the data needed, who should be responsible of this data gathering, how frequent the IC report should be and so on (Sánchez and Elena, 2006).

The reasons for the lack of available and comparable IC universities data are several, not last the barriers to introduction of IC measurement and management models in universities on which to development standardized systems of IC indicators. Among main barriers, we can list cultural barriers (fear of measurement and new systems, lack of understanding), lack of meaningful employees involvement, lack of common definitions of terms and IC indicators, vision and strategy poorly defined and understood. In spite of this, we think that IC in universities should be measured for many reasons, such as to increase the transparency of public institutions, to allow comparison among them, to bring the "ivory-tower" university philosophy closer to the requirements of public and industry. Of course, the introduction of more objective and reliable methods for measuring IC will require to build awareness among the senior academics occupying management positions at universities, to create *ad hoc* IC measurement task force, to introduce IC measurement methodologies, timely implemented and published. The establishment of a measurement and reporting model of the university's IC could have both internal benefits, in the sense of fostering learning on the organizational level, as well as external benefits, in stimulating transparent competition. As regards the policy implications, Government, ranking or benchmarking universities on the basis of their IC, can get information about their strengths and weaknesses and uses them to reallocate resources to universities that invest on their IC. Clearly, in the future, reviewers and funding agencies will have to learn how to interpret IC information.

This study contributes to broaden the research community's understanding about a relevant management (internal) and communication (external) universities' tool. The paper could be a first step to further on develop a model that summarize the best features of both investigated models. To the best of our knowledge, this is the first paper that explicitly focuses on comparing the two best university practices in reporting IC.

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