

UNIVERSITIES INTELLECTUAL CAPITAL

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ABSTRACT

Given that university is the first step to training people and creating characters, it needs to learn how to refine and present the intellectual capital, because it is the first point where future entrepreneurs can take contact with the concept of knowledge and learn how it can be used.

Thus, the transformation of universities becomes vital regarding its basic components of research and innovation infrastructure, considering their quality of intellectual capital provider, and its multiple dimensions of manifestation of institutional nature: public, private and governmental.

This article's aim is to review the main issues concerning the importance of universities for creating and transferring components of the intellectual capital, by identifying its main reporting tools and the benefits provided both for the internal and external environment.

KEYWORDS: university, intellectual capital, reporting intellectual capital

1. Introduction

Globalization pressures on productive sectors, inducing them to promote innovation and motivating companies, focuses universities to obtain intellectual capital increasingly well prepared, top scientific results of creation. The research is characterized by a more pronounced collective dimension, an exponential growth, increased concern about the usefulness of knowledge, by refocusing policy objectives.

According to Dahlman (2002), the basics of becoming a knowledge-based society are: the improvement of coding knowledge and development of new technologies; strengthening of links

between economic processes and scientific foundations; increasing the rate of innovation and productive cycles; increasing emphasis on education and focus on intellectual capital and continuing education; increasing investments in intangible assets, than in tangible assets; displacement centers generating added value to our brands, public relations, marketing, distribution and information management; increasing importance of innovation and efficiency to the process of growth and new foundations configuration competitiveness.

There are many reasons for analyzing the intellectual capital, and the most important of them, are (Rizvi, 2005):

- In a knowledge society, citizens should learn more about public funding;
- Transfer of best practices would improve if universities should obtain and provide more information about intellectual capital;
- The strengthening of relations between business and universities can not be strengthened without the introduction of a common language;
- Selection and defining a clear set of indicators and assessment methodology will be more difficult to hide poor results of some researchers;

Relying to this aspects, we consider necessary to select and define a set of indicators to detect and measure universities intellectual capital, because European universities have to face major challenges such as: more autonomy and new ways of public funding; competition

for scholarships, grants and research environments; measuring and analyzing the results of which are by nature intangible; high demands to develop intellectual capital by developing strategy and a systematic management of the most valuable resources, most are intangible; demands from society for transparency and accountability;

2. Universities and their Intellectual Capital

In the broadest sense, we can say that the term *intellectual capital* is used to refer to intangible resources available to an organization, including human resources, but also on the organizational capacity and the organization's relations with its intern and extern environment.

Regarding the scientific literature there are different ways to operationalize intellectual capital, various researchers have come to a generally accepted definition of intellectual capital through three general subcategories: human capital, structural capital, relational capital (Figure no. 1).

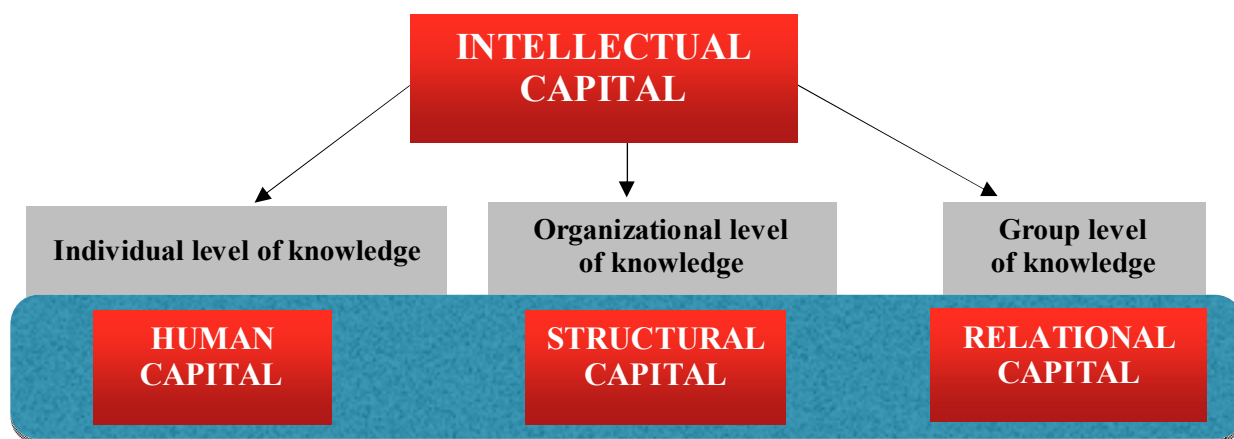


Figure no. 1 Operational model of Intellectual capital

Source: (reproduced) Journal of Intellectual capital, Emerald

Universities have a pronounced social responsibility based on which should help to diminish development gaps through cross-border transfer of knowledge and by finding joint solutions to boost brainpower circulation (UNESCO 2009). Universities are basic components for knowledge and

innovation infrastructure, especially, in terms of knowledge-based society, university enshrine basic element of the innovation system.

So, university plays a central role in the production of capital. As the economic capital, human capital is a social good

whose possession has a potentially significant economic, political, social and cultural benefit for the owner. University produces and uses intangible assets, characterized by: the limited predictability, but also multiple opportunities for recovery; source of individual but also collective autonomy; the need for specialized competencies; economic value based on their recognition by societal actors interested.

Although in recent years the analysis of knowledge and intellectual capital has been a concern for companies, today we observe an increased interest of identifying and evaluating the intellectual capital of universities. Most often knowledge is assimilated into the university, following that future graduates to continue their education regarding intellectual capital, in companies, to help them develop. Each university has its own intellectual capital, which is used to attract future students, to attract collaborators and beyond.

Currently there is increased competition between universities, both in terms of attracting students, valuable teachers, but also for funding, and the best strategy to achieve the objectives is that universities increasingly performing and develop a management system through which to reach its top preferences. Given the need for some companies to present their intellectual capital in non-financial statements, to present true value, we conclude that universities must present their intellectual capital as the most important resource of a teaching staff and students, with their relationships and organizational procedures.

It is very important that each university to present its separate financial statements, the value of intellectual capital, because it is the primary mean by which they can remove competition.

At the same time, we can look at it in terms of recruitment of highly trained teachers, but most times public universities can not offer salaries as high as private universities, so they can lose the chance to have a didactic staff highly trained.

However, a university that is characterized by superior intellectual capital could receive several offers of partnership from companies that are willing to invest in the development of the university.

In general, knowledge generated in universities is seen only in terms of scientific knowledge, innovative ideas, revolutionary concepts, original results, which together lead to recognition of the University's scientific prestige, quantified in different university rankings.

Blackman et al. (Blackman, Kennedy, Swansson, & Richardson, 2008) propose and argue the idea that the proper functioning of the university basically depends not only on the transmission of decisions by the academy staff, but the presentation on general knowledge and ideas used in making these decisions. In this way, the understanding and acceptance of decisions, especially those relating to education and research policies, is improving considerably, increasing the chances that decisions to produce the expected effects.

3. The Role of Universities in Knowledge Transfer

Knowledge generated in universities proves its true value only when it is effectively transferred to industry and to society in general. University through its formative component, – knowledge transfer – can be achieved partly through its graduates.

The graduates of the first cycle of study, have formed specific competencies and skills using in very large proportion, classic knowledge, well sedimented, and the emphasis is on innovative teaching techniques. For the second cycle, of higher education, and especially for the third cycle (doctorate), knowledge generated and transmitted by university graduates increases. Moreover, the nature of the doctoral training activity, the doctoral students are active participants in knowledge creation. There is always the temptation for university regarding knowledge transfer, to focus on

formative side, complete with the publication of articles in specialized scientific journals or presented at conferences. Research institutes, on the other hand, are more directly oriented towards socio-economic environment.

Universities, especially research universities, have obviously a major role in this process. Socio-economic pressure on academic research requires research reconciliation, research and innovation driven by the market. Management of research and development in universities require context, structure and processes, so that the core values of education and research to be completed, engaging and active involvement of the university in the process of industrial and entrepreneurship innovation, namely knowledge transfer.

Universities have long been involved in knowledge transfer activities. However, the last three decades have marked major changes in the governance of university-industry interactions. Knowledge transfer has become a strategic issue: on the one hand is a source of university research funding, and on the other hand is the policy tool for economic development.

Geuna and Muscio (2008) examines different models for the knowledge transfer from universities to the socio-economic, examining issues related to intellectual property rights, spin-offs, and forms of collaboration in research. The proposed model involves the professionalization of its knowledge transfer in university as a third main component of the university in addition to those traditional business education and research. Competition between universities and research institutes for contracts from public or private funds has increased continuously, leading to inevitable changes in the division of labor between universities, institutes of applied research, and industry.

4. Intellectual Capital Reporting in Universities

Universities are organizations whose capital is largely intangible, relying mainly on human resources and the knowledge that

they hold and produce to extract surplus value and competitive advantage.

The role of higher education institutions is particularly relevant in national and regional economic structures, as they add value by providing an educated workforce and business development.

To address the challenges of developing knowledge-based society and economy, universities must recognize the value of intellectual capital for both institutional development, and in terms of its implementation in industry. Thus, universities must consciously manage flows of knowledge and processes to create their assets based on knowledge and be able to measure how efficiently the value of the intangible assets they hold. Intellectual capital associated to universities refer 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).

Most often, the focus is on the role and importance of human resources in universities. The power of this resource can be often diminished by a mismanaged other intangible assets (structural capital, relational capital). Brătianu points out that the key element is the structural intellectual component of the university, and this capital is closely linked to the concepts of governance and academic autonomy (Brătianu, 2012).

4.1. International Instruments Reporting Intellectual Capital at Universities

New ways of managing universities calls for more transparency requires an appropriate allocation of resources, developing new managerial skills and introducing new reporting tools.

Analyzing data offered by literature and reports on the subject, we consider of

great interest the presentation of models developed by the European Commission to report on intellectual capital.

4.1.1. MERITUM Project

Thus, MERITUM FP5 European project, aims to improve EU policy decision-making in science and technology, particularly with regard to innovation, by providing a reliable method for measuring investment in intangible resources.

Specific objectives of the project were:

- Production of a intangible assets classification;
- Analysis of the management and control to identify best practices in European companies in measuring investments in intangible assets;

Following the implementation of the project it was provided a guide for the measurement and management of intangible assets (including intellectual capital).

Project recommendations aim is to define intangible resources, defined as active in a broad sense, including: intellectual property rights, trademarks, databases and information technology organizations, networks and skills of employees. Regarding the definition of Human Capital project approach, MERITUM, no different from most European approaches in the field of measuring intellectual capital in universities, but nuanced existence of this resource in a particular way: all knowledge that employees take with them when they leave the organization including knowledge, skills and competences, experience and skills of individuals. Some of these resources are unique to each individual, others are generic. Starting from the elements identified in the project, an attempt to describe subcomponents of intellectual capital from universities are: (Table no. 1).

Table no. 1

Intellectual capital's components for universities

Human capital	Structural capital	Relational capital
Expertize Education Koow-how, professor's and researcher's knowledge Student's competencies Innovation Learning Team work	Data bases Research projects Research infrastructure Organizational culture Educational processes Study places Using informational technologies Intellectual propriety rights	Relationship with public partners Notoriety Image in social media Involvement in educational activities Collaboration with international research centers Involvement in a relationship with other universities Students international internships

Source: after Observatory of the European University – PRIME Project, 2006

4.1.2. Observatory of European Universities (OEU)

Another important initiative was the creation of the Observatory of European Universities (OEU) (Project PRIME, 2006) involving 15 universities and research institutes in eight European countries within

the Network of Excellence PRIME funded by the European Union. Observatory aim was to develop a common framework for characterizing research activities in universities and to produce a set of indicators to support the strategic management of universities.

PRIME PARTICIPANT	NAME OF UNIVERSITY	COUNTRY	PRIME CONTACT MEMBER
ARMINES - LATTIS	Ecole nationale des Ports et Chaussées	France	Philippe Larédo
ARMINES - LATTIS	Université de Mama-la-Vallée	France	Philippe Larédo
BUESPA - IKU	Budapest University of Technology and Economics	Hungary	Annamaria Iszelt
CNR CERIS	University "G. D'Annunzio" of Chieti Pescara	Italy	Emanuela Reale and Bianca Poti
CNR CERIS	University of Bologna	Italy	Emanuela Reale and Bianca Poti
CNRS - Université de Bourgogne - IREDU	Université de Bourgogne	France	Jean-Jacques Paul Thierry Chevallier
CSIC - UPC	Universidad de Granada	Spain	Luis Sanz-Menéndez
FEEM	Università Ca' Foscari Venezia	Italy	Dino Pinell
ADIS	Université Paris-Sud	France	Bertrand Bellon
FRAUNHOFER GESELLSCHAFT - ISI	Ludwig-Maximilians-Universität München	Germany	Ulrich Schmoch
NONIUS	Universidade de Aveiro	Portugal	Pedro Teixeira
OST	Overall management -coordination	France	Jean Thèves
REPOL - EPFL	Ecole polytechnique fédérale de Lausanne	Switzerland	Jean-Philippe Leresche
REPOL - EPFL	Université de Lausanne	Switzerland	Jean-Philippe Leresche
UAM	Autonomous University of Madrid	Spain	Faorna Sánchez
UAM	Rey Juan Carlos	Spain	Faorna Sánchez / Carolina Cañibanc
WTMC - University of Maastricht	Maastricht University	Netherlands	Louk de la Rive Box
IPTS	Overall management -coordination	EU	Antoine Schoen

Figure no. 2 List of universities participating in OEU and PRIME correspondents

Source: www.prime-noe.org

The main result of this initiative was a methodological guide on how to measure the elements that should be considered in its realization. In this respect, it suggested a strategic matrix as a representation of the relationships between autonomous capabilities, strategic attractiveness, and five thematic dimensions, finance, human resources, academic production third mission and governance.

Its purpose was to provide a generally accepted model of intellectual capital reporting with standard terminology for international use. This approach has not only tried to create a tool to support internal management of universities, but also a useful disclosure of information to society as a whole in a homogeneous manner. Thus, it is proposed that such a report comprising three sections: the vision of the institution, the summary of intangible resources and activities and a system of

indicators that are both financial and non-financial.

4.1.3. I.C.U. report

I.C.U. Report proposes 43 indicators, classified by general taxonomy of the most common: human capital, organizational capital and relational capital.

The major contribution of this report in the universities intellectual capital reporting was to help improve methodologies proposed by previous EU initiatives. So PRIME methodology builds a Strategic Analysis Reporting Matrix for institutional vision and realization of universities intellectual capital (Table no. 2). In this way, beyond universities to provide a tool for improving internal resource management, PRIME helps to develop a framework for reporting intangible resources that takes into account the size of the supply/disclosure of information to society as a whole.

Table no. 2

Strategic model of OEU/ICU Report

	Financing	Human resources	Academic results	Third mission	Government
Autonomy	Key questions and indicators				
Strategic capacity					
Attractivity					
Differentiation profile					
Global mission					

4.2. Reporting Intellectual Capital in Universities Internationally

In Austria some agreements have been established for regular evaluation of performance, by the governance tools. Between 2002 and 2006, the Ministry of Education and the Conference of Austrian Rectors drafted a decree which established 53 indicators to be published by all universities, specific for five categories: human capital, structural capital, relational capital, education and research (last two categories being interpreted as output).

The logic of this model is similar to intellectual capital reporting, so that research and innovation processes described in the literature, which often distinguish between inputs, processes and outputs (Dodgson & Hinze, 2002). Austrian reporting tool is unique in European higher education system and contains comprehensive information of at least three areas of university activity, according to the Universitätsgesetz 2002 law (CHEPS, CHE, ESMU, NIFU, 2007):

- academic activity, social targets and self-imposed objectives and strategies;
- intellectual capital, which include human capital, structural and relational;

- performance processes under the contract, including the results of their type output;
- impact.

The Austrian model is a landmark in efforts to propose a common framework for reporting intellectual capital community sectors. From this model, several universities have started to publish such reports, including the University Corvinus in Hungary or the University of Liechtenstein.

The Austrian model was taken and adapted by including the German state for online reporting of intellectual capital for SMEs in different regions. (Federal Ministry for Economics and Labour in Germany, Fraunhofer IPK, 2004)

Spain is another country very active in the management of intellectual capital, although, so far, attempts were made reporting more voluntarily, without national specific legislation. The Institute for Innovation and Knowledge Management (INGENIO) aimed to create a “knowledge portal” through which Spanish universities to facilitate knowledge management through a set of indicators for follow-up to identify and disseminate best practices. The process enabled a better understanding of the elements of support and knowledge management barriers that they face in the Spanish education system.

Spanish project aimed at studying the intellectual capital of universities and research centers in Madrid. This was done in two different ways: by developing a program of intellectual capital indicators concerning the research and development activity, and proposing a knowledge management model applied in universities and research centers. Next, we will review briefly initiatives in Italy, Poland, Lithuania and Latvia.

In Italy, the National Agency for the Evaluation of Universities and Research Institutes's mission is to promote quality Italian university system and research. In this regard, the agency uses methods and internationally recognized valuation principles and defines parameters and criteria for periodic accreditation of universities and research organizations. The review will examine two dimensions: research and the third mission of universities. Evaluation criteria of research are quality, attractiveness, mobility, internationalization, higher education, and improving own resources.

One of the challenges of measuring intellectual capital was the incompatibility of certain types of data. Some information on educational activities were available in the format of the academic year, and others were available in calendar year format. The project has shown that university financial reporting system focuses especially on compliance with accounting standards and information on intellectual capital have been very few and limited largely to human resources, and less on structural capital. Deficiency of financial data to support reporting of intellectual capital was not a technical challenge, but rather a cultural one.

In Lithuania, for almost ten years, universities publish annual reports on intellectual capital elements. Reporting was initiated as part of the strategic management reforms that imposed the obligation to publish reports on the implementation of strategic plans. Over the years, the scope of

annual reports was expanded and now includes a number of indicators on the three general types of intangible capital. However, the principles of intellectual capital management and reporting are not adopted and widely used.

Concluding, the main benefits of using intellectual capital management reporting in universities may be restricted broadly and in terms of domestic and external university implications, as follows:

Intern level

- defines universities mission
- helps to identify priorities in research and teaching, defining university's profile
- allows the relation between individual and institutional objectives
- connects strategic objectives with annual budgets
- observes objectives accomplishment and evaluate's university's performance over time

External level

- increases transparency level
- offers important informations and feedback to stakeholders
- helps to provide informations about results helping in this way to attract funds, increasing competitively.

5. Conclusions

Universities are in a continuous process of transformation generated by the new knowledge – based society on rapid accumulation of knowledge intensive, and this causes an acute need for universities to become more flexible, transparent and competitive. Universities can, and must become active players in the use of science, technology and innovation developer, through effective transfer in the industry.

This study shows the importance of universities in creating and shearing intellectual capital through all its three components, human capital, structural

capital and organizational capital. Reporting intellectual capital has become a vital activity for universities all over the world and the results of this process offers internal, and external (through its stakeholders) positive benefits.

Evaluation of intellectual capital can be considered a good starting point for a

more efficient management in order to increase competitiveness, but can also provide a reporting tool to attract more teachers highly trained and students eager to form their own intellectual capital, and this increases transparency and competitiveness.

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