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Article in *Journal of Intellectual Capital* · October 2006

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Intellectual capital in universities

Improving transparency and internal management

Intellectual
capital in
universities

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Abstract

Purpose – The growing interest regarding intangibles and intellectual capital (IC) has extended from firms to public institutions such as universities and research centres during the last decade. Since universities are considered critical institutional actors in national innovation systems, European higher education and research institutions are going through an important transformation process with the aim of making them more comparable, flexible, transparent and competitive. The objective of the paper is two-fold. On the one hand, its aim is to address the importance of measuring and managing IC in universities to improve research management and contribute to comparative analysis in European universities, and on the other hand, to highlight some methodological and conceptual considerations in relation to the analytical framework developed within an ongoing experience – the Observatory of European Universities (OEU).

Design/methodology/approach – The paper analyses a specific case within the OEU: the Autonomous University of Madrid (UAM) in Spain. The problems and difficulties within the process of applying the OEU analytical framework are examined.

Findings – This analysis provides some insight into the utility of the framework. From a conceptual point of view, we find some similarities between IC approaches and the OEU, but a different terminology is identified.

Originality/value – This paper argues that important benefits can be achieved when adapting the Observatory's framework to the IC approach and terminology, regarding the increasing impact of IC approaches at firm and political level.

Keywords Intellectual capital, Knowledge management, Intangible assets, Universities, Research, Organizations, Spain

Paper type Research paper

1. Introduction

Intangibles and intellectual capital (IC) have become a major issue not only for academics, but also for governments, regulators, enterprises, investors and other stakeholders during the last decade.

Although most of the knowledge management and IC analysis refers to private firms, this growing interest has extended from private organisations to public ones, such as universities and research centres. This latest concern is due to the fact that universities' main goals are the production and diffusion of knowledge, and their most important investments are in research and human resources. Despite the fact that their main inputs and outputs are basically intangibles, there are very limited instruments to measure and manage them (Canibano and Sanchez, 2004).

Universities are considered critical institutional actors in national innovation systems and because of this the Lisbon Agenda of March 2000 (Lisbon Council, 2000)



calls for their particular involvement in the creation of a Europe of Knowledge. In this changing context, European higher education and research institutions are going through important transformation processes (Sorbonne Joint Declaration, 1998; Bologna Declaration, 1999; Prague Declaration, 2001) in order to increase their level of quality in educational and research systems, their flexibility and quick response to changes, and their transparency and competitiveness.

This paper aims to provide some insights into the current role of intangibles in public higher education and research systems and to highlight some methodological and conceptual considerations in relation to the analytical framework developed within an ongoing experience: the Observatory of European Universities (OEU).

The paper is structured as follows. The understanding of the current role of universities in the innovation process from the evolutionary perspective is summarised in section 2. In section 3, the importance of intellectual capital approaches as an instrument to face the new challenges in universities and to improve research activities is tackled. In section 4, the most relevant international experiences are presented. Section 5 is devoted to describing an ongoing research activity carried out within the PRIME Network of Excellence – the Observatory of European Universities (OEU) – and to highlight some emerging considerations regarding its link with IC approaches. Finally, some conclusions are drawn in section 6.

2. The role of higher educational and research institutions in the knowledge-based economy

We are moving towards a knowledge-based economy where intangible assets and investments are seen as essential elements to value creation in companies and, hence, to economic wealth (Canibano *et al.*, 2000). To this effect, main economic theories since the second half of the twentieth century have recognised, to a greater or lesser degree, the existence of intangible elements that explain part of the economic growth (Solow, 1957; Deninson, 1962; Arrow, 1962; Schultz, 1969; Kendrick, 1974; Becker, 1975; Freeman, 1982; Nonaka and Takeuchi, 1995; Gorey and Dobat, 1996; Organisation for Economic Cooperation and Development, 1996; European Commission, 2000a).

If a knowledge-based economy is mainly characterised by the production, transmission and dissemination of knowledge, universities are unique in all these processes, “due to the key role they play in the three fields of research and exploitation of its results” (European Commission, 2003a, p. 2). For that reason, the EU considers that “investing more and better in the modernisation and quality of universities is a direct investment in the future of Europe and Europeans” (European Commission, 2005a, p. 2).

The current role of universities in the knowledge-based economy is analysed from the perspective of new theories in evolutionary economics, mainly “Mode 2” of knowledge production and the triple helix model.

While R&D policies in place during the Cold War period were basically focused on a linear model of innovation and favoured specific disciplinary research agendas (“Mode 1” of knowledge production), the end of transatlantic tensions leading to the rise of new techno-economic paradigms and the need to speed up business transactions and force institutional adaptation provided the necessary impulse for a shift in the way private and public organisations regarded their research efforts. In this scenario, knowledge creation modes turn to more comprehensive and open approaches responding to

socioeconomic, institutional and corporate needs. “Mode 2” is defined by dynamic trans-disciplinary links between academia and industry, according to “solution-focused” and “design-oriented” models characterised by a “constant flow back and forth between the fundamental and the applied, between the theoretical and the practical” (Gibbons *et al.*, 1994, p. 19).

In this new “mode”, the main change regarding universities is that “knowledge production and dissemination – teaching and research – are no longer self contained activities, carried out in relative isolation. They now involve interaction with a variety of other knowledge producers” (Gibbons, 1998, p. 1).

This directly links with the triple helix model proposed by Etzkowitz and Leydesdorff (1996), where university-industry-government relations are analysed “in terms of three interlocking dynamics: institutional transformations, evolutionary mechanisms and the new position of the university” (Etzkowitz and Leydesdorff, 2001, p. 6).

While in the “national systems of innovation” approach (Lundvall, 1992; Nelson, 1993) firms are considered to have the leading role in innovation processes, the triple helix postulates considering the three spheres as having equal importance in the innovation network (Etzkowitz and Leydesdorff, 1996).

Regarding universities, Etzkowitz and Leydesdorff (2001, p. 1) argue that the triple helix thesis assumes “that the university can play an enhanced role in innovation in increasingly knowledge-based societies”. There was an academic revolution in the late nineteenth century in which research was incorporated into the university’s mission, making it compatible with teaching activities. Although there is a tension between these two activities, they co-exist “because it has been found to be both more productive and cost effective to combine the two functions” (Etzkowitz and Leydesdorff, 2001, p. 11). In any case, this process of change has led to a “re-evaluation of the mission and the role of the university in society” (Etzkowitz and Leydesdorff, 2001, p. 2).

These analytical frameworks become crucial for conceptualising the current role of universities within the innovation process and emphasise the importance of strong links between universities and other institutional actors in OECD economies (Moverly and Sampat, 2004).

Within this new paradigm, European higher education and research systems are immersed in a far-reaching transformation process, whose aim is to make our universities more comparable, flexible, transparent and competitive, in both teaching and research.

Regarding teaching activities, the so-called “Bologna Process”, which now involves more than 40 countries, began at the end of the last decade with the Sorbonne Joint Declaration, which highlights the central role played by education in the development of modern societies. Additional initiatives such as the Bologna Declaration (1999), the Prague Conference (2001), and the Communiqués of the Conference of European Ministers Responsible for Higher Education in Berlin and Bergen (Berlin Conference, 2003; Bergen Conference, 2005), work towards the convergence of higher education systems, and aim to establish a European Higher Education Area by the end of the decade.

Nevertheless, as Berndtson (2003) suggests, there is a danger that the changes proposed in these initiatives might only be cosmetic. The author reflects on the effects

of the Bologna process in the real organisation of European universities and warns about some problems arising within the reform process. His paper argues that the reform does not address the daily problems of scholars in universities, such as scarce resources, problems of mass education or the role of part-time faculty (Berndtson, 2003, p. 12).

To avoid a “cosmetic” reform, it is important to understand that the Bologna Process will only be a reality with the joint commitment of national- and European-level institutions (Berlin Conference, 2003), and with the involvement of the whole university community.

On the research front, since 1998 the EU has developed several Framework Programmes in order to boost research cooperation among European countries. Although some progress has been made, it seems that the main research framework is still national, overlapping in some fields with European Union policies (European Commission, 2000b). Regarding the diversity of national frameworks of innovation, the Trend Chart on Innovation in Europe[1], running since January 2000, summarises the information and statistics on innovation policies and trends in Europe in an annual report (Innovation Policy in Europe). These initiatives aim to tackle the increasing gap of R&D effort in relation to our main competitors, the USA and Japan (European Commission, 2000c).

If we consider the fact that universities employ 34 per cent of the total number of researchers in Europe[2], it is crucial to support them. Accordingly, universities are receiving around “one third of the funding under the framework programme for technological research and development, and particularly the support actions for research training and mobility” (European Commission, 2003a, p. 10). Additionally, and in order to make progress towards a better organisation of research in Europe, the European Research Area is being developed. This project aims to create the necessary conditions to increase the impact of European research efforts “by strengthening the coherence of research activities and policies conducted in Europe” and “offers a new horizon for scientific and technological activity and for research policy in Europe” (European Commission, 2000b, p. 3).

The above-mentioned European initiatives consider that the quality of higher education and research systems are, and will be, a crucial element in making Europe internationally attractive and competitive (Prague Declaration, 2001).

Finally, it is important to mention that to develop a real excellence in research and teaching, the European Union should encourage a set of conditions (European Commission, 2003a):

- long-term planning and financing;
- developing interdisciplinary capabilities; and
- implementing efficient management structures and practices, which implies an “effective decision making process, a developed administrative and financial management capacity, and the ability to match rewards to performance” (European Commission, 2003a, p. 17).

This last aim becomes one of the main motivations for the development of the strategic matrix (see section 5.1) within the OEU.

3. The relevance of intangibles in public sector: universities and research centres

Given the new framework, information and data for a better understanding and management of intangibles and IC[3] are required. Such a need for information refers both to the stock of intangibles and also to the strategies and activities that the organisations are developing to improve those assets (Foray, 2004).

As argued in a study[4] on the development of an infrastructure for measuring and reporting on intangible assets, “paradoxically, an economic system based increasingly on intangibles may be stronger in the long term, since the exploitation of intangible assets allows more sustainable value creation than a system based on tangible assets. However, the problems associated with measurement and valuation of intangible assets imply that the system is more unstable, volatile, and vulnerable” (European Commission, 2003b, p. 19).

Consequently, the Organisation for Economic Cooperation and Development (1996) argues that current indicators fail to capture the fundamental aspects of the development of this new economy, which could lead to erroneous economic policies being designed. In other words, adequate measurement of intangibles becomes essential to understand what is happening in OECD economies.

Moreover, to achieve an appropriate information structure which includes intangible elements requires the joint effort of security market regulators, accounting regulators, government bodies responsible for macroeconomic data collection, policy makers and firms. That is say, a framework “co-operatively developed by representatives from micro and macroeconomic arenas” (European Commission, 2003b, p. 6).

Although there is a general consensus about the necessity for new measurement techniques, there are important obstacles when measuring knowledge for many different reasons (Foray, 2004):

- an important part of knowledge is implicit;
- the different elements of knowledge are heterogeneous; and
- knowledge is not observable, the terms and magnitude of the relation between the creation of knowledge, its diffusion, and economic growth are not known, etc.

Furthermore, it is more complicated to obtain comparable indicators for intangibles than for tangibles (Organisation for Economic Cooperation and Development, 1999). Even though it is generally accepted that intangibles create added value, this cause-effect chain has not yet been quantified (Lev, 2000).

Notwithstanding the above-mentioned difficulties, a wide range of methods and initiatives for measuring and reporting IC at firm level has been developed since the last decade in order to identify, measure, manage and report intangibles within companies. The most relevant and widespread are:

- Balanced Score Card (Kaplan and Norton, 1992);
- Navigator of Skandia (Edvinsson and Malone, 1997);
- Technology Broker (Brooking, 1996);
- West Ontario University (Bontis, 1996);
- Canadian Imperial Bank (Saint-Onge, 1996);

- Intellectual Asset Monitor (Sveiby, 1997);
- Intellect Model (Instituto Universitario Euroforum El Escorial, 1998);
- Intellectual capital (Dragonetti and Ross, 1998);
- The Value Explorer (Andriessen, 2001); and
- the MERITUM Project (2002)[5].

Even though all these initiatives follow different schemas, they share a common feature – the voluntary character of those firms that decide to implement them.

From the public sector perspective, IC has become an important challenge for public organisations and is “in many ways a crucial public good, affecting a country’s overall competitiveness” (Organisation for Economic Cooperation and Development, 2001, p. 6).

During the last decade some public organisations have been making important efforts to measure, manage and disclose IC. However, even assuming that firm-level experiences could be useful in formulating public management models, a new design addressing the specific needs of these kinds of organisations is needed

To this effect, Bossi *et al.* (2005) have identified specific characteristics that define the public sector in relation to the private sector:

- less incentive to adopt new management approaches, due to a non-competitive environment;
- intangibles objectives are less linked with the value market and with financial profit;
- more importance given to social and environmental responsibility;
- most public organisations provide services (education, health, etc.), i.e. intangibles;
- the most important resources used by the public sector are intangibles – knowledge and human resources;
- inflexible management procedures and rigid structures – the bureaucratic model does not facilitate new approaches;
- less necessity to quantify; and
- increase in external demand for accountability and transparency in the use of public funds.

Hence, Bossi (2003) presented an IC Model for public administration. The model incorporates five variables: human resources, internal organisation, external relations, quality and transparency. The main contribution of this model, in our opinion, is the inclusion of the concept “intellectual liabilities”. The author defines it as “the lack of IC presented by an institution” (Bossi, 2003, p. 212). In this way, it is argued that most of the models and analysis undertaken by and for private companies focus on the added value of an adequate management of intangibles, but do not make explicit the effects produced by a lack of intangibles management. Following this line, intellectual liability becomes essential to effective management of public IC.

Focusing on public universities and research centres, IC and knowledge management approaches become crucial in order to reinforce their role in the new

economy for different reasons: universities' main inputs and outputs are basically intangibles and only a small part of these are identified and very limited instruments exist to measure and manage them (Canibano and Sanchez, 2004), and public universities are forced to be more transparent and to disseminate more information to stakeholders. Universities have a duty to their stakeholders (students, the public authorities funding universities, the labour market, society as a whole) to maximise the social return of the investment (European Commission, 2003a, p. 13). However, despite the increase in external demands for greater information and transparency on the use of public funds (Warden, 2003), an empirical study carried out throughout different universities in Australia, Canada, France, Germany, New Zealand, Spain, the UK and the USA confirms that most of them have not yet assumed generalised practices on the elaboration of external information reports (Campos Fernandez *et al.*, 2003).

Conscious of the increasing competitive environment of the higher education system, universities face important challenges (European Commission, 2003a): the creation of new public and private universities, the education given by firms through what they call "corporative universities" to contribute to the lifelong learning process of their own employees, and the increasing level of internationalisation of education and research. However, "European universities are attracting fewer students and in particular fewer researchers from other countries than their American counterparts" (European Commission, 2003a, p. 6), which leads to increasing pressure to incorporate knowledge management models within university management structures.

The European Commission is pushing the reporting of IC by universities through recent activity. In December 2004, the DG Research set up a High-Level Expert Group to recommend a set of measures to stimulate small and medium-sized companies to report on their intangibles. By doing so, the Expert Group has also taken into consideration the relationship between SMEs and universities and the need of these latter institutions to report on their IC. The main assumption that supports the recommendations for reporting is that IC is the hidden driver of the knowledge-based economy and that diffusing information on IC may stimulate and make the organisations' R&D efforts more visible. The document produced by the Group (RICARDIS – "Reporting intellectual capital to augment research, development and innovation in SMEs") includes among the policy recommendations the need for both the Commission and the member states "to promote the reporting of IC by universities and research and technology organizations" (European Commission, 2005b).

4. Some intellectual capital models in public universities and research organisations

Since the Bologna Process started, universities and research organisations have been increasingly called on to establish a general framework of quality assurance procedures. According to this, national accreditation agencies are being created and evaluation methods, procedures and indicators are being defined. Following the Council Recommendation (1998) on European Cooperation in Quality Assurance in Higher Education, the quality assurance system should be based on common features (European Network for Quality Assurance in Higher Education, 2003): the creation of an autonomous body, objective internal and external aspects of quality assurance, the participation and real commitment of stakeholders, and the diffusion of the results.

This European Network is working actively in the process of ensuring a credible European quality assurance environment.

The appearance of quality as a relevant issue in university discourse shows an initial but important awareness with respect to managing and publishing information about intangibles.

In accordance with this, if we analyse some management concepts such as strategic planning or quality, higher education seems to embrace business concepts following the patterns in firms (Wissel, 2004). In other words, concepts originally used only in the business world, such as total quality management (TQM) or ISO certification, are now being adapted by higher education systems around the world.

In light of this, managing and reporting on intangibles seem to be the necessary next step in making universities and research institutes more comparable, flexible, transparent and competitive.

As a result of this changing context, pioneer initiatives are being developed in the realm of practice. The following section outlines several experiences.

4.1 Intellectual capital report of the Austrian Research Centre (ARC)

The Austrian Research Center was the first European research organisation to publish an intellectual capital report (ICR) in 1999. This organisation is the biggest public-sector funded research organisation in Austria, and has an important function as a link between basic research in universities and applied research carried out by companies.

The ICR is conceived as a new instrument to measure intangibles not shown in its annual report, and a crucial component in corporate strategy (Austrian Research Centers, 1999). As explained by Leitner and Warden (2003), the model has a strong “process focus”, since it explicitly separates inputs, processes and outputs, and is not only conceived as an instrument to diffuse information to stakeholders, but also to improve strategic management and to learn about the internal process of value creation. The model incorporates the main categorisation of IC – i.e. human capital, structural capital and relational capital – and is based on an indicator-based approach.

The experience of ARC has been so convincing that IC reporting will become mandatory for all Austrian universities by 2007. In 2002 the Austrian Ministry for Education, Science and Culture released a new University Law for the reorganisation of all public Austrian universities. The Ministry adopted the idea of IC reporting to enhance transparency, foster the management of intangibles, and set initiatives for performance orientation. “The IC statement should serve as a management instrument for the university as well as a communication instrument between universities and the Ministry” (European Commission, 2005b). In this sense the university IC report will include, at least, the following elements:

- the university’s activities, social goals and self-imposed objectives and strategies;
- its intellectual capital, broken down into human, structural and relational capital; and
- the processes set out in the performance agreement, including their outputs and impacts (Federal Ministry of Education, Science and Culture of Austria, 2002).

4.2 *Innovation and Knowledge Management Institute (INGENIO)*

The Innovation and Knowledge Management Institute[6] was created in 1999 as a joint initiative between the Spanish Research Council (CSIC) and the Polytechnic University of Valencia, with the collaboration of the Technological University of Venezuela.

The Institute took shape as a centre for reflection and action, open to learning, and with three strategic research lines:

- (1) innovation systems;
- (2) organisational innovation; and
- (3) knowledge management.

The last research field works on new approaches, methodologies and tools to analyse and generate models that enable them to explain knowledge processes inside organisations.

In the framework of the Second National Plan for Assessment of the Quality in Universities, in 2002 an interesting research project was developed on the use of knowledge management technologies to improve quality management in Spanish universities (INGENIO, 2002). The project aims to build a “Knowledge Portal” for Spanish universities. This tool aspires to facilitate knowledge management through a set of “follow-up” indicators, identify “best practices” and disseminate them. The process developed allows the research group to understand the most important support elements and the main barriers against knowledge management systems within the Spanish higher education system.

4.3 *Intellectual capital in HEROs*

IC in Higher Education Institutions and Research Organisations (HEROs) is an initiative led by the members of the European Association of Research Manager and Administrators (EARMA) in collaboration with the European Center for the Strategic Management of Universities (ESMU). The main goal of the Project is “to raise awareness and disseminate good practice in the fields of managing and reporting intellectual capital among universities and research organisations” (Leitner and Warden, 2003).

One of its basic premises is that the organisation’s intellectual assets are specific to each organisation and their value and relevance depend on their potential contribution to the institution’s key objectives. For this reason, a necessary starting point would normally be the definition and diffusion of the organisation’s strategic goals. However, it is recognised that not all HEROs are at the same stage in the formulation of their mission statement (Warden, 2003), which could hinder the adoption of this intellectual capital approach.

4.4 *PCI Project*

The PCI Project (2000-2003) developed an IC Indicators Programme applied to the research activity of universities and research centres in the Madrid Community. The participants were four universities[7] and two research institutes[8].

This Project aimed at studying how these organisations manage their knowledge in order to improve their processes and their relationships with other social agents, and how this information is disclosed to stakeholders in order to improve transparency (Comunidad de Madrid, 2002).

The starting methodological framework was the Intellect Model (Instituto Universitario Euroforum El Escorial, 1998), properly adapted to the features of the research institutions. It attempts to establish the general characteristics of the research processes in these organisations, root cause-effect relationships between inputs and outputs within the research process and, finally, suggest how to manage IC inputs to improve research outputs within these organisations.

4.5 University of the Basque Country

The University of the Basque Country (UPV) developed a knowledge management case-study project in a strategic cross-organisational process called "Research-Development-Knowledge Transfer". To reach their objective, Multidisciplinary Groups in the Universities (GUM) have been created with the specific goal of building closer ties between university research and the real socio-economic context (Araujo, 2000).

The idea that underlines this research project is, according to Araujo (2000, p. 21), that "knowledge management in universities can be defined as a whole process which increases Intellectual Capital in universities, defining it as all the administrative, scientific and technical knowledge which generates or will generate benefits in the future". It was therefore created with the conviction that knowledge management in universities is crucial as a response to the new challenges that they have to face: defending their leadership position in the field of creation and diffusion of knowledge in an increasingly competitive context.

5. Observatory of European Universities

5.1 Main characteristics

As is explained in the previous sections, increasing awareness of the relevance of universities in the creation of a Europe of Knowledge is leading different initiatives to foster excellence in universities and research centres.

However, the higher education system in Europe is organised following national and regional structures. Due to this, the European university panorama is mainly characterised by a "high degree of heterogeneity which is reflected in organisation, governance and operating conditions, including the status and conditions of employment and recruitment of teaching staff and researchers" (European Commission, 2003a, p. 5).

In order to understand the European university system, to contribute actively towards excellence, and to improve university management processes, an ambitious initiative is the Observatory of European Universities (OEU). According to the idea that "the nature and scale of the challenges linked to the future of the universities mean that these issues have to be addressed at European level" (European Commission, 2003a, p. 10), the Project is being developed within the PRIME (Policies for Research and Innovation in the Move towards the European Research Area) Network of Excellence, supported by the VI Framework Programme.

One of the aims of the OEU, created in June 2004, is to understand better the importance of managing intangibles in public universities in order to improve their level of quality and competitiveness. Its overall objective is to provide universities and research centres with the necessary tools and instruments for the governance of research activities.

Fifteen universities and research institutes from eight different European countries[9] are working together to develop a common framework of analysis and to build a battery of indicators to measure and compare the intangible elements related to research activities. Being aware of the complexity of the universities, the Observatory decided to start with research activities, even though the general aim of the European universities is to extend the Project to teaching activities.

In order to provide a common structure, the project has created an analytical framework organised through five thematic dimensions and five transversal questions. The “thematic dimensions” selected are:

- (1) *funding* – all budget elements, analysing revenues and expenses;
- (2) *human resources* – administrative staff, researches/teachers and PhDs;
- (3) *academic production* – results from research activities in all fields (i.e. articles, academic publications, non-written results, and the knowledge embodied in PhDs);
- (4) *third mission* – all the activities and relations between universities and non-academic partners (i.e. firms, non-profit organisations, public authorities, local government, and society as a whole); and
- (5) *governance* – the process by which the university converts its inputs (funding and human resources) into research outputs (academic outcomes and third mission).

Giving its qualitative profile, it should be approached mainly as a characterisation issue.

The “transversal issues” considered are:

- *autonomy* – the university margin for manoeuvre is analysed (in other words, the degree of freedom of the university to allocate resources or to use funds);
- *strategic capabilities* – the university’s real ability to implement its own strategic choices;
- *attractiveness* – the university’s capacity to attract resources (money, people, equipment, collaboration, etc.) within a context of scarcity;
- *differentiation profile* – the main features of a university that distinguish it from the other strategic actors; and
- *territorial embedding* – geographical distribution of university involvement, contacts, collaborations, etc.

As a result of the interactions of the aforementioned issues, a “strategic matrix” (see Figure 1) has emerged. Each cell of the matrix contains various key questions and a set of indicators.

The matrix is the result of an intense interactive process between university representatives and research team groups in the Observatory. The two-dimensional matrix is expected to facilitate the analysis of university research management. This structure should be an instrument to characterise research activities in European universities, facilitate a common framework to compare them, help universities to assess their strategic strengths and weaknesses over time, and identify the best performing universities.

Figure 1.
Framework of the
Observatory of European
Universities: strategic
matrix

	Funding	Human Resources	Academic Outcomes	Third Mission	Governance
Autonomy	- Key Questions - Indicators				
Strategic Capabilities					
Attractiveness					
Differentiation Profile					
Territorial Embedding					

Source: Observatory of European Universities (2005)

Given the proposed analytical framework, the next step should be a close collaboration process with university representatives and key people within the institution to:

- validate within each university the choice of strategic issues highlighted in the matrix; and
- select the issues on which they will concentrate to gather their data.

Finally, and regarding quantitative indicators, it is recommended that they are checked against the following set of characteristics (MERITUM, 2002):

- *useful* – should facilitate decision making both to internal and external users;
- *relevant* – should provide information that can modify or reassure the expectations of decision makers: to allow this, they should be significant, understandable and timely;
- *comparable* – presented following general accepted criteria, so that users may make comparisons over time and across institutions;
- *reliable* – this requires the indicators to be objective (not affected by any bias arising from the interests of the parties involved), truthful, and verifiable; and
- *feasible* – the information for their elaboration can be obtained from the university's information system, or the cost of modifying those systems to obtain the required information should be lower than the benefits (private or social) arising from the use of the indicator.

5.2 Emerging methodological considerations from the Observatory

The analytical framework presented for research management in the European higher education system and the experiences within the universities and research organisations involved in the Project are providing some initial insights into how the research management processes could be conceptualised in public universities.

From the conceptual point of view, the strategic matrix is an easy instrument to characterise research activities within universities in two dimensions. It facilitates a learning process about what are, and will be, the key issues for universities, and

presses university authorities to define strategic guidelines. Accordingly, we can say that the matrix has a two-fold objective:

- (1) improving internal management; and
- (2) facilitating benchmarking analysis across Europe.

The Observatory, in close collaboration with universities, is addressing some methodological considerations. First, the definition of commonly selected indicators, which allows managers and stakeholders to understand and compare research activities, is an essential starting point. When it seems too difficult to arrive at a common quantitative indicator, narrative and qualitative descriptions are suggested so as to have elements for comparison.

Although there is a diversity and high degree of heterogeneity that characterises the above-mentioned European universities, from a methodological point of view, they experience similar problems.

As argued when analysing intellectual capital models at firm level, the starting point to implement a research measurement system is the discussion and definition of corporate goals and strategies, because “the process of acquiring, applying and exploiting knowledge starts with the definition of specific goals” (Leitner and Warden, 2003, p. 8). Accordingly, the culture of quality in the higher education system started some years ago has pressed universities around the world to define a mission statement. Even so, not all universities are at the same stage of development.

Most of the European universities follow a functional and disciplinary internal structure, which makes it difficult to manage university research activity as a whole. Indeed, most managers of individual faculties have little knowledge about research activity in other disciplines. Moreover, this organisational structure is not flexible enough to assess and measure multidisciplinary actions and joint research.

Involvement of the university authorities is a crucial issue for the success of the Project. In the UAM case study there is strong support from the Rector and the Vice-Rector for research, and their close collaboration with the research group is a key factor in achieving a positive characterisation of the research activity.

Finally, university managers pointed out that the strategic matrix includes too large a battery of indicators. Accordingly, there should be reflection on ways to avoid an extensive list of indicators and so facilitate a common framework and comparative analysis across Europe, and help internal management.

6. The relevance of using IC approaches: learning from the UAM case

The Autonomous University of Madrid (UAM) is one of the universities involved in the Observatory and one of the most proactive participants. This Spanish public university opened its doors to students in 1968, and is organised around eight faculties (following traditional disciplines) made up of 60 Departments, eight Research Institutes and 20 additional Centres where teaching and research activities are considered to be of equal importance.

In the process of applying the OEU principles and filling up the matrix, the UAM is encountering some difficulties regarding different aspects, mainly within the data collection process (gathering data from different areas and departments, finding a level of comparison between salaries and scholarships, and considering and evaluating the diversity of activities that can be included in the so-called third mission).

The analysis of all these problems and difficulties as well as the deliberation about potential solutions has led us to reflect on the utility and suitability of the analytical framework of the OEU. In doing so, we find that one of the problems is the variety of projects related to measuring knowledge and intangibles within European universities using different languages and approaches. Since the Observatory is a European project that has both a holistic view of the university as a centre for research and teaching and an important role in regional development, its successful and future applicability is dependent on terminology which should be agreed internationally.

From a conceptual point of view, we may say that IC approaches and the OEU have the same goal: providing tools to improve both governance and transparency of organisations – in this particular case, higher educational institutions. The main difference is that the OEU is using different terminology.

Following the European Commission (2005b) and Marr (2005), the benefits of IC approaches fall into two categories:

- (1) their potential to function as a communication device to stakeholders that can be used to attract resources – financial resources, human resources, relationships with partners, and technological resources (external reporting function); and
- (2) their potential to function as a management tool to help develop and allocate resources – create strategy, prioritise challenges to the firm’s development, monitor the development of the firm’s results, and thus facilitate decision-making (internal reporting function).

Accordingly, we argue that adapting the OEU’s framework to the IC standards in terms of language and taxonomy is highly recommendable (human capital, structural capital and relational capital[10]).

From a functional point of view, and due the similarities between both perspectives, the strategic matrix could easily be presented in an IC framework, with small changes, mainly in the use of terminology.

To adapt the dimensions included in the matrix to the IC schema, a more exhaustive analysis should be undertaken. Nevertheless, in a first step of the analysis the four thematic dimensions can be directly translated into IC language (see Figure 2). However, the dimension of “funding” is not included in one of the three categories but

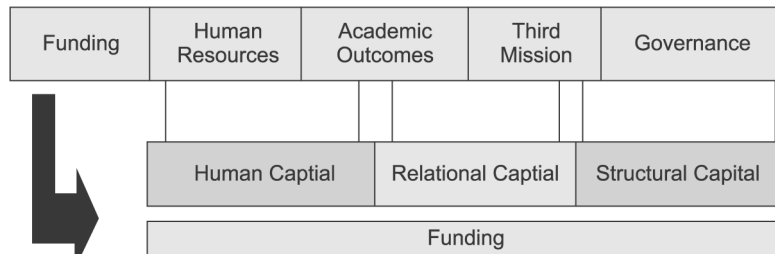


Figure 2.
Potential adaptation of thematic dimensions into the IC categories

Source: Sanchez *et al.* (2005)

embedded in and affecting all of them. Following Marr's (2005) ideas, monetary capital, although a key resource for any institution, is not usually considered a part of IC.

Finally, the so-called transversal issues could be understood as the strategic goals that each institution endeavours to achieve. In line with this, these issues may vary among organisations, since not all of them have identical goals. Nevertheless, conceiving transversal issues as an organisation's goals allows them to give priorities based on its strategic report.

When adapting the Observatory framework to the IC approach and terminology, important benefits can be achieved. First, the use of internationally recognised standard terminology encourages the consolidation of a common language that can facilitate an organisation's understanding of its value creation process and the processes and external reports of other players, both private and public. Second, given the worldwide recognition of the IC approach, its use might visualise the Observatory as a pioneer initiative in measuring intangibles for European universities, and thus enable it to develop guidelines for the rest of the institutions. Third, since the European Union has shown a special interest in IC approaches to measure intangibles (European Commission, 2005b), the adoption of this approach might have a political impact.

7. Conclusions

European universities and research centres are considered crucial for the creation of a "Europe of Knowledge" and for the development of modern societies in general. In line with this, and since the last decade, our higher education systems are immersed in intense transformation processes, which are endeavouring to make universities more flexible, transparent, competitive and comparable.

Considering the importance of intangible assets for this kind of organisation, IC approaches seem to be essential in order to improve governance and to facilitate benchmarking analysis.

This being so, increasing awareness about the importance of measuring, management and reporting on intangibles has led some research institutions to build their own model voluntarily.

In this context, the Observatory of European Universities was created in June 2004 to provide universities with tools to improve the governance of research activities. To reach this ambitious objective, an analytical framework, in the shape of a strategic matrix, is being developed. It is for this reason that we argue that the ultimate goal and expected benefits of the OEU and IC approaches are very similar. The fact remains, however, that they are not using the same terminology.

Analysing the increasing impact of IC approaches at firm and political level – and recognising it is the state-of-the-art thinking across Europe – we have proposed a provisional adaptation of the axis of the matrix into IC schema. This potential transformation and the use of internationally recognised standard terminology could provide important benefits, by improving and clarifying university strategy, providing greater homogenisation in the language used by private and public institutions, and enabling the Observatory to make greater political impact as a pioneer initiative.

Despite the efforts made and the advances achieved in the attempt to measure intangibles in universities within the Observatory, further research needs to be done in order to create a general IC framework for public universities and research organisations.

Notes

1. Joint initiative between the Innovation Policy Directorate of the Enterprise and the Industry Directorate General of the European Commission.
2. Note that this data is an average, and this figure varies according to the different European states (70 per cent in Greece, 55 per cent in Spain or 26 per cent in Germany) (European Commission, 2003a, p. 5).
3. Following Lev (2000), we can consider that the terms “intangibles”, “knowledge assets” and “intellectual capital” are interchangeable.
4. Report prepared for the European Commission (DG Enterprise) by the University of Ferrara, the Stern Business School, New York, and the University of Melbourne.
5. The MERITUM Project developed 77 case studies in six European countries (Spain, France, Finland, Sweden, Denmark and Norway).
6. More information is available at: www.ingenio.upv.es
7. The Autonomous University of Madrid, Carlos III University, Polytechnic University and Rey Juan Carlos University.
8. The National Center of Biotechnology (CBN) and the Energy, Environmental and Technology Research Center (CIEMAT).
9. Germany, Spain, France, The Netherlands, Hungary, Italy, Portugal and Switzerland.
10. Even though the debate about the components of the IC is still partially open, the IC components recognised in most of the literature are human capital, structural capital and relational capital (see Edvinsson and Malone, 1997; Sveiby, 1997; Instituto Universitario Euroforum El Escorial, 1998; MERITUM, 2002).

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