



Intellectual capital in Spanish public universities: stakeholders' information needs

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Abstract

Purpose – This paper aims to demonstrate the need for universities to include information on intellectual capital in their accounting information system.

Design/methodology/approach – An empirical study was conducted to discover the extent to which the different users of university accounting information are now demanding information concerning intellectual capital in order to make the right decisions. To this end a questionnaire was designed and sent to all the members of the Social Councils of Spain's public universities.

Findings – The findings show the opinion of university accounting information users regarding the need for universities to publish information on their intellectual capital in order to make the current model of university accounting information more relevant.

Practical implications – The results of this research show the intangible elements about which universities should provide information in order to satisfy their users' new information demands.

Originality/value – No previous research in this area has been conducted for Spanish universities. This paper brings new expertise regarding the traditional information supplied by universities, which needs to be extended to include information on intellectual capital. Giving users access to a type of information that is relevant for good decision-making constitutes a healthy exercise in transparency for universities.

Keywords Intellectual capital, Higher education institutions, Users, Information needs, Stakeholders, Universities, Spain

Paper type Research paper



1. Introduction

The current context of the knowledge society means that the European higher education sector is facing a number of changes that directly affect the conceptualisation and functioning of universities. The most important changes are listed as follows:

- *Social changes* – The appearance of the new demands and aspirations of various stakeholders (for example, the business sector and society in general). Society demands more detailed accounts, a justification of the use of public funding and greater transparency of information.

- *Economic changes* – Principally related in many countries to the decrease in public funding of research and the growing competition from education offered by companies. These “corporate universities” aim to contribute to the lifelong learning of their own employees.
- *Cultural changes* – Owing to a new focus on knowledge production and the implementation of new research methods.
- *Political changes* – They reflect a growing level of internationalisation of education and research and the pressure which exists for a harmonisation of the different national university systems with the “Bologna Process” and the creation of the European Research Space.

In response to these challenges European university institutions are currently immersed in a process of profound change the intention of which is to improve the effectiveness, efficiency and transparency of these institutions with the aim of contributing to the development and improvement of the competitiveness of the European economy. Some of the most significant changes are:

- new methods for measuring the performance and efficiency of universities;
- the creation of European-wide accreditation agencies;
- new assessment processes and systems to ensure quality, which in turn strengthen transparency and accounting statements;
- the institutionalisation of new financing mechanisms; and
- reforms of national legislation to increase the level of universities’ independence and the implementation of new tools to improve internal management[1].

Given this situation the information transparency of university institutions acquires even greater significance. A need exists to conduct a profound reform and modernisation of the university system with regards to the presentation of information that takes into account the new information demands of its users.

Accounting research is currently focused on the utility paradigm, which stresses the need for accounting information to be truly relevant to good decision making by its users. In this respect, in the framework for the presentation of accounting information for higher education institutions, GASB 35, *Basic Financial Statements – and Management’s Discussion and Analysis – for Public Colleges and Universities*, highlighted the need for supplying more useful information to the growing range of users, who, it was found, hardly refer to financial reports (Governmental Accounting Standards Board, 1999, p. 25). At national level (Spain) the most important reference is that of the document on university funding presented by the Ministry of Education at the Council of Universities on 20 January 2010, which calls for university management teams to be more rigorous when they are presenting accounts. Spanish universities need to provide more transparent information by way of an integrated system facilitating immediate information to each agent according to their needs, thus allowing them to make the best possible decisions (Council of University Coordination, 2010).

However, accountability in the public sector has traditionally been somewhat short-sighted, since the tools of transparency have always focused on financial and budget information (Martin and Moneva, 2009), ignoring other types of information such as data on the social responsibility of their activities (Melle, 2007) or the key intangible elements in

their value creation (Ramírez, 2010a). Public universities are a prime example of this, since the information provided focuses on ensuring financial control of the organisation without paying attention to the needs of other groups of interest (Martín, 2006). Gray (2006) considers that the information supplied in traditional financial reports is not enough, highlighting the need to establish more extensive communication and accountability mechanisms which take into account the needs of the different groups of interest.

The need for universities to have a greater involvement with their wider community and the general concern to ensure the informational transparency of these institutions so as to satisfy the information needs of their users makes it advisable to present information on intellectual capital. Below are some of the reasons why it is a major necessity for these institutions to start including information on intellectual capital in their current accounting systems:

- Knowledge is the principal output and input of higher education institutions. Universities produce knowledge, either through scientific and technical research (the results of investigation, publications, etc.) or through teaching (students trained and productive relationships with their stakeholders). Their most valuable resources also include their teachers, researchers, administration and service staff, university governors and students, with all their organisational relationships and routines (Warden, 2003; Leitner, 2004). It is true to say then that universities' inputs and outputs are largely intangible (Cañibano and Sánchez, 2008, p. 9).
- The existence of continual demands for greater information and transparency about the use of public money (Warden, 2003), mainly due to the fact that most of the funding for public universities is handed over by government (Sánchez and Elena, 2006).
- The greater independence of universities regarding their organisation, management and budget distribution requires greater social responsibility which will lead universities to prepare accounting information to report to society as well as to facilitate and satisfy the information needs of participants in the institution itself (González, 2003, p. 401).
- The implementation of the European Space for Higher Education promotes the mobility of both students and teachers within the territory of Europe, while at the same time encouraging both collaboration and competition between universities. This environment of greater competition and necessary collaboration means that these institutions are now committed to accessing citizens and transmitting relevant information on their activities. All this could well play an important role in the decision-making processes of the users of the accounting information, for example in the case of potential students choosing where to study.
- Lastly, it is important to point out that universities are now facing growing competition due to lower funding, which puts them under greater pressure to communicate their results.

However, despite all this, in most countries there exists no obligation or recommendation for universities to present information on their intellectual capital. The only exception is in Austria, where universities have been obliged to present a report on intellectual capital since 2007. In view of this lack of obligation or simple

recommendations from political authorities and university administrations related to presenting information on intellectual capital, our study will explain the current informational demands of university stakeholders, which will demonstrate the need for traditional financial information to be complemented by other indicators related to the intangible aspects most demanded by the different university users.

The two fundamental objectives of the empirical study are:

- (1) *Objective 1* – To learn the opinion of users of university accounting information regarding the need for universities to publish information on their intellectual capital.
- (2) *Objective 2* – To determine the extent to which different users are demanding information relating to the intellectual capital of Spanish public universities in order to make the right decisions, identifying which intangible resources are the most relevant for publication.

To this end we will first review the existing literature on the presentation of information on intellectual capital in higher education institutions. Then we will define the scope of the empirical study conducted and the methodology used, and finally we will present our results and conclusions.

2. The presentation of information on intellectual capital in higher education institutions

Intellectual capital, when referring to a university, is a term used to cover all the institution's non-tangible or non-physical assets, including processes, capacity for innovation, patents, the tacit knowledge of its members and their capacities, talents and skills, the recognition of society, its network of collaborators and contacts, etc. The intellectual capital is the collection of intangibles which "allows an organisation to transfer a collection of material, financial and human resources into a system capable of creating value for the stakeholders" (European Commission, 2006, p. 4).

The components of a university's intellectual capital have been categorised in varying ways, although undoubtedly it is the tripartite classification that is most widely accepted in specialised literature (Bezhani, 2010; Bodnár *et al.*, 2010; Secundo *et al.*, 2010; Ramírez *et al.*, 2007; Leitner, 2004; Cañibano and Sánchez, 2008; Fernández *et al.* 2001; Cañibano *et al.*, 2002, etc.). Intellectual capital is represented as being formed by the following three basic and closely interrelated components:

- (1) *Human capital* – The sum of the explicit and tacit knowledge of the university staff (teachers, researchers, managers, administration and service staff) acquired through formal and non formal education and refresher processes included in their activities.
- (2) *Structural capital* – The explicit knowledge relating to the internal process of dissemination, communication and management of the scientific and technical knowledge at the university. Structural capital may be divided into:
 - *Organisational capital* – The operational environment derived from the interaction between research, management and organisation processes, organisational routines, corporate culture and values, internal procedures, quality and the scope of the information system, etc.

- *Technological capital* – The technological resources available at the university, such as bibliographical and documentary resources, archives, technical developments, patents, licences, software, databases, etc.
- (3) *Relational capital* – The extensive collection of economic, political and institutional relations developed and upheld between the university and its non-academic partners, i.e. enterprises, non-profit organisations, local government and society in general. It also includes the perception others have of the university: its image, appeal, reliability, etc.

Current accounting regulations restrict the recognition of intangibles. Only acquired intangible assets may be reflected in an organisation's balance sheet (Cañibano *et al.*, 2008). For this reason international regulatory bodies, like the Financial Accounting Standards Board (2004) or the International Accounting Standards Board (2005) tend to recommend that additional information on intangibles be published apart from financial statements so as to avoid the inclusion of accounting criteria which could endanger the quality and reliability of the financial information (Ramírez, 2010b, p. 144). At national level (Spain), the Commission of Accounting Experts of the Ministry of the Economy (Instituto de Contabilidad y Auditoría de Cuentas, 2002) recommends the voluntary drafting and publication of a report on intellectual capital, following the guidelines of the Meritum Project (Cañibano *et al.*, 2002), consisting of three parts:

- (1) a vision of the company;
- (2) a summary of intangible resources and activities; and
- (3) a system of indicators.

Taking into account these considerations, we believe that complementary non-financial information is the most appropriate form in which to supply information on universities' non-tangible elements. In our opinion an improvement in university accounting systems would be achieved by the drafting and presentation of a new report complementary to the current financial statements – the intellectual capital report. A set of indicators would show the information most demanded by different stakeholders regarding the institution's intangible resources. This intellectual capital report would provide accounting information that is not only reliable, but is also relevant for decision making by the users of the accounting information.

Concern for these matters led a research team from the Observatory of European Universities (OEU) to propose the presentation of an intellectual capital report, called the ICU Report (Sánchez *et al.*, 2006), specifically designed for universities and research centres, with the aim of improving transparency and aiding the homogenous dissemination of the indicators of intellectual capital. The proposed IC report consists of three fundamental sections that describe the logical movement from internal strategy (design of the vision and objectives of an institution) and management towards a system of indicators:

- (1) vision of the institution;
- (2) intangible resources and activities; and
- (3) system of indicators.

One of the most interesting experiences in the presentation of information on intellectual capital is that of Austria's public universities, which are obliged to present Intellectual Capital Reports (known as *Wissensbilanz*). The Austrian University Law of 2002 (Austrian University Organisation and Studies Act, 2002), in article 13, established the obligation and the general framework for developing this intellectual capital report. According to UG2002 (section 13, subsection 6), the IC report will include, as a minimum, the following elements:

- the university's activities, the social and voluntary objectives and the strategies;
- the intellectual capital, divided into human, structural and relational capital; and
- the processes presented in the performance contract, including outputs and impacts.

The first intellectual capital report should have been published in 2005. However the ministerial order (Federal Ministry of Education, Science and Culture of Austria, 2006[2]) relating to the detailed structure of the university intellectual capital report. The way to present the information and the indicators to be obligatorily included was not published until 15 February 2006. So, Austrian universities have only really been obliged to publish an intellectual capital report every 30 April since 2007.

Another interesting study is the case of the Poznan University of Economics, where Fazlagic (2005) presents an intellectual capital report based on methodology proposed by the Danish Ministry of Science, Technology and Innovation (2000) in which intellectual capital is presented in the form of resources, activities and results.

Despite these experiments, at national level neither accounting bodies nor government agencies have established regulations, standards or norms related to preparing intellectual capital reports which involve the existence of a strict, agreed, theoretical framework, standardising the data to be presented. The empirical study conducted for this study is a first step towards highlighting the intangible elements most demanded by the different users about which universities should include information in the intellectual capital report.

3. Empirical study

The need to guarantee the informational transparency of Spanish universities led us to consider whether information on intellectual capital should be included in the universities' accounting information systems. To this end the decision was taken to seek out the opinion of the users of university accounting information regarding the importance they give to the availability of information on intellectual capital as an aid to good decision-making. A questionnaire was designed and sent to every member of the Social Councils of Spain's public universities (see the Appendix). It was thought that these participants would provide a good example of the attitude of university information users since they represent the different social groups connected with universities.

After reviewing the literature dedicated to the analysis of stakeholders in universities (Skousen *et al.*, 1975; Engstrom, 1988; Governmental Accounting Standards Board, 1999; Burrows, 1999; González, 2002; Fernández and González, 2003; O'Dwyer, 2005; Jongbloed *et al.*, 2008; Okunoye *et al.*, 2008; Gaete, 2009; Larrán *et al.*, 2010, etc.), a certain consensus was detected once the following users of the accounting information of the higher education institutions were identified:

- organs of political representation;
- organs of university government;

- the council of university coordination, accreditation and quality assessment agencies;
- students;
- teaching and research staff;
- administration and service staff;
- unions;
- finance community;
- private or public organisations with plans to employ university graduates or to apply the research generated at the institution;
- the public administration;
- the media;
- foundations; or
- any other party interested in university activity.

If accounting managers know the current demands information from each of these groups they can meet them, thereby enabling better relationships with each of them.

Table I shows some of the previous literature on the importance of social ties between key actors involved in the university. Table II shows a brief review of some of the studies on universities' information publishing practices.

3.1 Methodology and data collection

In order to achieve the previously mentioned objectives, in mid-May 2009 an online questionnaire requesting the opinion of the members of the Social Councils was sent to all Spanish public universities. The methodology of the study is outlined in Table III.

3.1.1 Defining the population and selecting the sample. Two important factors were used to select the population to be studied:

- (1) members of the Social Councils of Spain's public universities were considered to provide a good sample of the feelings of university information users, as they represent the various social groups with links to the universities; and
- (2) these members are familiar with the accounting information published by the universities since they are responsible for approving the universities' annual accounts.

The composition of the Social Councils of Spain's public universities was analysed and it was found that they all include the following members:

- vice-chancellor;
- general secretary;
- manager;
- council secretary;
- president;
- representative of the teaching and research staff;
- representative of the administration and services staff;

| Authors | Sample | Main results |
|-----------------------------|----------------------------|---|
| Kruss (2008) | South African universities | This study shows that the capacity and will to harness the potential of research for industry partnerships and innovation is evident on a significant scale in only a small number of universities. However, the role of government intermediaries and of university research capacity and support structures is central to the structure, dynamics and performance of knowledge networks |
| Datta and Saad (2008) | India | These authors argue that the recent success that India has enjoyed in the domain of outsourcing of services can be explained through the triple helix paradigm of university-industry-government networks, albeit in a manner that does not conform strictly with the existing notions of triple helix. Also, this study illustrates how university-industry-government networks and the social capital of the firms involved have played a central role in India's success in the export of knowledge-intensive services |
| Nwagwu (2008) | Nigerian university | This study situates the Nigerian university within local and global conditions and how these affect its performance within the theoretical expectations in a knowledge-based economy as postulated by the triple helix (TH) perspective of innovation systems. So, this study argues that this model appears too fine for most African societies where the governments exercise strong monopoly on the other sectors of the economy, or where the economy is not actually hi-tech and research and development oriented |
| Malairaja and Zawdie (2008) | Malaysia | This study examines the effectiveness of science parks as a strategy to promote university-industry collaboration in Malaysia. Its findings show a reasonably high level of interactions between the science park (on-park) and off-park firms and local universities. Also, this study shows that companies with university links usually have higher productivity rates than comparable companies that do not have such links. There is, therefore, a need to strengthen university-industry collaboration to enhance commercialisation of research results |
| Alic (2008) | | This author explores knowledge, skills and competencies as related to technological practice. Universities must provide an adequate basis for job- and firm-specific learning and, by extension, economic competitiveness. Examining the contents of practitioners' toolkits in both explicit and tacit realms, aided by analogies with artificial intelligence, highlights the importance of supplementing public policies in support of education with policies that would foster experiential learning |

(continued)

Table I.
The principal studies on
university-industry-
government relations

| Authors | Sample | Main results |
|------------------------------|--|---|
| Casanueva and Gallego (2010) | A management department of an important Spanish university with over 60,000 students | The research results have shown that social capital arising from the internal relations of an intra-organisational network (in this case, a university department) is associated with both the capacity of individuals in the network to generate new knowledge and their innovativeness. So, evidences were found that the structural dimension, the relational dimension and the resource dimension directly or indirectly affect individual innovativeness |
| Maritz (2010) | The sampling frame of this study consisted of full-time academic staff at universities in metropolitan Melbourne | This work examines the role of networking (frequency of communications) in fostering entrepreneurial activities and productivity. Particularly, the focus of the study was the question whether social interactions foster entrepreneurial activities and thereby improve the productivity of academic staff in universities. The results indicated that there is a positive relationship between these two research constructs |

Table I.

- student representative;
- two to six (usually two) representatives of business organisations;
- two to six (usually two) representatives of union organisations and
- various representatives of the regional government, the regional parliament, the town council, the federation of municipalities and provinces, etc., all of which are included in the group denominated “public administrations”.

In order to guarantee a minimum of replies from each one of the user groups into which the population was divided, it was decided to include the vice-chancellor, general secretary, council secretary and the manager in the group denominated “university governors”.

Following the analysis of the composition of the Social Councils, the members were divided into these seven groups:

- (1) university governors;
- (2) teaching and research staff;
- (3) students;
- (4) administration and services staff;
- (5) representatives of business organisations;
- (6) representatives of union organisations; and
- (7) representatives of the public administrations.

The population to be studied was therefore composed of the 1,904 members of the Social Councils of Spain’s public universities. Replies were received from 247 members, 22.57 per cent of the total. The size of the sample was considered sufficient, since in a binomial population the estimation error would be 5.37 per cent for a reliability level of 95 per cent. Consequently, the level of representativeness of our study was guaranteed and could therefore be made extensive to all the users of the Spanish university system.

| Authors | Sample | Main results |
|-----------------------------|---|--|
| Nelson <i>et al.</i> (1997) | Australian universities. Period 1993-1995 | The authors highlight the lack of key performance indicators that can be used to make valued judgements on whether the institutions reach their objectives successfully |
| Banks <i>et al.</i> (1997) | Universities in England, Wales and Northern Ireland | This study demonstrates that, in order to achieve greater transparency and comparability between institutions in the rendering of accounts, it is necessary to reach a consensus on what content needs to be included as non-financial indicators |
| Gordon <i>et al.</i> (1997) | 100 public and private US universities | This study shows that the university annual accounts place greatest emphasis on financial information, while barely providing information on fundamental activities, teaching, research and other complementary services |
| Coy <i>et al.</i> (2001) | US universities | These authors defend a new paradigm for the annual accounts which provides more wide-ranging information on teaching and research including effort indicators and achievements, with more attention being paid to the social responsibility of institutions of higher education |
| Banks <i>et al.</i> (2004) | Canadian universities. Period 1994-2000 | These authors highlight the progress made regarding the content and quality of information disclosed by Canadian universities |
| Machado (2007) | Portuguese and Spanish universities | The study demonstrates that stakeholders not only demand financial information relating to universities. They are more interested in being informed about the quality and evolution of actions related to the institutions' specific activities and not only their financial results |
| Larrán <i>et al.</i> (2010) | Spanish universities | The research results show that the main demands of the university stakeholders refer to transparency in the management of universities, staff training, transfer of society research, dissemination of research, employability of graduates, environmental management, social responsibility, improvement of management processes of human resources, etc. |

Table II.
The principal studies on information published by universities

| | |
|----------------------------------|---|
| Analysis group | Users of accounting information from Spanish public universities |
| Universe | Members of the Social Councils of Spain's public universities (1.094) |
| Size of sample | 247 |
| Information collection technique | Online survey |
| Period of field work | May-July 2009 |
| Average time per survey | 7 minutes 45 seconds |
| Software | SPSS® v. 17 |

Table III.
Study data sheet

3.1.2 Information collection and treatment. The information was collected via an online survey. An e-mail was sent to the members of the Spain's university Social Councils requesting the members to take part in our research. They were provided with a link (see <http://encuestacapitalintelectual.tk/>) that gave them direct access to the survey and by which they could automatically send their replies.

The questionnaire consists of closed dichotomous questions combined with Likert scales, designed to learn the opinion of accounting information users on the importance of Spanish public universities publishing information on their intellectual capital.

The replies obtained were submitted to a descriptive analysis based on the characteristics of each of the questions.

3.2 Analysis of the results of the empirical study

There now follow observations on the principal results obtained from the empirical study for each of the objectives defined.

3.2.1 Objective 1: To learn the importance given to publishing information on intellectual capital. A great emphasis was found to exist on the need for universities to provide information on their intellectual capital. A high percentage of those surveyed, i.e. 89.1 per cent, were greatly interested in Spanish public universities publishing information on their intellectual capital. They consider that if published, it would increase the relevance of the information currently contained in the university accounting model.

By user groups it was found that practically all the users – public administrations (89.4 per cent), students (100 per cent), business organisations (86.2 per cent), teaching and research staff (95.5 per cent) and university governors (97.4 per cent), administration and services staff (66.7 per cent) and union organisations (76.5 per cent) – consider that the presentation of information on universities' intellectual capital increases the relevance of the information contained in the current financial statements.

3.2.2 Objective 2: To know the extent of different users' demand for information on intellectual capital. To achieve this objective those surveyed were asked to rate on a five-point Likert scale the importance they gave to universities publishing information on the intangible elements corresponding to the three blocks of intellectual capital of higher education institutions. For this the scale, 1 was "not at all important" and 5 was "very important".

In order to identify the intangible items about which the users of university accounting information believe it relevant or very relevant to publish information, it was decided that the items in question had to be given an mean value and a median of 4 or more points, in conjunction with a minimum percentile of 25 scoring 4 points and a minimum percentile of 75 of 5 points. The majority of the value distribution should be concentrated in high values – approaching 5 points. It was also considered that in order to classify any of the intangible items as essential to publish, apart from meeting the previous requirements, it must achieve a mean value of over above 4.5.

First, it must be observed that in general a high mean value was awarded to publishing information on intangible items relating to human, structural and relational capital. Specifically, the analysis of the data obtained from the various statistics (mean, median, mode, range typical deviation, 25 and 75 percentiles) led to the intangible elements shown in Figure 1 as being essential to publish[3].

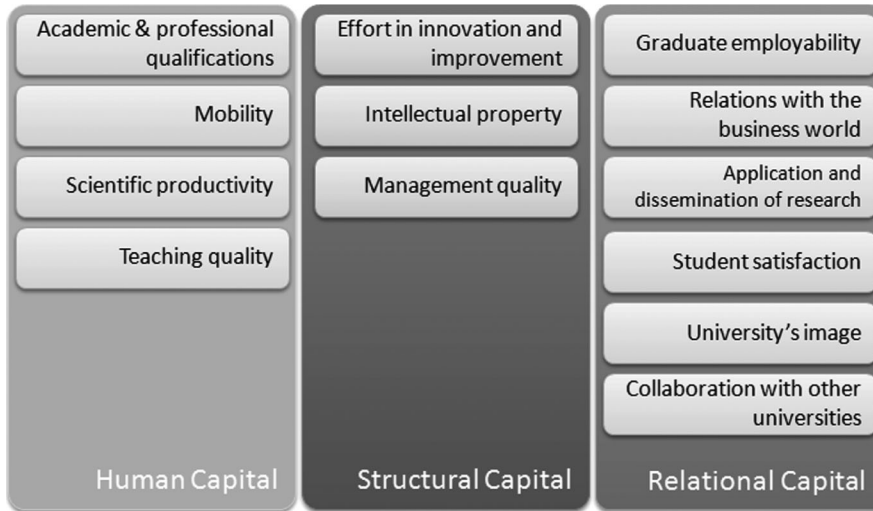


Figure 1.
Essential intangible elements

There now follow details of the particular demands relating to the intangible resources for each user group of university accounting information, so that universities can begin to be aware of the need to address these demands.

3.2.2.1 University governors. This group shows great interest in the inclusion of information on intellectual capital in the university information model. Specifically they give great importance to publishing information on graduate employability (4.64), relations with the business world (4.64), research capacities (quality of research, participation in national and international projects, six-year research periods, etc.) (4.56) and the university's regional, national and international reputation (4.56)[4].

3.2.2.2 Teaching and research staff. The teaching and research staff are responsible for designing and producing the services and products generated by the university – all types of training and research (basic, applied and developmental).

The teaching and research staff's demands are focused on aspects such as being informed of the institution's research capacities and competences (quality of research, participation in national and international projects, percentages of doctors, six-year research periods, etc.) (4.68), teaching capacities and competences (innovation in teaching, teaching quality, etc.) (4.64), the effectiveness of the human capital (4.5) and the institution's relations with other universities (4.59) and public and private organisations (4.5).

3.2.2.3 Administration and services staff. The administration and services staff is another group of users within the employees, responsible for maintaining the university's production structure. According to our results the administration and services staff is basically interested in having access to information related to the effectiveness of human capital (4.93), the professional qualifications of the administration and services staff (4.93), the university's social and cultural commitment (4.73), management quality (4.8), the information system (databases, uses of ITC, etc.) (4.67), the institution's image (5.0) and relations with society in general (4.67).

These results are similar to those obtained in the work of Larrán *et al.* (2010) in Spanish public universities. So, this study states that administration and services staff's demands

are focused on aspects such training, dissemination of services to foreign ownership, resource management processes human, information and communication channels, staffing needs, occupational health policy and social commitment of the university.

3.2.2.4 Students. The students form a group with a double role. They are a product demanded by the business world and they are also the university's customers, since they seek and demand a certain level of training. They are also able to choose the university where the training is received. A distinction can be made between current, graduate and potential students.

This group's foremost demand is that for quality training appropriate to current business demands. The graduate students would like to have access to information which helps them to assess the result of their "purchase" – the quality of the knowledge and skills acquired during the training period and the appropriateness of these to the atmosphere in which they are to develop their career. The potential students, a relatively large percentage of the group, will analyse the possibility of access to employment or of improving the job they have thanks to the training received at the university, while others consider the quality of the training offered as the only intention of improving their training and progressing in their skills (Traverso, 2001, pp. 189-90).

The results of our study allow us to conclude that students are basically interested in having access to information related to the quality of teaching at universities (teaching capacities (5.0), the teaching and research staff's qualifications and training (5.0), the human capital's effectiveness (4.92), teaching productivity (4.58), the effectiveness of teaching (4.75), support services (4.58), etc., the level of satisfaction among graduates (4.83), mobility of students (4.82) or employment opportunities (5)[5]. They are also greatly interested in access to information on the university's image and reputation (4.92) and the relations between students (4.5) and the business world (4.83). This last factor is of special interest since students demand that the training they receive is appropriate to business demands, as finding employment is one of their main objectives. In fact, our results show that students give a value of five points to access to information on the employability of graduates from different universities.

3.2.2.5 Union organisations. The unions are tools for the inclusion of workers in the defence of their interests and improvement of their standard of living. The union organisations are responsible for ensuring that work and social security laws are respected. So unions need information that helps them to file complaints and evaluate negotiating margins.

The results of our study show that the information considered most relevant by union organisations is that related to student satisfaction (5.0), training activities (4.88), the professional qualifications of employees (percentage of civil servants, etc.) (4.65), capacity for teamwork (4.65), effectiveness of teaching (4.59) and teaching management and organisation (teaching incentives, etc.) (4.65). They also value access to information on the institution's social and cultural commitment (4.59), environmental responsibility (5.0), effort in innovation and improvement (expenditure on research, staff) (4.76) and relations with society in general and with the business world (5.0).

3.2.2.6 Business organisations. Business organisations feed on the dual product provided by universities: the research carried out and the graduates who become part of the human capital. A distinction must be made between the public or private organisations which recruit graduates and those which collaborate on scientific and technological projects. In the first case their information demands are oriented towards

the graduates' qualifications and in the second case, the work developed by the universities and their groups in the scientific and technical field (Mora, 1999, pp. 26-7). On this last point should be noted that the study of Link and Ruhm (2011, p. 12) which suggest that one social benefit associated with spin-outs will be intellectual capital that takes on the form of a public good through the publication process. The creation and distribution of public knowledge, which is an implicit objective of a university, from spin-outs may comfort many university administrators and faculty that there are indeed positive externalities associated with internal entrepreneurial efforts that do in fact complement the basic educational mission of the university.

The results of our research show that companies, as graduate-recruiting organisations, give great importance to access to information on the employability of a certain university's graduates (4.9), student satisfaction (4.79), training activities (4.69), the effectiveness of teaching (4.69), teaching capacities (4.55), regional, national and international reputation (4.79), etc. Business organisation, as agents collaborating on scientific and technological projects developed by the universities, are interested in access to information on technological capacity (total expenditure on technology, computer programmes, etc.) (4.79), effort in innovation and improvement (expenditure on innovation, staff, etc.) (4.76), intellectual property (4.76), publication of research (4.66), R&D installations and material resources (4.62), research management (4.55), organisation and capacities and competences (quality of research, participation in national and international projects, etc.) (4.52).

3.2.2.7 Public administrations. Most of Spanish public university funding comes from public administrations – central and regional government – so universities have to justify the use they make of these resources. As long ago as 2002 the European Parliament insisted on the relationship between the funding of universities and the accountability. It recommended that governments with competences for university matters should give public universities access to the resources needed to guarantee the quality of teaching and research. Universities should then exercise transparent management and provide information on their activities and results achieved so citizens can decide if the universities meet their expectations (Council of University Coordination, 2007, p. 9).

The results of our study allow us to conclude that, as well as the public administrations' obvious needs for information on the financial position and budget situation of the universities, as users they also demand extensive information on intellectual capital. They give great importance to access to information on such aspects as the universities' relations with the business world (4.77), graduate employability (4.73), research capacities and competences (quality of research, participation in national and international projects, percentage of doctors, etc.) (4.65), the application and publishing of research (dissemination of results, social appropriateness of research, etc.) (4.64), customer satisfaction (4.63), teaching capacity and competence (4.58) and the institution's effort in innovation and improvement (4.58). They also consider of great relevance that universities publish information on the academic and professional qualifications of teaching and research staff (4.54), intellectual property (4.54), management quality (4.53), teaching effectiveness (4.52), the institution's image (4.52), collaboration with other universities (4.52) and the management of research (4.5).

It can therefore be concluded that the users of university accounting information consider it key for their decision processes that universities provide information on intellectual capital. Consequently Spanish public universities should include relevant

and comprehensible information on their principal intangible items in their accounting information model.

4. Conclusions

In the current international context institutions of higher education have to deal with numerous changes which directly affect their accounting information model.

During this study it has become clear that universities have to include information about intellectual capital into their traditional information systems. So, this study presents a list of the main information demands of the following stakeholders:

- university governors;
- teaching and research staff;
- administration and service staff;
- students;
- business organisations;
- union organisations; and
- public administrations.

The results of the empirical study show that the vast majority of respondents consider it essential that universities provide information on intellectual capital in order to make the current model of university accounting information more relevant.

The data obtained also show that these accounting information users think it highly important that universities publish information on the various intangible resources relating to human, structural and relational capital. We have classified as essential to publish the following intangible elements:

- *human capital* – academic and professional qualifications of the teaching and research staff, mobility of teachers and researchers, scientific productivity and teaching quality;
- *structural capital* – effort in innovation and improvement, intellectual property and management quality; and
- *relational capital* – graduate employability, relations with the business world, application and dissemination of research, student satisfaction, the university's image and collaboration with other universities.

Giving users access to a type of information relevant for good decision-making constitutes a healthy exercise in transparency for universities. Using that kind of information different users will be able to access reliable and comparable information on the complete range of activities of the higher education institutions and thus make valued judgements and take the corresponding decisions. Thus higher education institutions will have to manage this information in order to be able to influence decisions of users.

Lastly, the specific demands on intangible elements of each of the different users of university accounting information have been identified during our study, which is then a base for justifying the need to include this information in the current university accounting model in the form of an intellectual capital report. The results obtained in our research do not only advance the research into stakeholders' expectations in the

university community, but may also be of great use to those university directors who wish to progress in the social commitment of the universities they lead and manage.

Therefore it is necessary to conduct a profound reform and modernisation of the university system with regard to the presentation of information owing to the growing need for universities to increase transparency and the level of accountability delivered to their different stakeholders. It is necessary to ensure success in implementing the European Space for Higher Education, because of it facilitates the promotion of the mobility of both students and teachers within the territory of Europe, while at the same time encouraging both collaboration and competition between universities.

It is important to point out that universities are now facing growing competition due to lower funding, which puts them under greater pressure to communicate their results, including information about intellectual capital.

The results of studies like ours contribute to the rationalisation of the current debate promoted by the Spanish Government regarding the information transparency and the accountability of public universities.

Notes

1. Policy makers have increasingly recognised the role that universities can play in economic growth in recent years. One consequence of this has been a dramatic growth in university research management systems in developed countries (Kirkland, 2008, p. 717).
2. These regulations on intellectual capital reports can be downloaded in English at: http://archiv.bmbwk.gv.at/medienpool/14186/wbv_eng.pdf
3. Similar results are obtained in the work of Larrán *et al.* (2010) on the main stakeholders' information needs in Spanish universities.
4. Five-point scale: 1 = not at all important, 5 = very important.
5. In conditions of intensified competence, it is possible that the ways in which countries, universities and university professionals participate in the processes of international mobility will change significantly. The work of Luchilo and Albornoz (2008) proposes different scenarios, combining hypotheses about the global dynamics of skilled mobility and migration of graduate students (conditioned by the behaviour of the demand in developed countries), about their main impacts on Latin America, and about the responses that Latin American governments and universities could make to face this process.

References

- Alic, J.A. (2008), "Technical knowledge and experiential learning: what people know and can do", *Technology Analysis & Strategic Management*, Vol. 20 No. 4, pp. 427-42.
- Banks, W., Banks, J. and Thompson, P. (2004), "Significant improvement in Canadian university accountability disclosures", paper presented at the Administrative Sciences Association of Canada (ASAC) Annual Conference, Quebec City, June.
- Banks, W., Fisher, J. and Nelson, M. (1997), "University accountability in England, Wales and Northern Ireland: 1992-1994", *Journal of International Accounting, Auditing & Taxation*, Vol. 6 No. 2, pp. 211-27.
- Bezhan, I. (2010), "Intellectual capital reporting at UK universities", *Journal of Intellectual Capital*, Vol. 11 No. 2, pp. 179-207.
- Bodnár, V., Harangozó, T., Tirmitz, T., Révész, E. and Kováts, G. (2010), "Managing intellectual capital in Hungarian universities – the case of Corvinus University of Budapest", paper

presented at the 2nd European Conference on Intellectual Capital. ISCTE, Lisbon, 29-30 March.

- Burrows, J. (1999), "Going beyond labels: a framework for profiling institutional stakeholders", *Contemporary Education*, Vol. 70 No. 4, pp. 5-10.
- Cañibano, L. and Sánchez, P. (2008), "Intellectual capital management and reporting in universities and research institutions", *Estudios de Economía Aplicada*, Vol. 26 No. 2, pp. 7-26.
- Cañibano, L., Gisbert, A., García-Meca, E. and García-Osma, B. (2008), "Los intangibles en la regulación contable", Documento AECA & Instituto Análisis Intangibles, Madrid.
- Cañibano, L., Sánchez, P., García-Ayuso, M. and Chaminade, C. (Eds) (2002), *Directrices para la Gestión y Difusión de Información sobre Intangibles. Informe de Capital Intelectual*, Proyecto Meritum, Vodafone Fundación, Madrid.
- Casanueva, C. and Gallego, A. (2010), "Social capital and individual innovativeness in university research networks", *Innovation: Management, Policy & Practice*, Vol. 12 No. 1, pp. 105-17.
- Council of University Coordination (2007), *Financiación del sistema universitario español*, Comisión de Financiación, Ministerio de Educación y Ciencia, Madrid.
- Council of University Coordination (2010), *Documento sobre financiación de las universidades*, Ministerio de Educación y Ciencia, Madrid.
- Coy, D., Tower, G. and Dixon, K. (2001), "Public accountability: a new paradigm for college and university annual reports", *Critical Perspectives on Accounting*, Vol. 12, pp. 1-31.
- Danish Agency for Development of Trade and Industry (2000), *A Guideline for Intellectual Capital Statements – A Key to Knowledge Management*, Danish Trade and Industry Development Council, Copenhagen.
- Datta, S. and Saad, M. (2008), "Social capital and university-industry-government networks in offshore outsourcing – the case of India", *Technology Analysis & Strategic Management*, Vol. 20 No. 6, pp. 741-54.
- Engstrom, J.H. (1988), *Information Needs of College and University Financial Decision Makers. A Research Report*, Governmental Accounting Standards Board, Norwalk, CT.
- European Commission (2006), "Ricardis: Reporting Intellectual Capital to Augment Research, Development and Innovation in SMEs. Report to the Commission of the High Level Expert Group on Ricardis", available at: http://ec.europa.eu/invest-in-research/pdf/download_en/2006-2977_web1.pdf (accessed 20 October 2010).
- Fazlagic, A. (2005), "Measuring the intellectual capital of a university", paper presented at the Conference on Trends in the Management of Human Resources in Higher Education, Organisation for Economic Co-operation and Development, Paris, available at: www.oecd.org/dataoecd/56/16/35322785.pdf (accessed 12 October 2010).
- Federal Ministry of Education, Science and Culture (2006), "Verordnung über die Wissensbilanz (Wissensbilanz-Verordnung-WBV), BGBI, II Nr. 63/2006", available at: www.bmbwk.gv.at/universiteeten/recht/gesetze/wbv/wbv.xml (accessed 21 January 2010).
- Federal Ministry of Education, Science and Culture (2010), "University Organisation and Studies Act – University Act 2002, No. 120/2002", available at: www.bmbwk.gv.at. (accessed 15 October 2010).
- Fernández, E. and González, B. (2003), "Las necesidades de los usuarios y los objetivos de la fiscalización en las universidades", paper presented at the VIII Jornada de Trabajo sobre Contabilidad Pública, Asociación Española de Profesores Universitarios de Contabilidad (ASEPUC), Barcelona, 21-22 March.
- Fernández, E., González, B. and Moro, M.A. (2001), "El capital intelectual en las Universidades: un recurso por explotar", paper presented at the VII Congreso del Instituto Internacional de Costos y II Congreso de la Asociación Española de Contabilidad Directiva, León, 2-4 July.

- Financial Accounting Standards Board (2004), "Disclosures about intangible assets", available at: www.fasb.org/project/intangibles.shtml
- Gaete, R.A. (2009), "Participación de los stakeholders en la evaluación del comportamiento socialmente responsable de la gestión universitaria: perspectivas, obstáculos y propuestas", paper presented at the Congreso de la Asociación Española de Contabilidad y Administración de Empresas (AECA), Valladolid, 23-25 September.
- González, B. (2002), "Información contable de las universidades y su utilidad para los órganos de control externo", PhD research, University of Oviedo, Oviedo.
- González, B. (2003), "Necesidades de información financiera de los sujetos implicados en el desarrollo de la universidad", *Cuadernos de Estudios Empresariales*, Vol. 13, pp. 401-12.
- Gordon, T., Fisher, M., Malone, D. and Tower, G. (1997), "A comparative empirical examination of extent of disclosure by private and public colleges and universities in the United States", paper presented at the Annual Meeting of the American Accounting Association, Dallas, TX.
- Governmental Accounting Standards Board (1999), *GASB 35: Basic Financial Statements – and Management's Discussion and Analysis – for Public Colleges and Universities*, Governmental Accounting Standards Board, Norwalk, CT.
- Gray, R.H. (2006), "Social, environmental and sustainability reporting and organizational value creation? Whose value? Whose creation?", *Accounting, Auditing & Accountability Journal*, Vol. 19 No. 6.
- Instituto de Contabilidad y Auditoría de Cuentas (2002), "Informe sobre la situación actual de la contabilidad en España y líneas básicas para abordar su reforma (Libro Blanco para la reforma de la contabilidad en España)", Instituto de Contabilidad y Auditoría de Cuentas, Madrid.
- International Accounting Standards Board (2005), "Discussion paper – Management commentary", International Accounting Standards Board, London.
- Jongbloed, B., Enders, J. and Salerno, C. (2008), "Higher education and its communities: interconnections, interdependencies and a research agenda", *Higher Education*, Vol. 56 No. 3, pp. 303-24.
- Kirkland, J. (2008), "University research management: an emerging profession in the developing world", *Technology Analysis & Strategic Management*, Vol. 20 No. 6, pp. 717-26.
- Kruss, G. (2008), "Balancing old and new organisational forms: changing dynamics of government, industry and university interaction in South Africa", *Technology Analysis & Strategic Management*, Vol. 20 No. 6, pp. 667-82.
- Larrán, M., López, A. and Calzado, M.Y. (2010), "Expectativas de los stakeholders en las universidades públicas españolas: un estudio empírico", paper presented at the XIV Encuentro de la Asociación Española de Profesores Universitarios de Contabilidad (ASEPUC), A Coruña, 2-4 June.
- Leitner, K.H. (2004), "Intellectual capital reporting for universities: conceptual background and application for Austrian universities", *Research Evaluation*, Vol. 13 No. 2, pp. 129-40.
- Link, A.N. and Ruhm, C.J. (2011), "Public knowledge, private knowledge: the intellectual capital of entrepreneurs", *Small Business Economics*, Vol. 36, pp. 1-14.
- Luchilo, L. and Albornoz, M. (2008), "Universities and global competition for graduate students: scenarios for Latin America", *Technology Analysis & Strategic Management*, Vol. 20 No. 3, pp. 351-67.
- Machado, E. (2007), "A comunicação institucional das universidades e o relato de capital intelectual. Um estudo nas universidades ibéricas", PhD thesis, Universidad Autónoma de Madrid, Madrid.
- Malairaja, C. and Zawdie, G. (2008), "Science parks and university-industry collaboration in Malaysia", *Technology Analysis & Strategic Management*, Vol. 20 No. 6, pp. 727-39.

- Maritz, A. (2010), "Networking, entrepreneurship and productivity in universities", *Innovation: Management, Policy & Practice*, Vol. 12 No. 1, pp. 18-25.
- Martín, E. (2006), "La rendición de cuentas en las universidades públicas españolas: un análisis de la información revelada en los estados financieros", *Presupuesto y Gasto Público*, No. 43, pp. 39-62.
- Martín, E. and Moneva, J.M. (2009), "Análisis de la rendición de cuentas de las universidades desde un enfoque de responsabilidad social", paper presented at the Workshop Sobre Responsabilidad Social, Gobierno Corporativo y Transparencia informativa, Granada, 2-3 July.
- Melle, M. (2007), "La responsabilidad social dentro del sector público", *Ekonomiaz*, No. 65, pp. 84-107.
- Mora, J.G. (1999), "Indicadores de gestión y rendimiento para las universidades españolas", paper presented at the XVI Jornadas de Gerencia Universitaria, Universidad de Valladolid, Valladolid, 11-12 March.
- Nelson, M., Tower, G., Banks, W. and Fisher, J. (1997), "University accountability in Australia 1993-1995", *Journal of Accounting, Auditing and Performance*, Vol. 3 No. 2, pp. 1-19.
- Nwagwu, W.E. (2008), "The Nigerian university and the triple helix model of innovation systems: adjusting the wellhead", *Technology Analysis & Strategic Management*, Vol. 20 No. 6, pp. 683-96.
- O'Dwyer, b. (2005), "User needs in sustainability reporting: a perspective from stakeholders in Ireland", *European Accounting Review*, Vol. 14 No. 4.
- Okunoye, A., Frolic, M. and Crable, E. (2008), "Stakeholder influence and ERP implementation in higher education", *Journal of Information Technology Case and Application Research*, Vol. 10 No. 3, pp. 9-38.
- Ramírez, Y. (2010a), "The intellectual capital models in Spanish public sector", *Journal of Intellectual Capital*, Vol. 11 No. 2, pp. 248-64.
- Ramírez, Y. (2010b), "¿Es posible un reconocimiento contable de los intangibles?", *Revista de Contabilidad y Tributación*, No. 328, pp. 125-46.
- Ramírez, Y., Lorduy, C. and Rojas, J.A. (2007), "Intellectual capital management in Spanish universities", *Journal of Intellectual Capital*, Vol. 8, pp. 732-48.
- Sánchez, P. and Elena, S. (2006), "Intellectual capital in universities. Improving transparency and internal management", *Journal of Intellectual Capital*, Vol. 7 No. 4, pp. 529-48.
- Sánchez, P., Elena, S. and Castrillo, R. (2006), "The intellectual capital report of universities. Guidelines for disclosing IC information", PRIME-OEU Methodological Guide, Observatory of the European University, pp. 223-51.
- Secundo, G., Margheritam, A., Elia, G. and Passiante, G. (2010), "Intangible assets in higher education and research: mission, performance or both?", *Journal of Intellectual Capital*, Vol. 11 No. 2, pp. 140-57.
- Skousen, K.F., Smith, J.M. and Woodfield, L.W. (1975), *User Needs: An Empirical Study of College and University Financial Reporting*, National Association of College and University Business Officers, Washington, DC.
- Traverso, J. (2001), "Análisis de la imagen interna de la institución universitaria. Estudio de la imagen interna de la Universidad de Sevilla", PhD research, University of Sevilla, Sevilla.
- Warden, C. (2003), "Managing and reporting intellectual capital: new strategic challenges for HEROs", *IP Helpdesk Bulletin*, Vol. 8, available at: www.ipr-helpdesk.org/newsletter/8/pdf/EN/N08_EN.pdf (accessed 12 June 2010).

Survey related to the demand for information on university intellectual capital

I. Participant profile

What group of the social council do you represent?

What university do you represent on the social council?

II. Importance of the publication of information on university social capital

| | yes | no |
|--|-----------------------|-----------------------|
| It is important to inform the university's different users on intellectual capital because it increases the relevance of the information contained in the current financial statements | <input type="radio"/> | <input type="radio"/> |
| Informing the different users about intellectual capital increases ambiguity and the loss of relevance of the information contained in the current financial statements | <input type="radio"/> | <input type="radio"/> |

III: Demand for information on intellectual capital - human capital

(1: not at all important, 5: very important)

| | 1 | 2 | 3 | 4 | 5 |
|--|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| How important do you think it is for universities to publish information on the following elements of human capital? | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Typology of university staff (historical data on increase and decrease of staffing numbers, staff age structures, type of contracts, etc.) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Academic and professional qualifications of teaching and research staff (% of teachers, % of civil servants, etc.) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Mobility of teachers and researchers (% of teachers with fellowships) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Scientific productivity (books) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Professional qualifications of teaching and research staff | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Mobility of graduate students | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Efficiency of human capital | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Teaching capacities and competences (didactic capacity) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Research capacities and competences (research quality, participation in national and international projects, % of doctors, six year terms, etc.) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Capacity for teamwork | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Leadership capacity | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Training activities | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

IV. Demand for information on intellectual capital - structural capital

(1: not at all important, 5: very important)

| | 1 | 2 | 3 | 4 | 5 |
|---|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| How important do you think it is for universities to publish information on the following elements of structural capital? | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Installations and material resources supporting pedagogical qualification and innovation | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Installations and material resources supporting research and development | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| The institution's assessment and qualification processes | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Organisational structure | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Teaching management and organisation (internal communication of results, periodical exchange with foreign teachers, teaching incentives, etc.) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Research management and organisation (internal communication of results, efficient management of research projects, research incentives, theses read, etc.) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Organisation of scientific, cultural and social events | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Productivity of the administration, academic and support services | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Organisation culture and values | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Effort in innovation and improvement (expenditure on innovation, staffing level, etc.) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Management quality | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Information system (document processes, databases, ITC use, etc.) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Technological capacity (total expenditure on technology, availability and use of computer programs, intranet/internet use, etc.) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Intellectual property (patents, licences, etc.) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

(Continued)

Figure A1.
Questionnaire

V. Demand for information on intellectual capital – relational capital

(1: not at all important, 5: very important)

How important do you think it is for universities to publish information on the following elements of relational capital?

| | 1 | 2 | 3 | 4 | 5 |
|--|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Effectiveness of graduate teaching (average duration of studies, drop-out rate, graduation rate, etc.) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Student satisfaction | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Graduate employability | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Relations with students (capacity of response to student needs, permanent relations with graduates, etc.) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Relations with the business world (spin-offs, R&D contracts and projects, etc.) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Relations with society in general (institutional representation in external organisations, collaboration in national and international projects, etc.) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Application and dissemination of research (dissemination of results, social appropriateness of research) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Relations with the media | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| University image | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Collaborations and contacts with public and private organisations | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Collaboration with other universities | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Strategic links | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Relations with quality institutions | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| The regional, national and international reputation of the university | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Social and cultural commitment | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Environmental responsibility | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Submit Reset

Created by web questionnaire.

Figure A1.

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