Estrategia Universidad 2015

The contribution of universities to Spanish socio-economic progress

OCTOBER 2010

Graphical materials: Víctor Rubio Matilla

FOREWORD

Universities are called upon to drive the new knowledge-based society. The training of graduates, professionals and PhD's and the transfer of the knowledge generated by universities to industry is crucial to the development of Spain.

Knowledge plays a vital role in Spain's intended shift of social and economic paradigm, and the university as an institution is the primary generator, provider and source of knowledge. If Spain is to adapt to the present reality, it must implement the national university modernization strategy launched under the name *Estrategia Universidad 2015*.

The drive to frame a strategy to modernize Spanish universities inspired a raft of parliamentary decisions passed in 2009 unanimously by all parties across the parliamentary arc. In 2010, the strategy was one of the measures falling within the scope of the proposed cross-party pact for education; however, that cross-party consensus having not come to fruition, *Estrategia Universidad 2015* was incorporated to the 2010-2011 action plan adopted by the Council of Ministers on 25 June 2010.

Over the months during which *Estrategia Universidad 2015* was drawn up, visits were made to a large number of Spanish universities –as many as timetable constraints allowed– and the resulting paper was presented and discussed at a meeting of the universities' governing boards, with other stakeholders also in attendance. Consultations were also sought with the chairpersons and secretaries of the Social Council of Private Universities (*Consejo Social de Universidades Privadas)* and with social and economic actors. The outcome of this process was the setting in motion of a range of supporting technical committees to reinforce diagnostic efforts and support the drafting of the modernization strategy for 14 strategic axes and a range of overall aims.

In the discharge of my duties as Minister of Education, and on behalf of the universities and the Devolved Regions (*Comunidades Autónomas)*, it is my pleasure to lay before the Spanish university community and society at large this paper, *Estrategia Universidad 2015*, which is intended as a catalyst for a broader discussion of the role to played by universities in emerging social policy and in the new, sustainable, knowledge-based economy. A determined decision to improve and modernize universities may form the basis for a new social contract between universities and society, and this in turn is apt to inspire a broadly based cross-party pact for education in Spain.

I should like to thank Professor Rolf Tarrach, the rector of the University of Luxembourg, for his gracious acceptance of the chairmanship of the *Estrategia Universidad 2015* assessment and monitoring committee. I should also like to thank Pierre de Maret , of the Free University of Brussels, Eva Egron-Pollack, the general secretary of the IAU, Professor Jean-Marc Rapp, President, European University Association (EUA), and Dr Jamil Salmi, tertiary education coordinator at the World Bank.

The framing of this major strategy is the outcome of the combined efforts of a wide range of actors and stakeholders, in particular,

- public authorities (Central Government, Devolved Regions and local government bodies),
- regional development entities,
- social and economic actors,
- universities and other tertiary education institutions,
- social and professional stakeholders.

I hope that this document, created in the framework of the European Strategy 2020 adopted during the Spanish Presidency of the European Union, and as a result of the committed involvement of all members of the Spanish university system, may mark the beginning of Spanish universities' journey to modernization.

Madrid, October 2010

Angel Gabilondo
MINISTER OF EDUCATION

INTRODUCTION TO *ESTRATEGIA UNIVERSIDAD 2015*

The strategic process of improvement and modernization of Spain's universities has its legal base in the Universities Act 2007 (*Ley Orgánica 4/2007, de 12 de abril, por la que se modifica la Ley Orgánica de Universidades 6/2001, de 21 diciembre)*, a statute that lays special emphasis on the Spanish university system's adaptation to the European Higher Education Area (EHEA) and the incorporation of Spanish academic research to the European Research Area.

Estrategia Universidad 2015 is in alignment with the recommendations issued by the European Commission in May 2006, in pursuance of the "**Modernization Agenda for Universities: Education, Research and Innovation"** and implementing the provisions of the April 2009 Communication titled **"A new partnership for the modernization of Universities: the EU Forum for University Business Dialogue"**.

On 23 November 2007, the Council of the EU considered the role of universities within the Knowledge Triangle model (education, research and innovation) in the framework of "**Modernising universities for Europe's competitiveness in a global knowledge economy"**.

In the framework of our constitutional system of regional self-rule, in furtherance of which tertiary education powers have been devolved to the regions, any initiative to modernize the Spanish university establishment calls for a willingness to arrive at broadly based consensus and cooperation among public authorities, university stakeholders, and social and economic actors.

The Government began to design the strategy for university modernization in October 2008, and laid it before the two collegial organs of representation: the Universities Council (*Consejo de Universidades)*, representing all Spanish universities, chaired by the Minister of Education and comprising all university rectors and five members appointed by the Minister, and the General Council for University Policy (*Conferencia General de Política Universitaria)*, chaired by the Minister of Education and comprising the officials concerned with university education sitting on the governing boards set up by the Devolved Regions, together with five members appointed by the Ministers.

Given the open-ended nature of the university modernization strategy, it was submitted to Spanish universities, and the resulting discussion gave rise to a number of major improvements that were incorporated to the process.

Since 14 April 2009, when Spain's central ministerial departments were restructured and University policymaking was reassigned to the Ministry of Education, the modernization strategy has acquired greater depth by interacting with the overall educational context. *Estrategia Universidad 2015* was accordingly incorporated to the proposed Cross Party Social and Policymaking Pact for Education, laid before the Universities Council on 20 July 2009.

Estrategia Universidad 2015 was originally referred to the Council of Ministers on 30 January 2009, prior reports having been issued to the Science and Innovation Committee of the Congress of Deputies (the lower house of the Spanish national parliament) on 23 September 2008 and to the Senate on 25 September 2008. Later, the strategy was submitted to the Education Committee of the Senate (1 October 2009).

A developed draft of the strategy was laid before the Council of Ministers on 25 June 2010, with an attached action plan for the academic year 2010-2011.

I hope that this strategy enables the entire university community to cut a path towards the modernization of Spain's universities and wider societal recognition of the socioeconomic contribution of the Spanish university system.

I should like to thank all those who have lent their support and assistance to the specific committees and to all the university academics and officials who have afforded us the benefit of their comments and insight.

Màrius Rubiralta i Alcañiz,
SECRETARY GENERAL FOR UNIVERSITIES

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CHAPTER I
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ESTRATEGIA UNIVERSIDAD 2015

1. INTRODUCTION

In recent years, a spectacular change has come about within the university system – after a gestation period starting in the mid-twentieth-century – inaugurating a new cycle powerfully shaped by social, economic and political change. This process of transformation grows out of the universities we have had to date, with their many virtues, but also with their need for ongoing modernisation. There are very few institutions in Spain having as long history as the universities,[1] and with such an outstanding tradition of service and commitment to society to the community. But today's knowledge society demands change in university structure. New approaches must be undertaken in education, research and knowledge transfer to industry and society. Education has become one of the key alternatives for surmounting the economic crisis now faced by developed countries. The need for improved standards of training to prepare society for increasingly swift change in national economies has forced a broad-ranging review of our educational system. We must improve the efficiency of the Spanish university system and adapt it to present challenges and needs.

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[1] The University of Salamanca will be celebrating its eighth centenary in 2018.

To build a more sustainable, responsible and knowledge-based economy, we must foster a new, integrated culture that harmonises and strengthens a better balance between the various facets of higher education and make a special effort to extend this space to higher vocational training, design and the visual arts, sport, fine arts, and military training, so as to bring them into alignment with the general system of higher education. This new culture is called upon to diffuse overarching values throughout the entire education system, such as the value of effort, talent, entrepreneurial initiative, scientific and technical vocations, the value of innovation and ongoing improvement in management, solidarity, ethics and cooperation for development.

Against this background of the new social priority accorded to knowledge, universities, public research bodies (Spanish "OPIs") and devolved regional research institutes are to play an especially strategic role in the creation, dissemination, transfer and socialisation of knowledge. Transforming the existing economy into a productive system driven by innovation, creativity and knowledge demands a balance between the factors constituting the so-called "*Triangle of Knowledge*" (education, research and innovation) as the missions incumbent upon the university, which thus becomes a key actor towards change in the social and economic model.

The "**socio-economic contribution of the university as an institution**" takes shape both at the global level and at the local and regional levels, reinforcing ties between universities and business and connecting the university institution with the needs of its host community, including the incorporation of women at all university strata. Systems of university education must meet social and economic needs, with education being an essential instrument for access to highly qualified jobs and a fundamental condition of effective social mobility and economic development.

Special heed should be paid to objectives which have not so far been priorities, such as reforming teaching in the higher education system, reducing dropout rates, raising the number of students completing their degrees within the standard timeframe, raising graduate employment rates, strengthening the internationalisation of the educational system as a whole and encouraging the creation of new knowledge via research.

The university system in Spain, distributed throughout the territory, brings study close to the entire population, but it is necessary to ensure that academic supply is suitably efficient, and to reinforce the university training supply by supplementing it with inter-university and inter-regional mobility.

Given the rise in the number of students and in emerging university disciplines,[2] there is a need for an exhaustive inventory of the system of university funding, considering, inter alia, the social dimension, target-led funding, higher quality and more rationally distributed teaching supply, research and development costs, internationally more competitive policy, sustainability, university social responsibility and impact on the University-City-Territory triangle.

2. DEVELOPMENT OF ESTRATEGIA UNIVERSIDAD 2015

Estrategia Universidad 2015 is an initiative directed to modernise Spanish universities by coordinating the various devolved regional university systems and developing a modern Spanish university system ("SUE", the Spanish acronym of

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[2] Datos Básicos del Sistema Universitario Español. *Datos y cifras*, Spanish Ministry of Education: http://www.educacion.es/educacion/universidades/estadisticas-informes/datos-cifras.

Sistema Universitario Español). This initiative of the Spanish Government began in 2008 at the Secretariat of State for Universities, Ministry of Science and Innovation (*Ministerio de Ciencia e Innovación*, MICINN), and is now being implemented by the Ministry of Education with the support of the respective departments at the devolved regions (*Comunidades Autónomas*) and of universities themselves. The process is open to all university stakeholders, to social and economic actors, to public officials and to society at large, tendering an invitation to all parties concerned with the future of the university as an institution of higher learning to share analyses, views, perspectives and opportunities and suggested solutions for weaknesses and threats. The initiative seeks to stimulate progress towards improving the university from inside by removing existing inefficiencies as far as practicable. *Estrategia Universidad* 2015 lays down a principle of collective academic responsibility.

Keeping faith with the tenets of the *Magna Charta Universitatum*[3] (university autonomy, academic freedom, accountability to society and critical spirit), the initiative is intended to nurture change in social efficiency and effectiveness and bolster the socio-economic contribution of the university system. Its development is necessary for the SUE to undertake the strategic axes of improvement and modernisation of the European university system as proposed by the European Commission in May 2006 in the European *Modernisation Agenda for Universities*, towards the following aims:

- University higher education to be integrated within the European Higher Education Area (EHEA).
- Involvement in the European Research Area (ERA) as producers of knowledge via research.
- Transfer of knowledge generated by fundamental research to industry, promotion of processes for extracting value from research results and involvement in innovation activities and originating processes.

In the course of the Spanish presidency of the Council of the European Union in the first half of 2010, there arose three significant events for the strategy for modernization and internationalization universities as a result of the work done in furtherance of these priorities:

➢ Official launch of the European Higher Education Area (also known as the Bologna Process) after 10 years of development. The higher education systems of member states have been rendered more closely compatible and comparable via instruments for the recognition of study periods (European credit transfer system, ECTS), European qualification supplements, quality assurance, etc.

➢ Adoption of the new European Union strategy for the coming decade.[4]

➢ Adoption of the conclusions of the Education, Youth and Culture Council, which, for the first time in the history of the European Union, invited the Commission to develop a strategy of international cooperation in higher education,[5] and adoption of conclusions regarding the social dimension of education.[6]

➢ As part of the emblematic initiative titled "Union for Innovation" that figures in the strategy towards intelligent, sustainable and integrated growth within the framework of the Europe 2020 strategy, the EU urges the member states to:

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[3] Bologna, 1988, http://www.magna-charta.org
[4] EUCO 7/10 Europe 2020: *A New European Strategy for Jobs and Growth*, March 2010.
[5] 3013 EYC Council Conclusions on the internationalization of higher education, May 2010
[6] *3013 EYC Council Conclusions on the Social Dimension of Education and Training*, May 2010.

➢ Reform their national (and regional) systems of research, development and innovation so as to stimulate excellence and intelligent specialisation; strengthen cooperation between universities and business; apply joint programming and bolster cross-border co-operation in fields carrying added value in the EU; and consequently adapt their national funding procedures so as to assure the diffusion of technology throughout EU territory.

➢ Train sufficient numbers of science, mathematics and engineering graduates and focus curricula on talent, creativity, innovation and entrepreneurial spirit.

➢ Accord priority to expenditure on knowledge, for instance, by using tax incentives and other financial instruments to encourage greater private investment in research and development.

2.1. THE OBJECTIVES OF *ESTRATEGIA UNIVERSIDAD 2015*

Estrategia Universidad 2015 has been designed to drive forward the regulatory implementation of the Universities Act (*Ley Orgánica Universidades*),[7] bolster higher education as a public good, enhance its social dimension and help knowledge generation to be channelled towards progress, welfare and competitiveness in the economy and employment. A strategic process is to be defined that contemplates the implementation of the EHEA and its coordination with the process of structuring the European Research Area, brought into being via an open process in which each documentary instrument is arrived at with the highest possible degree of consensus and is properly suited to the processes of ongoing improvement and widening participation. In order to carry out this dynamic process of modernisation of the universities, the working groups of the committees[8] will draw up a range of roadmaps featuring the objectives to be achieved based on analysis of indicators for each line of action.

Estrategia Universidad 2015 has been defined as a dynamic process that enlists the involvement of and coordination among public authorities, university stakeholders and social and economic actors; however, its effectiveness and future viability depend on awareness of the project among the wider community. If suitably brought to fruition, the project will usher in a modern, powerful, socially active, internationally recognised and excellent university system, in the fields of teaching, research and knowledge transfer and in environment management.

One of our goals is to bolster the strengths of the Spanish university system so as to place our leading universities among Europe's top 100 in international rankings. To this end, university campuses are to be developed so as to enable them to compete more effectively, boast a higher reputation and command greater international regard. This demands a structural reform of the SUE that reinforces its strengths and creates a teaching supply of an international standard in the framework of university policies that raise teaching and research efficiency and effectiveness via the aggregation of institutions and concentration of strategic objectives.

We must raise the quality of our universities and bring our leading university campuses up to a standard of excellence that benefits society at large, via aggregation, specialisation, differentiation and internationalisation of the Spanish university system. The goal of *Estrategia Universidad* 2015 is to promote Spanish university campuses that are globally more com-

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[7] Appendix I provides a chronological list of the statutory developments relating to *Estrategia Universidad* 2015.
[8] Specified in detail in Chapter VI *Involvement in the Development of* Estrategia Universidad 2015.

petitive and figure among those commanding the highest prestige internationally; in addition, the strategy seeks to help the entire Spanish university system to improve the quality of its supply and teaching and research efficiency and effectiveness by means of concentrating objectives and effort, rationalisation, and the promotion of strategic aggregations with other universities, research, development and innovation institutes and bodies, and other entities and businesses.

Strategic plans must put forward ambitious projects contemplating improvements in the three missions of the university institution (teaching, research and transfer and innovation), while placing these in relation to the community setting. Such plans are evaluated by an international committee whose members enjoy high prestige in the academic and professional ambits. On an annual basis this Committee will conduct an external, independent and authoritative assessment of the implementation and outcomes of actions under *Estrategia Universidad 2015*. It may also propose further measures for the modernization and internationalization of Spanish universities. Specifically, its initial functions relating to *Estrategia Universidad 2015* will be:

- to provide suitable frames of reference;
- to evaluate the suitability of chosen indicators;
- to identify those strategic axes of the university system that ought be reinforced so that overarching aims can be attained;
- report on how knowledge and technology generated at Spanish universities should be transferred for the benefit of the community, and determine the right strategy to find a fit between universities and their socioeconomic and cultural settings.

The Committee will start work in the first quarter of the academic year 2010-2011. It will hold its first meeting with the aim of adopting the roadmap and the methodology for its monitoring work and the indicators for the assessment of *Estrategia Universidad 2015*.

The strategy accordingly aims to build a sustainable, modern, international, high-quality, territorially involved and integrated university institution that operates the right balance among its distinct missions and an effective and efficient management model, adopting relevant good practices on a continuous basis.

2.2. History of Estrategia Universidad 2015

The process of framing *Estrategia Universidad* 2015 began in 2008, under agreements entered into by the Universities Council (*Consejo de Universidades*, "CU") and the General Conference on University Policy (*Conferencia General de Política Universitaria*, "CGPU"), as an open process towards the improvement and modernisation of the management, policy and legislation relating to universities. The key lines of development of *Estrategia Universidad* 2015 were arrived at in the course of a series of meetings of the Spanish cabinet (*Consejo de Gobierno*) in wider session, the Spanish universities, and representatives of the ministries concerned.[9]

From the outset, the implementation of *Estrategia Universidad* 2015 was to be split up into various ambits, which are in turn divided into axes carrying various lines of action, thus embracing the strategic challenges defined by the European

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[9] In 2008, universities came within the remit of the Secretary Of State for Universities, a position within the Ministry of Science and Innovation (MICINN). Under Royal Decree 1386/2009, the Spanish university system came under the authority of the Secretary General for Universities, an officer of the Ministry of Education.

Modernization Agenda for Universities (MAU), and so providing a response to the more specific problems of the Spanish university system. The plan of action under this strategy involves a range of actions, a timetable and a financial schedule within each of its strategic lines of action.

Technical committees were formed, each headed by a coordinating officer, for each of the lines of action in order to collate the documents collecting analyses, thematic considerations, recommendations and proposals relating to statutory improvements. Appendix III lists the members of the various committees. The committees were managed and coordinated by the Secretariat General for Universities (*Secretaría General de Universidades*, "SGU"). In early 2010 it was thought necessary to update all the documents relating to *Estrategia Universidad* 2015, as well as the project's axes and lines of action, within a new comprehensive document.

In addition, there was set in motion a portal on the ministry website[10] so as to allow for comparisons of the strategy with the documents drawn up and advance releases made in each of the strategic axes, in conjunction with an open process of consultation and dialogue so as to gather relevant considerations and opinions.

The present structure of *Estrategia Universidad* 2015 is distributed as shown in Graph 1. The scheme upholds the four strategic ambits, each divided into axes which in turn are associated with a number of strategic lines of action that are to be addressed with urgency. The various strategic actions, their timetable, and their respective financial schedules are dynamic and flexible, as a function of the values obtained by appropriate indicators. A coordinated plan must be set in motion with reference to the needs of society, industry and the economic environment with the resources at our disposal and the mechanisms of action needed to attain suitable performance, having regard to the development and key demands of the objectives we have set ourselves.

Missions

- **Education**
  - Adapt degree courses to EHEA
  - Lifelong learning
- **Research**
  - Science, Technology and Innovation Bill
  - Doctorate
- **Third Mission**
  - Knowledge and technology transfer
  - University Social Responsibility

People

- **Academic staff**
  - Career development
  - Academic Staff Statute
- **University students**
  - Student Statute
  - Grants and Aid Observatory
- **Administrative staff**
  - Training and mobility

Regions

University

Ministry of Education

Capacity-building

- **Funding**
- **Governance**
- **Internationalization**
- **Assessment (individual and collective)**
- **University communication**

Environment

- **University – Territory**
  - University-city-territory
- **Universities' socioeconomic contribution**
- **Modernización of university campuses**
  - International Campus of Excellence

Graph 1. Ambits, axes and lines of action in *Estrategia Universidad 2015*

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[10] http://www.educacion.es/universidad2015

In the **Missions** ambit, the goals are: training, research and the university's Third Mission. Here, the lines of action are basically the adaptation of academic teaching to the EHEA, lifelong learning, the European Qualifications Framework (EQF), and the new teaching-learning methodology. Research involves two fundamental lines of development: the new Science, Technology and Innovation Bill (*Ley de la Ciencia, la Tecnología y la Innovación*) and the doctoral level, to be regarded as the third cycle and constituting the link connecting teaching and research in them framework of the EHEA. The Bill and the doctoral cycle are interrelated, particularly as regards the promotion of research careers. On one hand, the new university system has a Third **Mission** implementing a number of strategic lines in furtherance of the university's social responsibility and of the processes of knowledge and technology transfer. Particular attention is to be paid to the diffusion of scientific culture and the critical spirit that must prevail in the generation of knowledge.

With regard to the **people** ambit, the strategy looks to the roles to be played in university modernisation by teaching and research staff (*Personal Docente y de Investigación*, "PDI"), university students, and management and service staff (*Personal Administrativo y de Servicios*, "PAS"). The strategic lines in question involve the drafting and implementation of the Academic Staff Charter as a result of the work undertaken by the University Sector Panel (*Mesa Sectorial de Universidades*, which places PDI staff's teaching and research careers in relation to the career tracks set out in the Science, Technology and Innovation Bill), the University Students' Charter (setting out guidance and integration in study and professional life with a view to preventing dropouts, seeking student involvement in university life and in representation activity), and the governance facet relating to the management and service staff.

As to **strengthening capabilities** in the Spanish university system, improvements must be made in university funding, governance, internationalisation, quality and communication. One aim is to foster cooperation among universities. To this end, collaborative work calls for a clear definition of the intended common aims. So as to optimise universities' available funds, objectives must be specified from the outset. The future of the university system requires close collaboration,[11] and it must be accepted in this regard that resources are shared.

The **environment** ambit is fundamental given the present importance of interactions between universities and their host regions, specifically, under the University-City-Territory paradigm, and embraces universities' major socio-economic contribution to the community and the improvements aiming at the achievement of excellence and internationalisation in university campuses, with a particular focus on sustainability, inclusiveness and accessibility. These elements have been taken forward in one of the highest-impact programmes implemented so far, International Campus of Excellence ("CEI", *Campus de Excelencia Internacional*) and University-City-Territory, which scrutinises universities' contribution within their regional spheres of influence. These vectors develop the concept of strategic aggregation, taken as the set of institutions, centres, stakeholders and actors involved in one or more of the functions of the Knowledge Triangle.

Moreover, a scorecard must be constructed for the purposes of monitoring the extent to which EU 2015 objectives are fulfilled. This step requires that ultimate objectives to be set to define the university system we want for Spain. Indicators have been identified for the objectives within each ambit of the EU 2015, as discussed in Chapter VII of this paper.

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[11] Collaboration can take shape at various levels: among universities, universities-internal enterprises, universities-external enterprises, domestically and internationally.

Box 1
Creating roadmaps to optimise resources

"A roadmap is a planning tool to coordinate needs (market, environmental, market-driven, environmental, etc) with the available resources and the mechanisms of action needed to use those resources in a suitable way." The process requires project team members to share a vision and work together towards implementing objectives over an appropriate timetable of stages, using synergies so as to boost cost effectiveness. This mode of cooperation is particularly powerful: among departments within one and the same university; among different domestic or international universities; between universities and industry, with the involvement of stakeholders so as to undertake "open innovation."

For a collaborative culture to take root in the University awareness must be raised of the necessity and benefits of making it a regular practice to create roadmaps and set the goals and time frames of the intended joint effort. Using a roadmap, plans are shared from the outset and a variety of alternatives are explored towards one and the same objective; interrelated intermediate tasks move the project as a whole towards its goal. The commitment garnered by the framing of a roadmap encourages efficiency and effectiveness, which in a research project may take the form of:

– Not building expensive facilities if similar facilities are available at a partner's site
– Avoiding duplication of the same research conducted the same way only to find upon publication that another institution has arrived at the same results
– Taking the overall process forward more rapidly by having each party involved focus on a specific part of the project.

CHAPTER II
Missions

Building the EHEA

ESTRATEGIA UNIVERSIDAD 2015
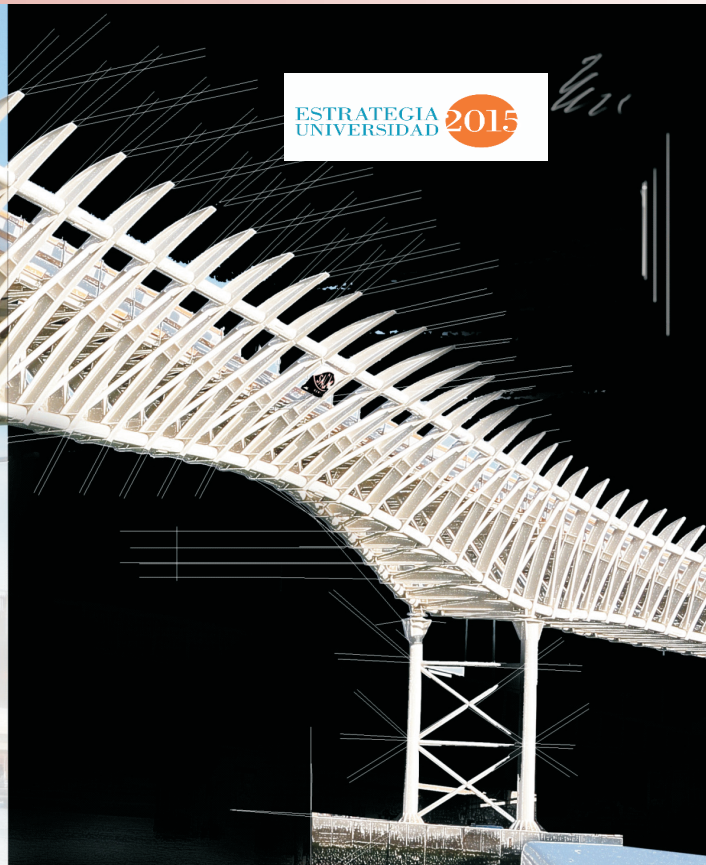
CHAPTER II
MISSIONS

ABSTRACT

In order for the higher education system in Spain to be modernised, it must adapt itself to and be incorporated into the European Higher Education Area (EHEA). The process of incorporating the Spanish University System into the EHEA began with the signing, on 19 July 1999, of the intergovernmental accord known as the Bologna Declaration. The date set for adaptation to the Declaration's three-cycle curricular reform is the 2010-2011 academic year, but given that this adaptation is a dynamic process, its completion will require subsequent actions, both those outlined below and others proposed in forthcoming Ministerial Conferences held as part of the Bologna Policy Forum. This process is based on the principles laid out in the *Magna Charta Universitatum*: institutional autonomy, academic freedom, equal opportunity, democratic standards and accountability. The EHEA hopes to help all member states to reach the strategic objective proposed by the European Union, that of making the European economy knowledge-based, competitive, dynamic, capable of sustainable development, with more and better jobs, and greater societal cohesion.

Spanish universities must make significant changes in order to gain greater autonomy and responsibility. For these universities, modernisation is not merely a matter of adapting the degrees they confer to a new educational structure, but of undergoing true reform in terms of governance, financial structure, employability, strategic campus aggregations, et cetera. Universities in the process of adapting to the EHEA must offer comparable, flexible, diversified teaching that encourages mobility and lifelong learning, that is cross-disciplinary and directly linked to the needs of society, and that prepares the students appropriately for the specific job market they face, among other aspects.

Concerns about the quality of teaching in Spanish universities have existed for years. In 1930, our compatriot Ortega y Gasset stated that the mission of the university should be to transmit culture, prepare students to become professionals in their chosen field, conduct scientific research, and train new researchers. Ortega likewise believed that it was essential to provide students with the criteria needed to establish a clear sense of priorities: "*Instead of teaching that which, according to some utopian desire, should be taught, one should instead teach only that which can be taught, that is, that which can be learned.*"[12]

It is a recognised fact that education and training are the pillars on which economic and social progress rest, and that they are the guarantors of the European values of liberty, equality and cohesion. Lifelong learning –an education that continues from the beginning to the end of each individual's life– is one key facet of the process of maintaining economic, social and cultural cohesion.

Lifelong learning is likewise connected to the acquisition and modernisation of all kinds of capacities, interests, knowledge and abilities, making it possible for each citizen to adapt to a knowledge-based society, and to participate actively in all areas of social and economic life. In the broader sense, this educational structure brings substantial scheduling flexibili-

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[12] **Ortega y Gasset**, *Misión de la Universidad*. Conference delivered at the Universidad Central de Madrid. *Revista de Occidente*, vol. 4, 1930 p. 327

ty to the content of university studies, be they at the bachelor or master level. Among such studies are master's degree courses, diplomas at the graduate, post-graduate, expert and specialist levels, whether they be short or semester-long courses. They can fall under the rubric of vocational training, professional development, made-to-order or in-company courses, open or otherwise. In all cases the material can be taught in full-time, part-time, or online course formats.

The University must plan strategically so as to prioritise properly as regards **its use of resources, particularly in regard to its unique contributions both to centres of production and to the society in which it is enmeshed**. It must improve upon and modernise the instruments that allow it to contribute to the transfer of knowledge and technology from the academic sphere to the business sphere, such that the R&D that takes place in our universities be correctly utilised, and lead to the creation of new technologically based companies that will in turn bring new value-added products to the market.

1. Training

1.1. Adaptation of teaching practices to the European Higher Education Area (EHEA)

Building the EHEA

ESTRATEGIA UNIVERSIDAD 2015

The European Higher Education Area is based on the principles laid out in the Magna Charta Universitatum: institutional autonomy, academic freedom, equal opportunity, democratic standards and accountability

INTRODUCTION

The first phase of the modernisation of university education in Spain as it incorporates itself into the European Higher Education Area is curricular reform. Once completed, this reform will ensure greater relevance through the two key activities needed to establish the credibility of the process: quality control and academic degree follow-up. All of the major players, including the Commission[13] and leaders within the Information System[14], will be asked to make major contributions to

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[13] Cf. Chapter VI, The European Higher Education Area Commission.
[14] Cf. Chapter VII, The University Integrated Information System.

the Spanish University System. The reform constitutes a transformation that, while perhaps not the most all-encompassing, is certainly the most relevant to occur in many decades, and is absolutely essential if we in Spain wish to match our university system to that of the rest of Europe, and to the demands of a knowledge-based society.

The reform is based on the principles laid out in the *Magna Charta Universitatum*: institutional autonomy, academic freedom, equal opportunity, democratic standards and accountability. Its framework consists of the universalisation of higher education, and the vision of the University as a public service, as defined in the Universities Act 2007 (LOMLOU)[15]. In 2007, Spain committed itself to the construction of the European Higher Education Area[16], bearing always in mind the effort required to enact the Bologna Process in the short period of time provided.

Box 2

Measures suggested in *The Modernisation Agenda for Universities: Education, Research and Innovation,* with the twin goals of addressing weaknesses in European universities and fulfilling the objectives laid out in the broader Lisbon Strategy

1. Break down the barriers around universities in Europe.

2. Ensure real autonomy and accountability for universities.

3. Provide incentives for structured partnerships with the business community.

4. Provide the right mix of skills and competencies for the labour market.

5. Reduce the funding gap and make funding work more effectively in education and research.

6. Enhance interdisciplinarity and transdisciplinarity.

7. Activate knowledge through interaction with society.

8. Reward excellence at the highest level.

9. Enhance the global visibility and desirability of the European Higher Education Area and the European Research Area.

European universities must play a fundamental role in building a knowledge-based economy in Europe. They must be the engines powering the paradigm shift toward this new economic structure, and must be competitive on the world stage precisely as outlined in the Communication from the Commission - Mobilising the brainpower of Europe. We must create the conditions necessary for universities to contribute fully to the 2005 Lisbon Strategy. Precisely in order for this to occur, it was proposed that the countries of Europe adopt *The Modernisation Agenda for Universities: Education, Research and Innovation.*[17]

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[15] This law amends the Universities Act 2001 [*Ley Orgánica 6/2001*].
[16] The Declaration of the 1999 Bologna Summit was originally signed by 29 countries; as of 2010, the number of signatories had risen to 47.
[17] Communiqué from the European Commission, 2006.
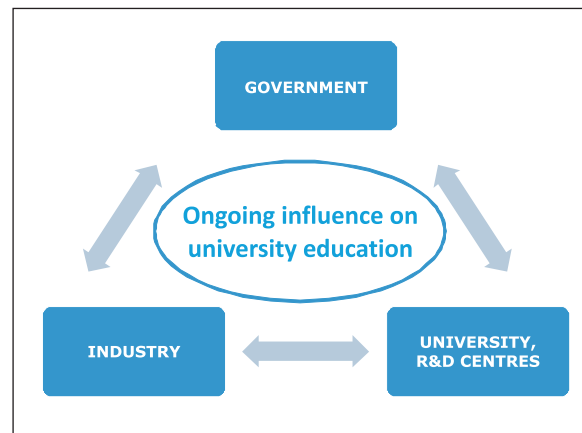
Graph 2. The Triple Helix[18]

The means proposed by the Agenda are closely interrelated, and many are particularly relevant to the question of how university education is to be organised. Universities are asked to become increasingly well-attuned to the importance of mobility, which is only possible if each and every country aligns itself with all others in terms of the degrees issued (bachelor's, master's and Doctorate), using flexible, modernised curricula that respond to the needs of the labour market.

Likewise, universities must develop educational programmes whose results mesh with the challenges and opportunities of lifelong learning, particularly for non-traditional students, and for those who must study and work simultaneously. Furthermore, universities must design their curricula with new social contexts in mind; that is, they must offer programmes that make use of innovative teaching methods and hew more closely to the needs of the labour world, whether said needs manifest themselves as specific business practices to be learned, for example, or as a function of collaborations between universities and businesses.

To accomplish this, an assessment commission has been created as part of the Estrategia Universidad 2015 project. This commission will propose specific university improvements to be sought, and will seek in turn to ensure that all curricula are designed so as to be easily adaptable to changing circumstances, are oriented towards interdisciplinary research and areas of technological and other kinds of leadership in both the national and international context, and are appropriate to practical training. Supra-local perspectives must be enriched, given that professionals must now develop themselves in ever-broader multicultural contexts.

Within the European Higher Education Area, **technological advances must be encouraged**, particularly those that occur in new fields including, for example, nanotechnology, biotechnology, biomedicine, machine intelligence, and renewable energy sources. Furthermore, **degrees awarded in the humanities, social sciences, law and education must again be accorded the prestige they once commanded**, so as to arrive at some sort of balance between the knowledge offered in such programs on the one hand, and the knowledge needed for socio-economic progress on the other. It is fundamental that all the said curricula be carefully monitored and bear an internationally and mutually recognised guarantee of qual-

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[18] H. Ezkowitz

ity. Both the General Directorate of University Policy (DGPU) and the National Agency for the Evaluation of Quality and Accreditation (ANECA) will be called upon for these purposes.
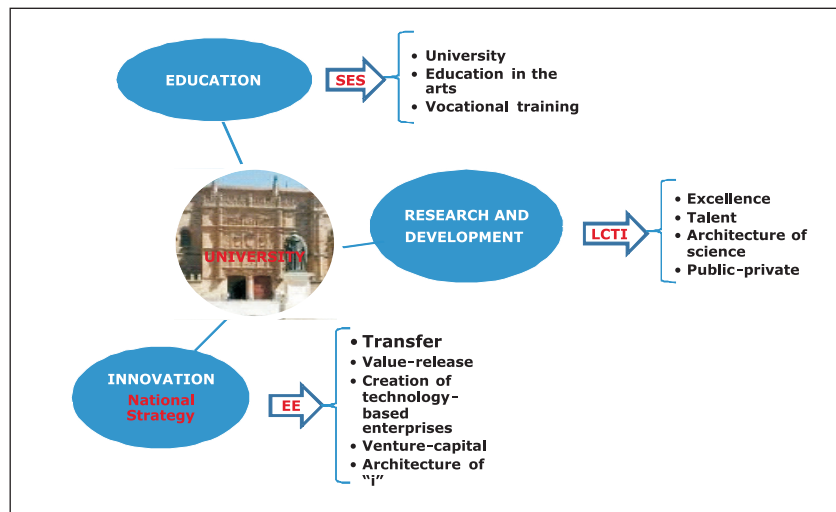
Graph 3. The Triangle of Knowledge in the Spanish System of Higher Education (SEES)

Thus, universities must not limit themselves to simply adapting their current degrees to a new structure, but rather they must reform their governmental structures, their financial and accounting mechanisms, their relationship to other institutions, etc. This will in turn guarantee that the degree courses they offer will be flexible, diverse, mobility-enhancing, easily compared to similar courses at institutions in other countries, apt for lifelong learning, and focused on the academic disciplines most closely related to the necessities of contemporary society in general, and to those of the labour market in particular.

Given the characteristics of competition and cooperation that some of the proposed means entail, it is recommended that universities be accorded greater autonomy and greater responsibility, such that they are better able to respond quickly to changing circumstances.

ANALYSIS OF THE BOLOGNA PROCESS (1999-2010)

The Bologna Declaration of 19 June 1999, which initiated the existence of the EHEA, proposed a simple commitment: "to harmonise higher education in Europe, and to promote collaboration between and among the various member states and their universities, with the goal of establishing a common degree system that permits greater mobility for both students and professors, which will in turn promote competitiveness and employability." The Bologna Process, according to which countries adapt themselves to the European Higher Education Area, has become ever more complete thanks to subsequent accords reached at later meetings in various European cities.[19] The timeline of these meetings, and extracts from the conclusions they reached, are shown in Graph 4 and Table 3.

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[19] In fact, the key texts of the Bologna Process were produced at the Ministerial Conferences in Prague (2001), Berlin (2003), Bergen (2005), London (2007), and Leuven/Louvain-La-Neuve (2009). These agreements, like the original Bologna Declaration (1999) were signed voluntarily by the highest educational authorities of the respective EHEA countries.

Sorbona Declaration 1998
- A common framework of qualifications
- A common two-cycle system
- Mobility of students and teachers

Bolonia Declaration 1999
- Easily readable and comparable degrees
- A system of credits (ECTS)
- Mobility of researchers
- European cooperation in quality assurance
- European dimension in higher education

Prague Communiqué 2001
- Lifelong learning
- Social Dimension added
- Involvement of higher educations and students
- Promotion of the European Higher Education Area

Berlin Communiqué 2003
- Quality assurance at institutional, national and European level
- Inclusion of doctoral level as third cycle
- Recognition of degrees and periods of studies (Diploma Supplement)
- European framework of qualifications
- Closer links between education and research

Bergen Communiqué 2005
- Reinforcement of the social dimension
- Standards and guidelines for quality assurance
- National frameworks of qualifications
- Award and recognition of joint degrees
- Flexible learning paths in higher education

London Communiqué 2007
- Creation of a European Quality Assurance Register (EQAR)
- Strategy to improve the global dimension of the Bologna process
- Commitment to produce national action plans with effective monitoring of the social dimension

Louvain Communiqué 2009
- National qualifications framework fully developed in 2012
- Self-certification the EHEA qualifications Framework (EEES - FQ)
- Recognition of lifelong learning
- In 2020, 20% of graduate students In the EHEA should have had training studies abroad

Bucharest Summit 2012

Graph 4. The Bologna Process Timeline

The establishment of the EHEA initiates a reform process with which all member states and institutions must collaborate, so that change is felt across all relevant areas and disciplines. Educational areas and disciplines are no longer to be seen only as objects of study; the idea is that the learning that takes place in the classroom must be properly grounded in its spatial and temporal context. Bearing always in mind the practical work-oriented dimensions of the process, such contextualisation are of historic importance in terms of its birth, development, methodological considerations and social objectives.

Although the EU did not sponsor the original Bologna Ministerial Conference and did not initiate the Bologna Process, the EU has always supported the project in terms of both decision-making and resources. When the BFUG[20] was established, the European Commission became simply another member, the equal of each of the national representatives present. Furthermore, whichever country is currently taking its turn as President of the EU also presides over this Commission. Thus, the Bologna Process is not something that was imposed by the EU, but rather a higher education project with global reach. It is a voluntary process founded on agreements as regards educational materials[21] conducted between sovereign countries. Nothing within the process is obligatory for any given country, if that country decides not to adopt the overall accord as an internal norm. The Bologna Process is most closely concerned with the activities of teaching and learning within the university context. However, these activities do not constitute the most fundamental objectives of the Bologna Process; rather, they form part of the overall strategy of university modernisation, the improvement of academic research, and the organisation, management and financing or European degree programmes.

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[20] Bologna Follow-up Group.
[21] Spain has been a voluntary member since 1999.

Box 3
Historical Development of the Bologna Process, and the Establishment of the EHEA

The Bologna Process is the result of a series of meetings involving the Education Ministers of various countries. These meetings were held in order to make the political decisions necessary to establish the European Higher Education Area (EHEA) by the year 2010. Currently, the EHEA numbers 46 participating countries in addition to the European Commission (which is considered a fully vested member), the Council of Europe and UNESCO as consultant members, and other European associations representing faculty, students, and quality control systems. The basic principles of EHEA were established at a meeting between the Education Ministers of France, Germany, Italy and the United Kingdom, which took place at the Sorbonne.

Declaration of the Sorbonne (1998) Its main objectives were as follows:
- To improve international transparency in regard to course content, course equivalency, and degree requirements, by means of a gradual convergence toward a common framework for degrees and study cycles;
- To improve the mobility of students and faculty within Europe, and their integration into the European labour market.
- To design a common grade level system for university students at the bachelor and master and doctoral levels.

Declaration de Bologna (1999)
The Declaration of Bologna was signed by 29 different countries, including Spain. It was designed to establish a general foundation for the modernisation and reform of higher education in Europe. This reform process is known as the Bologna Process.

Its objectives are as follows:
- To adopt a degree system that is easily readable and comparable;
- To implement a system based fundamentally on two main study cycles;
- To establish a standardised system of university credits (ECTS)
- To support student, faculty, and researcher mobility
- To promote European cooperation in terms of quality control
- To promote the European dimension in higher education (in relation to curricular development and inter-institutional cooperation)

Prague Communiqué (2001)
In May 2001, the main priorities required to advance the Bologna Process in the years to come were identified. The respective Ministers of Education also decided to found a group (BFUG) responsible for the continued development of the Bologna Process. This communiqué emphasises:

- The promotion of lifelong learning
- The role of students and institutions in higher education
- The advantages of participating in the European Higher Education Area.

Berlin Communiqué (2003)

Berlin was the stage whereon the Bologna Process was broadened, with the inclusion of seven new signatory countries. BFUG was asked to produce detailed reports on the concrete progress made in pursuit of the Process's main objectives prior to the forthcoming Ministerial conference of 2005. Among the objectives established were:

- The development of quality control mechanisms at the institutional level, for both the national and the European contexts.
- To begin establishing the two-cycle (bachelor's and master's degree programme) system.
- The mutual recognition of degree levels and study periods.
- The development of a Qualifications Framework for the EHEA.
- The addition of the doctorate level as the third cycle in the higher education system.
- Strengthen links between the European Higher Education Area and the European Research Area.

Bergen Communiqué (2005)

Here the Bologna Process group grew to 45 countries. The Bologna Follow-Up Group presented its report on the gains thus far achieved. Norms and models designed to guarantee quality within the EHEA were approved. The priorities for 2007 included:

- Reinforce the social aspect of the project, and eliminate obstacles to mobility.
- Implement the norms and models designed to guarantee quality as proposed in the European Association for Quality Assurance in Higher Education (ENQA) report.
- Implement national Qualifications Frameworks.
- Granting and acknowledgement of joint degrees.
- Create opportunities for flexible learning schedules in higher education, including procedures for the recognition of previous education.

London Communiqué (2007)

Another country joined, for a total of 46 signatories.

- The legal framework for European Registry for Quality Assurance (EQAR) was created. It included a list of accredited organisations. Among the future objectives noted were:
- Develop national action plans, with particular attention paid to quality control and societal involvement.
- Develop a strategy for the global establishment of the EHEA.

Leuven/Louvain-La-Neuve Communiqué (2009)

Participating countries were informed as to progress made in the establishment of the Bologna Process.

- Participating countries were encouraged to have their national Qualifications Frameworks fully developed by the year 2012.
- Self-certification within the EHEA Qualifications Framework was taken under consideration.

- The importance of the recognition of both formal and informal lifelong learning was emphasised.
- The following objective was established: that as of the year 2020, at least 20% of students graduating within the EHEA have studied or worked abroad.

Several themes were chosen for the ministerial summit in Bucharest in 2012:
– Measurement and follow-up as regards mobility and societal aspects
– Measurement and follow-up as regards mobility and flow between Eastern and Western Europe
– Future development of tools to create and measure multidimensional transparency
– Stronger promotion of the Bologna Process outside the EHEA
– Acknowledgement of qualifications

The European Commission also periodically presents reports on higher education in Europe through Eurydice. (these reports, based largely on educational information provided by the Ministry of Education of each member state), discuss both progress made and work still to be done. The most recent report, entitled *Focus on Higher Education 2010: Tthe Impact of the Bologna Process,* was presented at the **Budapest-Vienna Ministerial Conference** (March 11-12, 2010).

In view of the success of the Bologna Process in higher education throughout Europe, a similar process designed to promote cooperation in professional training is now underway.

At the national level, the regulatory developments associated with the EHEA are as follows:

➢ The Universities Act (2001) established a foundation for the adoption of the Bologna Process

➢ Two Royal Decrees (both issued in 2003) established regulations for the European Credit Transfer and Accumulation System (ECTS) and the procedure for expediting the Diploma Supplement

➢ The Universities Act 2007 (LOMLOU), which modified the Universities Act 2001, notably increased university autonomy and eliminated the official degree catalogue, replacing it with an official degree registry.

THE EVOLUTION OF THE PROCESS THAT ESTABLISHED THE EHEA

Of course, not all of the problems with higher education in Spain were resolved by the establishment of the EHEA. Thus, it was necessary to begin thinking as broadly as possible about what the university should be like in the year 2015. This process of analysis addresses changes and improvements along various strategic lines, among them the importance of developing a *"Financing Model for Spanish Universities"* which on one hand will both permit and encourage modernisation in our universities, and on the other hand will simplify the process of adapting our university system to the EHEA. This plan, known as *Estrategia Universidad 2015*, was presented and thoroughly discussed in public universities, as well as at many different civic and economic institutions, and among the social councils at private universities.

The Spanish University System (SUE) within the European Higher Education Area	
Principal SUE weaknesses	**Strategies established by the SGU to address SUE weaknesses**
- Excessive uniformity in public university study programmes - Insufficient depth in teaching/learning models - Inadequate use of the ECTS in the attempt to develop a system for accumulating and transferring European credits - Insufficient discussion of the importance of employability in study programmes - Inadequate development of lifelong learning programmes in our universities - Low internationalisation levels in bachelor's and master's degree programmes - Systems designed to recognise academic and professional qualifications fail to incorporate the conclusions of the recently ratified Lisbon Convention	- Creation of the Commission for the Development of EHEA, to identify threats and propose both solutions and short-term and mid-term strategies. This commission includes representatives from the Ministry of Education, CRUE, PDI unions, Bologna Process experts, and student organisations. - Creation of the Spanish Bologna Experts Team (BET) to help Spanish universities undertake the reforms necessary to adapt to EHEA norms. This group participates in the European Lifelong Learning Commission under the auspices of the SGU, through the DGFOU, in coordination with the DGRRII. Its objectives include improving exam quality,[22] and promoting expediency in regard to the European Degree Supplement for universities and its relation to the Spanish Qualifications Framework (MECES,) as well the promoting university-based teaching quality control systems, the correct use of ECTS, and lifelong learning.

Table 1. Principal SUE weaknesses, and proposed EHEA-based solutions

Beginning with the signing of the Bologna Declaration, Spain has seen significant higher education reforms take place, bearing always in mind that what is sought is not a homogenisation of higher education systems, but increasing transparency, compatibility, and comparability. With the Universities Act 2001 ("LOU"), the initial phase of the Bologna Process was begun; in 2003, two Royal Decrees established ECTS[23] regulations and the process for expediting the Degree Supplement. In 2004 the LOU reform was begun; it was completed in April 2007, and notably heightened the degree of university autonomy by eliminating the official catalogue of degrees and establishing an official degree registry. In January 2005, two Royal Decrees (55/2005 and 56/2005) created regulations regarding bachelor and master studies.

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[22] These exams are held periodically by the European Bologna Follow-Up Group.
[23] European Credit Transfer System

To help reorganise university instruction in accordance with EHEA norms, Spain has worked together with various European institutions[24], including the European Commission. *Estrategia Universidad 2015* is an initiative that functions as a grassroots process, avoiding centralisation in terms of follow-up, and bureaucratisation in terms of structure. There are also consulting members with significant responsibilities, including the EUA[25], the ESU[26], and the IAU[27]. Students and universities are active participants in the process, and work together to develop agreements at each Ministerial Conference.

Teaching reform brings certain necessary changes in many aspects of the higher education system, affecting its overall organisation with a move toward increased autonomy, governmental leadership, and a more effective system of incentives and financing. The recommendation of new degrees is important both in terms of the job market and in terms of teacher accreditation. Along these lines, a curricular reform process for university teaching in Spain was proposed in a document entitled "The organisation of university teaching in Spain."

It was published on 26 September 2009; it laid down the general lines of the new system of university teaching, and introduced the means by which degrees were to be recorded in the RUCT[28]. A working draft called "Directives for the development of university bachelor and master's degrees" was produced, wherein the procedure for recording degrees in the directories of degree proposals was explained in detail.

Royal Decree 861/2010 of 2 July modified Royal Decree 1393/2007 of 29 October, establishing guidelines for the university teaching officials developing the new structure, and articulating the procedure by which new university degrees might be designed. This model requires a high degree of university autonomy: universities may propose their own new degree programmes and curricula. It is a flexible model that facilitates connections between different fields of knowledge; likewise, it has been carefully adapted to the requirements of both students and the labour market.

With this latest Royal Decree, the organisation of university teaching has been made much more flexible, promoting curricular diversification and permitting universities to take fuller advantage of both their capacity for innovation and their individual strengths and opportunities, which will in turn help them to be better prepared to meet societal demands in an open context characterised by profound and rapid change. The curricula will have as primary objective the acquisition of knowledge and capabilities that will put graduates in a better position from which to begin their professional development. In response to the challenges presented by both globalisation and a knowledge-based society, a methodological change is required, one that will put lifelong learning at the centre of the student's life.

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[24] Spain forms part of the programme known as "Modernisation of European Higher Education" which is part of the General Direction of Education and Culture of the European Commission. This programme addresses Curricular Reform Planning and Implementation, with the goal of encouraging all member states to adopt best practices as determined by the experience of other European countries where curricular reform is several years further along.
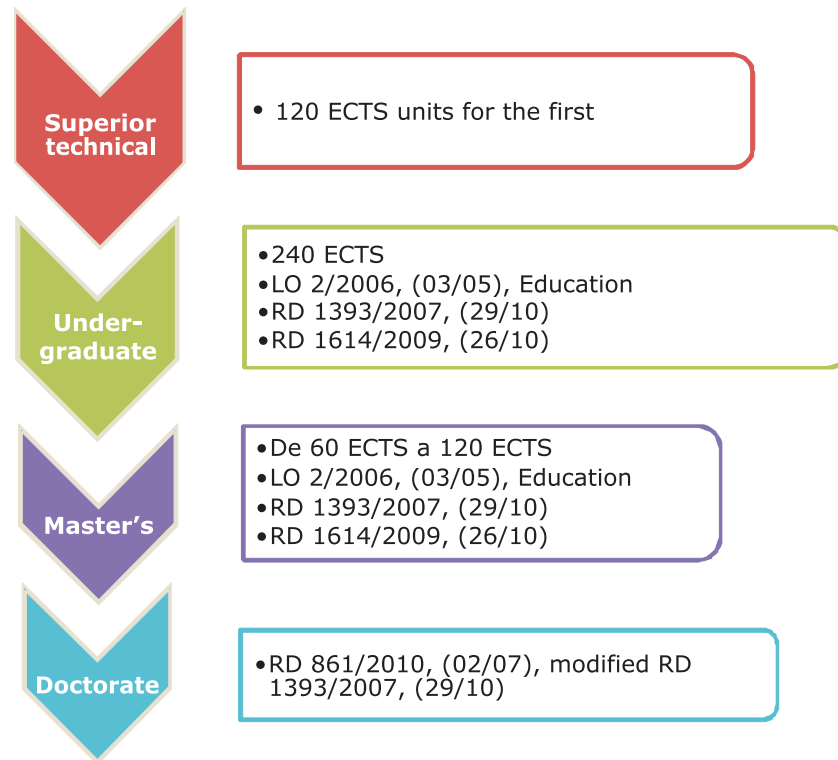
[25] European University Association, representing universities.

[26] European Student's Union, representing students.

[27] International Association of Universities.

[28] Registry of Universities, centres, and Degrees

The EHEA intends to promote an educational paradigm shift, and thus to facilitate the move from teaching to autonomous learning.

Superior technical

- 120 ECTS units for the first

Under-graduate

- 240 ECTS
- LO 2/2006, (03/05), Education
- RD 1393/2007, (29/10)
- RD 1614/2009, (26/10)

Master's

- De 60 ECTS a 120 ECTS
- LO 2/2006, (03/05), Education
- RD 1393/2007, (29/10)
- RD 1614/2009, (26/10)

Doctorate

- RD 861/2010, (02/07), modified RD 1393/2007, (29/10)

Graph 5[29]. Structure of the Spanish Qualifications Framework for Higher Education

[29] In this graph, the numbers in parentheses correspond to the day and month in which the law took effect. Thus, RD 861/2010 (07/02), which amends RD 1393/2007 (10/29), is Royal Decree 861/2010, of 2 July, which amends Royal Decree 1393/2007, of 29 October.

The process of strengthening the autonomy of universities must go hand in hand with a rigorous sense of accountability. Academic degrees must undergo a periodic process of verification and accreditation through a "Quality Control System" that guarantees mutual international recognition. This type of quality control ensures that the curricula on offer will serve as an effective foundation for student development. Likewise, a quality control guarantee is essential for creating mutual trust between European academic institutions, and "*Agreements of Mutual Recognition*" for degrees and study periods will improve student mobility throughout the EHEA[30].

Among the main priorities of the Bologna Process is facilitating the university internationalisation process as a response to economic and social globalisation, whereby the line between competition and cooperation grows ever finer.

Levels		Degree awarded
1	SUPERIOR TECHNICAL	• Superior Technical Professional Training Degree, as set down in Royal Decree 1538/2006, 15 December • Superior Technical Degree in Art and Design, as set down in Royal Decree 596/2007, 4 May • Superior Technical Degree, as set down in Royal Decree 1363/2007, 24 October
2	BACHELOR'S	• Bachelor's Degree (as set down in Royal Decree 1393/2007, 29 October, which establishes the regulations pursuant to official university instruction). • Bachelor's Degree in Higher Education in the Arts: Music, Dance, Drama, Conservation and Restoration of Cultural Artefacts, Design, and Art (as set down in Royal Decree 1614/2009, 26 October, which establishes the regulations pursuant to Higher Education in the Arts, as determined by the Education Act 2006).
3	MASTER'S	• Master's degree (Royal Decree 1393/2007, 29 October, which establishes the regulations pursuant to official university instruction). • Master's degree in Higher Education in the Arts (as set down in Royal Decree 1614/2009, 26 October, which establishes the regulations pursuant to Higher Education in the Arts, as determined by the Education Act 2006).
4	DOCTORATE	• Doctorate Degree (as set down in Royal Decree 1393/2007, 29 October, which establishes the regulations pursuant to official university instruction).

Table 2. Spanish Higher Education Qualifications Framework

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30 Spain is a member of the European Quality Assurance Registry.

An important component as regards the internationalisation of our university system is that of mobility for students, professors, and researchers. Thus, the reforms proposed in Spain are designed to encourage students from other countries in the European Higher Education Area and other geographic regions to study in Spain. The proposed structure, outlined below in Table 2 and Graph 5, corresponds to its counterpart in the European Higher Education Qualifications Framework, respecting the agreements reached in the Bologna Process and adjusting as necessary to the other competitive systems that are of interest to Spain in a global context.[31] To promote mobility and access to university studies, a methodological change has been introduced to the system, together with a programme of scholarships and study aids adapted to the new context of the EHEA. The scholarships and study aids are to be understood as a fundamental new social contract within said context.

Box 4
Objectives of the European Higher Education Area

a) *The EHEA intends to promote an educational paradigm shift, and thus to facilitate the move from teaching to autonomous learning.*

In order to meet the needs of society, create a humanistic and scientific culture and facilitate access to the job market, an environment of lifelong learning must first be created. This environment will help students to remain open to conceptual, scientific and technological changes that occur within their lifetimes. It is essential to move from a model based on the accumulation of knowledge to one based on an attitude of constant active learning. Given that the transmission of knowledge cannot continue to be the only objective of the educational process, the pedagogical model based on the professor as transmitter of knowledge must be altered for a model in which the student becomes the active agent in the learning process, and continues in this role throughout his or her life. The function of the professor must be to direct and train students in the course of this learning process. This likewise implies a much greater amount of attention on the part of university administrative bodies, who must adapt and modernise their facilities, faculty, and infrastructure.

ECTS, the new system of university credits, is one means of defining the new roles of professors and students, as students will now have a transparent instrument for measuring their work (including work done in both theoretical and practical courses, as well as during other academic activities such as seminars, tutorials and thesis projects.) The credit system shows clearly the credit hours and assignments that a student must complete in order to meet the objectives specific to each of the courses listed as part of a given curriculum.

The distribution of credits within the ECTS presupposes a change not only in terms of learning objectives but also in terms of the means used to achieve them. Given these changes, that which is to be learned must also change. In a traditional university, the stress is on knowledge as such, especially theoretical knowledge. In this new context, students must acquire a wide-ranging portfolio of abilities and capabilities that include, in addition to knowledge, the abilities and attitudes that will best serve them in the working world. Learning based on competencies (knowledge, abilities and attitudes) is one of the central elements of the Bologna Process, whose completion, as we all know well, will take time.

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[31] This is especially the case in Latin America and the Carribean region. Four-year degrees can have extremely positive consequences in terms of employability and mobility.

b) *Helps to eliminate obstacles to the free circulation of students and graduates throughout Europe.*

In the short term, the EHEA is working to see that all European degree programmes be comparable, comprehensible, compatibly, and of high quality. Simultaneously, the European Degree Supplement (SET) simplifies inter-European mobility for university graduates.

c) *Seeks to make Europe a more attractive destination for those wishing to study or do research than it has been in recent decades.*

The Sorbonne Declaration of 1998, issued jointly by France, Germany, Italy and the United Kingdom, made manifest the necessity for Europe to recover the position of educational prestige that it had enjoyed in the 1970s. It needed to become more attractive a place to study and do research than it had been in the recent past, needed to once again be a region where higher education meant the same thing in all places.

d) *Increase the number of higher education graduates in Europe.*

Data from the Organisation for Economic Co-operation and Development (OECD) show that the percentage of the active population with university degrees in Europe[32] is lower than that of the United States, Japan, and South Korea; this situation clearly affects both the productivity and the employability of our workers, and thus also affects our income per capita. A rise in the number of degrees awarded in Europe could help bring us closer, in terms of per capita Gross National Product, to the most highly developed countries in the OECD. (European Strategy 2020 posits that by 2020, 40% of our active population should have such a degree.)

* *None of this will be possible without a complementary, coordinated process of modernisation in the universities and university systems, especially in terms of cohesion and access, in accordance with current social policy and with the help of a new financing model that will make our university system sustainable, more diverse, more efficient and more effective without losing any of its autonomy, and without compromising any of the three essential missions of the university: teaching, research, and the transfer of knowledge. This lattermost aspect has two central aspects: the university's Social Responsibility, and the Transfer of Knowledge and Technology to society and its production sectors.*

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[32] In Spain, the number of degrees issued is above the European average, which has led to certain authorities underestimating demand and overestimating supply. However, this point should also be seen as a function of the weakness of our productive system.

Box 5
Advantages of the European Higher Education Area for University Students

In Spain as in other countries, the development of the European Higher Education Area raised a number of questions, above all on the part of university students. These questions need adequate answers from the universities and their administrative bodies. As a preliminary answer, the following advantages must be noted:
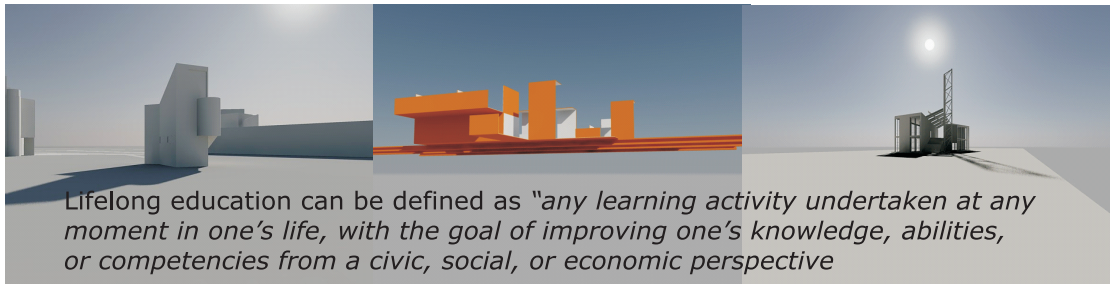
1. University students can now choose from among a greater number of degree programmes than in the past. University curricula are to be seen as a promise of quality between the students and their universities.

2. All curricula will be re-evaluated, their weaknesses strengthened and their errors corrected, thus heightening the quality of what is on offer at each respective university.

3. University studies are now a more attractive option than before, because the students themselves are in large measure the protagonists of their own learning experience.

4. At university, learning will take many forms, and students will thus be able to develop and take advantage of all of their individual capabilities.

5. Final exams will now correspond to a smaller percentage of the overall final grades, as the grading systems give greater weight to in-class and project-based work produced by the students.

6. Courses completed at other universities and academic centres are now more easily transferrable, simplifying both the process of changing majors, and the process of switching from one university to another.

7. University curricula are now more realistic. The EHEA establishes that the unit of measurement of university study is the European credit (which corresponds to 25-30 hours of study.) Each subject will be assigned a given number of credits, and no plan of studies can assign more than 60 European credits to any student in any given academic year.

8. If a student decides to study and work simultaneously, the university will work with the student to see that study plans and course access remain flexible, modifying as necessary the university's regulations in regard to the cost and duration of the degree course.

9. Focus on employment and employability. University graduates will be better prepared for the job market, and capable of continuing to study and learn throughout their lives.

10. If a student wants to continue studying after receiving their bachelor degree, they can choose from among a great number of master's degree programmes offered at reasonable prices.

EU 2015 Objectives in the European Higher Education Area	
General University Objectives	**Specific Objectives for 2015-2020**

• The **societal aspect** : modernising, within the EHEA framework, the conditions (scholarships and student aid) that promote equal oppo rtunity and academic achievement, and increase both national and international mobility.
 	
• The search for **excellence** in all academic missions (teaching, research, and the transfer of knowledge), and in the academic environment (sustainable campuses, healthy campuses, accessible and pedagogically appropriate campuses.)
 	
• The **internationalisation** of our universities, and not only in terms of research. Improvement of international degree options, and the policies that attract talent from within the essential grou p constituted by international students in search of the best individual option. Incentivisation through greater mobility on the part of our students, such that they can easily undertake long - term studies at academic centres in other countries; keeping qua ntity high by improving the quality of our short-term mobility.
	• The university modernisation plan, known as Estrategia Universidad 2015, takes as reference points our three general objectives:
	
	   - the societal aspect,
	
	   - the search for excellence
	
	   - the internationalisation of all academic activities
	
	The conceptual design of this strategy is specifically orientated toward:
	
	- Academic Missions
	
	- Individuals
	
	- Strengthening Capacities
	
	- Academic Environment

Table 3. General and specific objectives of *Estrategia Universidad 2015,* as established for the European Higher Education Area

1.2. LIFELONG LEARNING IN THE UNIVERSITY ENVIRONMENT

Lifelong education can be defined as "*any learning activity undertaken at any moment in one's life, with the goal of improving one's knowledge, abilities, or competencies from a civic, social, or economic perspective*

INTRODUCTION

In recent years, universities in Spain have paid greater attention to social accountability via an analysis of the socio-economic contributions they make through academic activities. Universities must now begin to analyse their contribution both to their business environment and to the society around them, and to prioritise their use of resources as part of said analysis. They must help improve the instruments used to transfer knowledge from the academic world to the business world, such that the R&D that takes place in our universities can be correctly utilised by the productive sectors and technologically based companies whose goal is to bring new value-added products to market. Basic research must serve as a base for the applied research that our society needs in order for our businesses to be more technologically competitive.

Applied research strengthens innovation within the business world, and helps new products to be better positioned in global value chains. Given the level of globalisation extant in almost every sector, only the most technologically valuable companies will be able to compete on the world stage. Developing countries, meanwhile, will continue to sustain industries that are less technologically demanding.

In order to develop a framework in which true cooperation exists een the academic sector, the economic sector and the social sector, a strategy whose neurological centre resides in education and training must be designed.

Lifelong education can be defined as *"any learning activity undertaken at any moment in one's life, with the goal of improving one's knowledge, abilities, or competencies from a civic, social, or economic perspective."*[33] It is thus related to the acquisition and constant updating of all kinds of capacities, knowledge and abilities, making it possible for each citizen to adapt to our knowledge-based society and participate actively in all aspects of economic and social life.

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[33] Council of Europe Treaty Revision, Feira, 2000.

Box 6
Main objectives in support of lifelong learning

- Provide quality assurance and accreditation systems for this type of training

- Fulfil the needs of society, both in terms of personal enrichment and in terms of updating one's perspective vis-a-vis the working world.

- Engage universities by making lifelong learning one of their basic functions. Take advantage of what is offered by Information and Communication Technologies (TICs) in pursuit of a wider variety of teaching methodologies, so as to facilitate study plans that can accommodate simultaneous work activities and family life.

- Promote access to lifelong learning projects for individuals from all different educational and training backgrounds, and facilitate collaboration between universities, social associations and other partners that form part of the productive sector.

- Design ministerial directives that will strengthen this type of training through inter-university agreements.

- Design a regulatory framework that will provide the necessary regulations while respecting university autonomy, and will facilitate public and professional acknowledgement of this type of training however formal or informal it may have been, establishing admissions criteria and minimum prerequisites that correspond to the RUCT registry.

In the widest sense, this educational rubric includes university study programmes that have the scheduling flexibility necessary to adapt to the needs of each group or individual. It includes all master's degree courses, all graduate and post-graduate diploma programmes, as well as short courses and continuing education courses. They can fall under the rubric of vocational training, professional development, made-to-order or in-company courses, open or otherwise. Such courses may use many different teaching methods; some will be full-time and in person while others will be on-line or partially so.

Lifelong Learning Timeline in the University Environment

Lifelong learning is an essential element within the overall design of the EHEA, as is evident from the declarations and communiqués issued from the meetings and conferences held by the government ministers responsible for higher education within the European Union.

Within the framework of *Estrategia Universidad 2015*, lifelong learning within the university environment was established as one of the central missions of university training, and a working group was assembled to develop the basic documentation required. The recent past has seen strong growth both in terms of the supply (new master's degree programmes, new expert/specialist diploma programmes) and of the demand for lifelong learning programmes within universities.

Lifelong Learning Timeline	
International Level	**National Level** (see Appendix II)
• Bologna Declaration (1999) • Prague Communiqué (2001) • Berlin Communiqué (2003)[34] • London Communiqué (2007)[35] • European centre for Development for Vocational Training 2008. (In this group, the role to be played by universities, their capabilities and their potential were all analysed, as were the means that should be utilised to improve said capabilities, and the means of determining how systems of quality control and international recognition were to be implemented.	• The Universities Act 2007, LOMLOU (which amends the Universities Act 2001, LOU) • Royal Decree 1393/2007[36] establishes regulations for official university education. • Royal Decree 1509/2008 establishes regulations for the Registry of University Centres and Degrees (RUCT). • Royal Decree 1892/2008 establishes regulations for Access to Bachelor Degree programmes and admissions procedures for public universities in Spain. • Royal Decree on Lifelong Learning (pending)

Table 4. Establishment of lifelong learning withing the EHEA - national and international timelines.

The working group has focused on the following aspects of lifelong learning: its nature and characteristics, its European framework, the role of Spanish universities, types of courses offered, administrative models, quality control systems, public and professional acknowledgement, specific regulatory recommendations, and a proposal for a regulatory framework.

Lifelong learning is integrally related to educational internationalisation (which is discussed in Chapter 4, sections 3.1 and 3.2). These two themes coexist in several of the international work groups that have been putting together studies and strategies both globally and at the European level. The European Strategy for 2020 includes all forms of education and training. It counts all levels of education, from pre-school through grade school and on into higher education, vocational training, and adult education, as part of what is meant by lifelong learning.

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[34] Harmonising general education and professional training was considered of great importance.
[35] The situation in various countries was analysed, and it became clear that it was necessary for academic itineraries to be developed systematically so as to make them more flexible, thus providing greater support to lifelong learning programmes at its earliest stages.
[36] This establishes a new structure for university teaching and degree programmes, reorienting them so as to bring them into line with the foundational principles of the construction of the EHEA.

One of the most complicated challenges to be faced in terms of lifelong learning is that of resources. Unlike other educational reforms, this commitment to learning throughout one's lifetime touches many parameters simultaneously. It involves the quantitative growth of learning opportunities, qualitative alterations to the content of extant training systems, new training activities, and new situations in terms of both quantity and quality, as well as changes to the periods of time dedicated to training and education throughout the life of each individual.

These changes also involve the necessity of foreseeing future changes in terms of the costs involved in learning, training and education, both for those who provide them and for those who receive them, and also in terms of the benefits that these activities provide for society. The limitations involved in public funding and the competition that exists among those who wish to use it, together with the high degree of profitability that that these activities represent to those who benefit from them, will inevitably lead to a higher degree of private sector participation in the financing of many modes of education.

Thus far, strategies favouring lifelong learning, often accompanied by other measures (for example, those meant to improve teaching quality,) have had strongly positive effect. Therefore, initiatives intended to further integrate vocational training and university studies could improve the quality of the second cycle of higher education, and rationalising the teaching process could help to bring down unit costs.

The need for lifelong learning can most clearly be seen in individuals who come from disadvantaged circumstances and are thus most at risk of social and educational exclusion. We must bear in mind that educational and training systems can and must act as "**social elevators**," raising the level of those who are at the greatest economic disadvantage.

Similarly, the mobility of professors and teacher-trainers is both an essential element of lifelong learning and an important means of strengthening students' employability and adaptability. One of the **objectives** still to be reached is the standardisation of the lengths of educational periods, both within Europe and with the rest of the world.

It is also necessary to strengthen the links among various European initiatives intended to develop the capabilities of the respective countries' citizens, to collate the results of such initiatives, and to study their characteristics. One central goal in this field is that of structural coherence. To this end, certain progress has been achieved in terms of the application of the *"Recommendation in Regard to Key Competencies and the European Grading Framework" (MEC)*, which is intended to strengthen the acquisition of competencies and the results of learning in all pertinent cases at every level.

Collaboration among teaching institutions, their social counterparts, public employment services and other parties interested in the development of learning, create a common language that bears on the European Framework for Grading, Competencies and Occupations (MECCO).

Education and training systems that offer flexible itineraries, keep learning opportunities open for as long as possible, and avoid offering "*dead-end paths*" all help students to rise above any disadvantages they might face. Such systems also help society to avoid the cultural and socio-economic marginalisation and lack of mobility that can contribute to low personal expectations and a loss of hope. Incorporating students into the process can make it easier for universities to provide permanent orientation services. By valuing all of the aptitudes our students acquire previous to entering university, including work experience and learning experiences of whatever sort, we will diversify our student bodies at all levels of education and training, including higher education and adult education. Thus we will be able to focus more clearly on the quality and attractiveness of any given learning environment. In order to reach the disadvantaged groups who are not already a part of our training and education systems, we must work together with other social services and elements of civil society to find new and innovative ways to reach them and orient them properly.

Curricula, teaching modes and content, evaluation structures, and the learning environment should all be designed with the knowledge, capabilities and competencies sought by the learners in question foremost in our minds. Particular emphasis should be given to key transversal competencies which require innovative and inter-curricular teaching methods. If we hope to complete the transition to competency-based learning structures, we must spare no effort in seeing to it that the professors, trainers and teacher-trainer development centre directors are prepared to accept the new roles implied by such a transition. This process can be facilitated through cooperation between education and training institutions on the one hand, and the outside world on the other-particularly the working world.

## ANALYSIS OF LIFELONG LEARNING IN ESTRATEGIA UNIVERSIDAD 2015

Estrategia Universidad 2015 emphasises that both early and lifelong professional development is essential for all professors, trainers and teacher-trainer development centre directors, whether they focus on general or vocational education. The objective in all cases is to prepare these professionals to assume the new roles implicit in a shift to competency-based educational structures.

The Universities Act 2007 ("LOMLOU") states in its preamble that contemporary society requires lifelong learning of its citizens, not only in the macroeconomic and structural senses, but also according to the reigning model of personal development. The aforementioned law promotes the diffusion of knowledge and culture through university education and lifelong learning, and defines the latter so as to include all types of work and other professional experience. This legal framework is complemented by Royal Decree 1892/2008 of 14 November, which provides the regulations that formalise access to official university admissions processes and degree programmes at Spanish public universities. In fact, it redefines admissions requirements altogether, making them more flexible in terms of age and work experience required, as shown in the table below. Admission to a Spanish university is open to persons of 25 years of age and above, persons aged 40 and above and producing evidence of certain occupational experience, and persons aged 45 years and above.
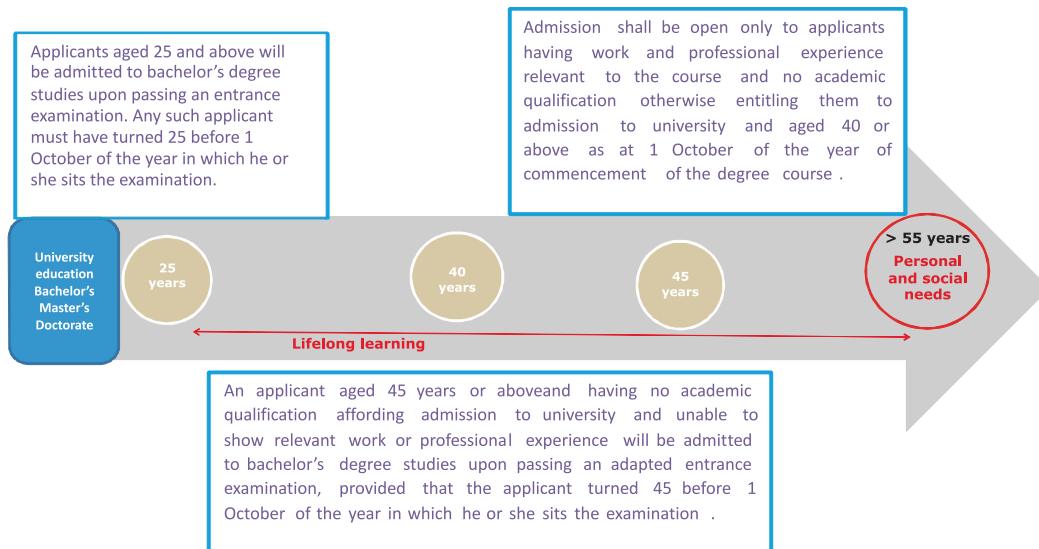
Graph 6. Possible ways to gain access to university education

Different Spanish universities often give different names to similar types of degree. The master's degree is common to all of them, but the minimum number of credits required to obtain them varies from 30 to 50 depending on the agreements and arrangements involved. Degree programmes previous to the master's can go by many names, but all of them require a minimum of 15 credits. There are also extension courses and adult education courses that do not specify the length of study required to receive their respective diplomas.
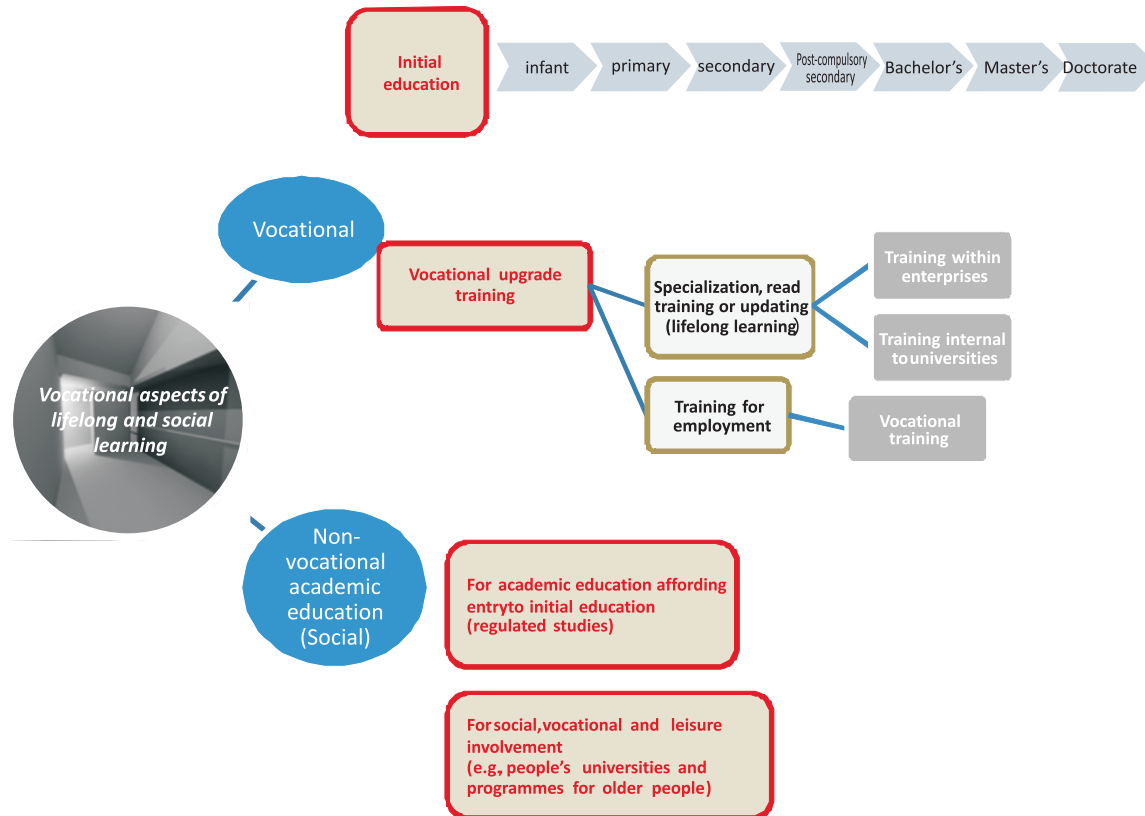
Graph 7. Two types of lifelong learning: professional and social

It is essential to redesign university agreements and arrangements so as to standardise the classifications and terminologies of regulations governing lifelong learning. In different Spanish universities, lifelong learning also incorporates a wide range of administrative strategies and structures, depending upon the university that offers it. At times it is highly centralised and at other times not at all; it can be run internally or externally, and it can be a single type of course or a highly diverse set of courses. These three factors are at play in all extant Lifelong Learning models. Likewise, some such courses are administered and regulated jointly with all other courses offered, while others are immense educational packages concerned with Lifelong Learning only in the strictest sense of the phrase.

Estrategia Universidad 2015 describes three levels of administrative action: an internal administrative system that also handles all other coursework within the university; a system dealing exclusively with all elements of Lifelong Learning, including its organisational structure; and a quality control system dealing with each programme individually.

The directives issued to each entity as regards what is to be done in future, and the creation of a legal framework for recognising degree programmes and dealing with all the consequences thereof, will come directly from the General State Administration. This is likewise the case for other norms that must be altered to adapt to new and future regulations.

University Commitments	Government Commitments
• Include the concepts of (a) improved access to higher education and (b) Lifelong Learning as part of their basic institutional strategy • Provide education and training to a more diverse student body • Adapt study programmes to ensure high student participation, and to attract more adult students • Provide all students with orientation services • Recognise all previous learning • Adopt Lifelong Learning as a key concept within the university's internal quality initiative • Strengthen the relationship between research, teaching and innovation from the perspective of Lifelong Learning • Consolidate reforms so as to create a creative, flexible learning framework • Develop alliances at the local, regional and national levels so as to offer attractive, relevant programmes • Serve as model Lifelong Learning institutions	➤ Acknowledge the contributions made by universities in the service of lifelong learning as beneficial both to individuals and to society at large ➤ Promote social fairness and global learning ➤ Establish lifelong learning objectives as part of the mission and central role of national quality control agencies ➤ Support the creation of relevant student orientation services ➤ Recognise all previous learning ➤ Eliminate all legal obstacles currently preventing potential student from accessing or returning to higher education studies ➤ Ensure university autonomy and provide incentives for university-based lifelong learning programmes ➤ Strengthen regional alliances with local authorities, employers and agencies ➤ Inform citizens as to the lifelong learning opportunities available through universities, and encourage them to take advantage of these opportunities

Table 5. Commitments on the part of Spanish universities, the central government, and local and autonomous governments, in regard to *Lifelong Learning in the University Environment*

The universities will be responsible for applying these new regulations to basic processes involved in the education and training courses they offer. Pertinent protocols regarding outside evaluation, verification and programme accreditation will be designed by public quality control agencies working in conjunction with the universities involved. All relevant agreements will be addressed at the General Conference on University Policy and the Council of Universities; there, new degree programme proposals will be standardised as regards their terminology, pre-requisites and recognised status and value.

2. RESEARCH

The *Estrategia Universidad 2015* attempts to create renewable incentives for researchs, promoting transparency and healthy competition among all inerested institutions

One of the main objectives of *Estrategia Universidad 2015* is to establish internationally reputable universities in Spain where high-quality research is carried out. However, such a project is difficult to manage across large numbers of universities, partly because of the costs involved, and partly because of the difficulty of reaching critical mass in terms of the number of researchers needed to carry out highly competitive research. Thus, the International Campus of Excellence Project has been strengthened with a view to benefiting the best Spanish universities, either individually or in small collectives. Also of note are the entities formed between universities and other institutions including professors (FP II centres), researchers (OPIS and the Autonomous R&D Centres) and innovators. These entities strengthen the relative positions of the finest Spanish universities as regards their international rank. That said, the entire project is very complex, and occasionally results in controversy.

At the individual level, *Estrategia Universidad 2015* attempts to create renewable incentives for researchers, promoting transparency and healthy competition among all interested institutions. This policy seeks to further strengthen the nation's leading and most innovative universities without wavering in its commitment to support the educational infrastructure of all Spanish universities.

Similarly, there is currently a search underway for new university financing mechanisms. Government financing is currently directed at areas with large numbers of students involved in research activity and significant and clearly demonstrated benefits for the public. This financing model, however, has simply served to perpetuate the current sense of which universities are responsible for said benefits.

This financing method, and its methods of internal redistribution of resources, must be modernised. That said, those who carry out the modernisation process must bear in mind all of the roles a university must play. This will help to simplify the gathering of information in regard to the return on public investment in research at each university.

Given certain research financing criteria, universities and university departments devoted primarily to teaching, those with fewer students, and those with fewer government scholarships to offer and less government aid for research, will all suffer by comparison to their counterparts dedicated primarily to research. All of these cases must be carefully considered and deftly handled, so as not to deprive the universities in question of the means necessary to guarantee basic levels of research and learning. Without the proper funding, the very nature and principles of a university education are at risk, since by definition universities are meant to be places to develop sustained cultural learning and the creation of new knowledge through research.

THE ROLE OF UNIVERSITIES IN THE DEVELOPMENT OF THE ERA[37]

All European universities, including those in Spain, provide high-quality educations, but have not yet been able to take advantage of their potential to stimulate economic growth, social cohesion, and improvements in both employment numbers and quality of life. The European Commission invited all member states to present ideas for ways to encourage universities to fulfil their role as social and economic catalysts, as expressed in the the European Union's Strategy 2020. The Commission also encouraged the Council of Europe to adopt a resolution that would create a new type of cooperation between public institutions and universities, and to invest sufficiently in higher education.

Characteristics of the ERA	
Combined tasks:	**Combined tasks:**
• Creation of an internal research market, a truly open space where ideas, technologies and the researchers themselves can circulate freely; this space is designed to strengthen cooperation, stimulate competition, and take the best possible advantage of existing resources; • Restructuring of the European research panorama. This will consist primarily of better coordinating national research activities and policies, given that it is national projects that receive the greatest amount of European financing and scientific attention; • Promotion of a European research policy that goes beyond mere financing, and addresses all related aspects of national and European policy.	• Creation of an internal research market, a truly open space where ideas, technologies and the researchers themselves can circulate freely; this space is designed to strengthen cooperation, stimulate competition, and take the best possible advantage of existing resources; • Restructuring of the European research panorama. This will consist primarily of better coordinating national research activities and policies, given that it is national projects that receive the greatest amount of European financing and scientific attention; • Promotion of a European research policy that goes beyond mere financing, and addresses all related aspects of national and European policy.

Table 6. Objectives of the European Research Area (ERA)

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[37] The European Research Area

It has long been clear that Europe needed to reinforce all three sides of the triangle formed by education, research and innovation. In fact, a congress of the European Union Council held by the Swedish president[38] was entitled "The Triangle of Knowledge: Modelling the Future of Europe." At that congress, the Science and Research Commissary emphasised the importance of strengthening European universities and other educational centres, and of better connecting them to the "most competitive business sectors." It was made clear that European universities absolutely had to modernise, that their rebirth was in the hands of the EU member states themselves, and that interaction between education, research and innovation had to be encouraged through more and better communication among and between the three sides of the "*triangle of knowledge*."

There is a consensus among European policymakers who deal with education topics, that education and training must be the basis of **Europe 2020,** which will in its turn define the objectives to be pursued by the European Union in the coming decade. The point is not to grow purely for growth's sake, but to place knowledge at the heart of sustainable economic development. Within this framework, the universities have an essential mission: that of serving as temples of wisdom, and as the entities responsible for transferring the discoveries they make to the outside world.

Europe cannot and will not prosper unless its citizens have the capacity to contribute to social development and take advantage of a **knowledge-based economy.** Supply and demand must adapt more quickly to rising **mobility** on the part of all parties, and must learn to better predict **future training needs.**

Although educational competencies may differ slightly from nation to nation, there is a **process of cooperation** that is not only useful but **necessary** when it comes time to define the overall shape and direction of future developments, because all nations face **similar challenges**.

The three elements of the **triangle of knowledge** –education, research and innovation– must be better integrated, so as to allow us to progress toward a **European Knowledge Area** where the European Higher Education Area and the European Research Area are joined.

The central idea is to include Education within Europe 2020, as a future strategic objective that will allow us, among other things, to **increase** the overall number of **university graduates** (bachelor's, master's and doctorate) by **40%** by the year **2020**.

Among its strategic plans for the coming decade, the European Union will focus on developing strategies that strengthen existing **synergies** and on ensuring that there is **coherence** between the principles of the Bologna Process and the university modernisation process. The central ideas are to found growth in Europe on knowledge, to build a **more inclusive society**, and to create a more interconnected, greener economy in response to new economic, technological, and social realities.

Within this framework, **Lifelong Learning** is absolutely fundamental, given that what we learn in university classrooms no longer remains the immutable truth for any great length of time. The **capacity to keep learning**, to think critically, to work as part of a team, and to communicate clearly: these are now **necessities we cannot do without.**

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[38] Gottenburg, Sweden. 31 August – 2 September, 2009. Science and Research Commissioner Janez Potocnik.

Among the many research-oriented initiatives of the European Union, perhaps the most important is the creation of the European Research Area (ERA)[39], conceived as a commons stretching across Europe where research, innovation and knowledge are together able to overcome all obstacles, whether they be a matter of insufficient funding, a lack of research stimuli, or excessive fragmentation in the field of European R&D. Thus, on 18 January 2000, the goal of building a European Research Area was established, with its principle objective being the creation of a general European cultural context that is more favourable to research. R&D investment must increase to 3% of gross national product by the end of 2010[40], with two thirds of this investment coming from the private sector. The ERA will need to attract talent looking to develop their research careers, which will in turn attract further R&D investment from industry, leading to sustainable development and better jobs.

The updated Lisbon strategy stated[41] that national and institutional barriers were preventing the ERA from reaching its full potential. The forces of globalisation and international competition for knowledge-based talent and investment meant that the EU's share of global production and knowledge was diminishing. This was due to minimal private-sector investment in R&D, which was itself the result of the limited amount of regional high-tech industry, a trend that persisted in spite of the high quality of the science being produced in Europe, and the relatively high number of European researchers. To address this deficit, in 2007 the European Commission produced a Green Paper on the ERA, proposing six principle developmental strategies.

The Green Paper clarified[42] that the essential goal for 2020 was the establishment of the "Fifth Freedom"—the freedom of movement for researchers, science and technology. It also emphasised the need for effective and efficient governance for value-added R&D, and for levels of cooperation and coordination sufficient to respond to the needs of society and contribute to competitiveness and sustainable development in Europe. The introduction of universities to the ERA requires the establishment of an agenda of modernisation in regard to curricular reform, financing and governance. The result of said modernisation will be the new European Knowledge Area, founded on the university itself.

RULES FOR THE INDIVIDUAL RESEARCHER

There are currently recommendations in place, both at the European level and at the national level in Spain, regarding working conditions for individual researchers. The European recommendations were established by the European Commission, and relates to the European Charter for Researchers[43] and the Code of Conduct for the Recruitment of Researchers. The policy objective involved is that of developing a set of general conditions that allow institutions to offer optimal conditions to particularly valuable researchers. *Estrategia Universidad 2015* begins with this objective, and seeks to provide and apply instruments that will assist professional researchers at all stages of their careers. The scope of the European Charter for Researchers is designed to assist institutions that hire or finance researchers by helping them to offer continuity and opportunities for further professional development. It is further recommended that researchers be recognised as professionals from the very beginning of their careers.

In regard to regulations in Spain, Royal Decree 63/2006 of 27 January established the Individual Researcher Training Charter. This charter addresses the final years of a researcher's education and training, establishing a legal framework for this sort of work that corresponds to existing rules and regulations. This legal framework is necessary because of the unique nature and characteristics of the work done by students on scholarships or fellowships, as opposed to work done by professional researchers. Without such a framework in place, the student researcher's work may not be recognised as con-

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[39] COM 6, January 2000. "Towards a European Research Area."
[40] This objective was established by the Europe 2020 Council in Barcelona.
[41] High-level Group, Lisbon strategy, http://europa.eu.int/comm/lisbon_strategy
[42] Competitiveness Council, December 2008.
[43] European Commission EUR 21620, 2005.

tributing to the good of the centre, university or other organisation in question, and the student researcher may not receive all of the benefits specific to a proper working relationship.

On the other hand, when an individual researcher's advanced studies have been recognised in an administrative sense, through degrees and/or diplomas received, said researcher is able to take full advantage of the centre, institution or university where he or she is employed, and he or she is fully empowered by the relevant Workers Charter. The aforementioned Royal Decree establishes an obligatory system incorporating all research centres involved in supporting and training individual researchers; its central premise is that all such students are in the process of earning their doctorate.

At present, work is being done on a proposal that will further develop the regulations pertaining to researchers from other countries.

Box 7
The Green Paper's[44] Main Proposals for the Development of the ERA

1. *Create a single job market for researchers with*: open, transparent recruitment, Social Security and Pension Plan rights, favourable working conditions, support for additional training, and the acquisition of additional competencies and research experience.

2. *World-class research infrastructure with*: integration with extant systems, plans in place for renewing infrastructure as necessary, national support, a common legal framework to simplify the installation of the latest European research technology, and continuous development of the research policies at the European Union level.

3. *Strengthen research institutions with:* the establishment of the University Modernisation Agenda, particularly in regard to financing, governance, mission diversity, collaboration with industry, research excellence, transdisciplinarity, knowledge exchange, curricular reform, strategic partnerships and networks, et cetera.

4. *Share knowledge* while maintaining control of intellectual property rights, instituting a code of best practices for universities and other public research organisations, improving the transfer of knowledge between and among public research organisations and the private sector, and strengthening national policies as regards intellectual property rights and the transfer of knowledge.

5. *Optimise programmes and priorities* with a joint plan for research activities, a flexible and voluntary commitment on the part of member states, and by defining, developing and establishing common strategic research agendas.

6. *Expand the reach of the ERA* with a strategic European framework envisioning international cooperation in the fields of science and technology, and coordinating the activities of member states and the European Commission

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[44] The Green Paper was released in 2007. In 2008, the Council decided to continue work on only 5 of the original 6 ERA initiatives. The one on which work ceased referred to research institutions, in consideration of the fact that it is the member states themselves who are responsible for overseeing their universities. A more recent take on the subject is embodied in Europe 2020 and the EU initiatives "Innovation Union" and "Youth on the Move."

2.1. The Science, Technology and Innovation Bill

The Science, Technology and Innovation Bill introduces specific measures applicable to academics serving at Public Universities

The increasing responsibility accepted by the Devolved Regions for the development and promotion of R&D+i, and the substantial increase in related resources, has led us to a point where the Law of 1986[45] no longer addresses the true research needs of universities and other research centres. Thus, a new law is required to codify, structure and promote the European R&D+i system. This law will need to address the R&D+i that does not occur at universities[46], which is to say, approximately 60% of our scientific production.

The formation of research teams who have reached critical mass requires a legal framework that is capable of dealing with questions of the rights and obligations involved in group projects (including patents, intellectual property rights, etc.). Likewise, the law must serve as a stimulus not only to research, but also to teaching, and to the transfer of the results of innovation, as well as to stable alliances between public and privately owned institutions. It must similarly promote compatibility on the basis of shared technology between the academic sphere of teaching and research on one side and the sphere of business on the other.

Conscious of the need that existed for regulation as regards the topics and collective entities related to research and innovation, in early 2010 the Ministry of Science and Innovation proposed a new law whereby the Secretary General for Universities (serving as the representative of the Ministry) would lead an analysis of current needs in this field as seen from the perspective of the universities themselves.

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[45] Law 13/1986l, Stimulus of and General Coordination for Research in Science and Technology. It administered resources in conjunction with the National Plan for Scientific Research and Technological Development, in coordination with the Interministerial Commission on Science and Technology.
[46] LOU, Law 6/2001r, and LOMLOU 4/2007.

This law, entitled "*the Science, Technology and Innovation Bill*" (Spanish "LCTI"), was presented to the Council of Ministers on 7 May 2010, and laid before the lower house of Spain's national parliament twelve days later.[47] It contains several aspects that deal directly with how universities currently function, as can be seen in Table 7 below.

The objectives of the Science, Technology and Innovation Bill are as follows:
- Encourage mobility.
- Encourage research as a career choice.
- Encourage scientific and technological research in all knowledge-based fields.
- Promote the transfer of scientific and technical knowledge, and an increase in public acknowledgement of its value.
- Promote internationalisation and cooperation in regard to R&D+i development.
- Contribute to sustainable development.
- Promote the growth of a science-and-technology culture.
- Promote active citizen participation.
- Encourage research as a career choice.

LCTI Modifications to the Universities Act 2001 ("LOU")[48]	
Before	**After**
• No mention made of strategic alliances • No reference made to university intellectual and industrial property rights • Limited reach of LOU system of labour contracts, mobility, EBT leaves of absence • Service and supply contracts for R&D+i projects were controlled by the Public Sector Contract Law • No mention of university professors filling positions in OPIs • No mention of the possibility that OPI –employed Ph.D.'s serve as advisors to Ph.D. candidates • No reference to doctoral programmes	• Encourages the Ministry of Education to create national and international strategic alliances. • Acknowledgement of intellectual and industrial property rights as university –owned. • Universities may now use LCTI numbers on mobility and contracts and leaves of absence. • Service and supply contracts for R&D+i are now exonerated from Contract Law. • University professors may now hold positions in OPIs. • OPI-employed Ph.D.'s may now serve as advisors to Ph.D. candidates. • Defines doctoral programmes, recognises them as part of the university, and codifies their activities. • Establishes regulations for agreements and collaborations designed to create and/or finance new doctoral programmes

Table 7. LCTI Modifications to the Universities Act 2001 («LOU»)

Box 8 explains several of the most important aspects of the Science, Technology and Innovation Bill.

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[47] As of July 2010, it is in the midst of the amendment process.
[48] The Science, Technology and Innovation Bill (LCTI)

Box 8
The Science, Technology and Innovation Bill – University

1. University professors and researchers

<u>I. Types of professors and researchers:</u>

– University faculty members
– LOU labour contracts
– New LCTI labour contracts, whereby the university has received funding to hire an individual researcher
– Worker Charter Contracts

<u>II. Access to university faculty positions:</u>

– Accepts Ph.D.-equivalent degrees issued in foreign countries.
– Access based on a fixed labour contract with positive evaluations

III. Time Commitment on the part of teaching and research faculty members: to be established by public universities in accordance with LOU and development norms.

- Their rights and responsibilities are to be acknowledged
- Mobility of other public and private-sector actors:
    – Temporary appointments
    – Temporary leaves of absence
    – Training sessions
    – Services provided by trading companies created by or partly owned by the OPI
    – Scientific and technological collaboration between government ministries and Central Government actors.
    – Internal promotion giving access to OPI scientific scales
    – Access to jobs at OPIs

2. University Measures

- Agreements simplifying the justification of subsidies
- Economic recompense to researchers for the right to use intellectual property resulting from their research.
- LOU Modifications:
    – Promote the creation of both national and international strategic alliances
    – Recognise the intellectual and industrial property rights of research results as university patrimony
    – Service and supply contracts for R&D+i projects are exonerated from the Law of Contracts.
    – Doctoral programmes are clearly defined, and recognised as part of the university; their activities are now properly regulated, as are the relevant collaborative agreements designed to create and finance said programmes.

2.2. The Doctorate: the Link between Training and Research

The doctorate cycle is where the real training for the career of a researcher begins
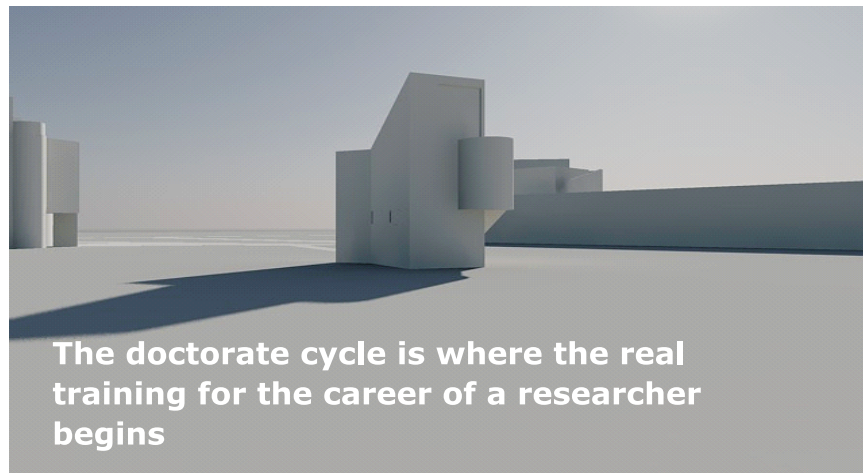
By doctorate, we mean the third cycle of official university studies, whose final objective is the completion of advanced training in research techniques. As established in the European Charter for Researchers,[49] the doctorate cycle is where the real training for the career of a researcher begins. During this period, the doctoral student is expected to begin an original research project (albeit carefully supervised, and supported by a research group); by the end of this period, the student is expected to be capable of carrying out quality research on an independent basis.

European universities are currently immersed in the process of reforming their doctoral programmes. This reform is taking place within the framework established by the EHEA on the basis of the Revised Lisbon Agenda, the ERA and the objectives formulated by the Green Paper of 2007. As far back as the Berlin Communiqué of 2003, the doctorate was considered to be the point of intersection between the EHEA and the ERA. The importance of research as an integral part of university education is further augmented when the mobility of young researchers at the doctoral and post-doc levels is likewise increased.

Box 9
Main Objectives for the Reform of Doctoral Programmes

a) Improve the training received by young researchers
b) Increase the number of people qualified to do and capable of doing innovative research, and improve their employ-ability in the production and social sectors
c) Educate society as to the value of research skills
d) Improve the quality and competitiveness of doctoral studies
e) Standardise the objectives of the doctoral cycle across all Spanish universities.

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[49] Produced by the European Commission in March of 2005, this is one of the ERA's most important documents.

In 2005[50], the doctorate was officially established as the third cycle of university studies in Europe, now definitively separate from the master's degree cycle. The importance of higher education as regards improvements in research was officially recognised, as was the importance of research as a foundation for university teaching; the benefits of both as regards the economic and cultural development of our societies have demonstrated that they play critical roles as elements of social cohesion. The fundamental component of doctoral training is progress made in increasing scientific knowledge through original research; in this third cycle, doctoral candidates are no longer merely students, but researchers-in-training, thus connecting the world of doctoral preparation with professional research careers proper.

It was also in the year 2005 that work was begun on "Strong Universities for a Strong Europe,"[51] with a redesign of doctoral programmes focused not on the needs of the academy but on those of the labour market, via the development of research abilities and transferrable capacities. The rights of doctoral candidates were also established more clearly in the European Charter for Researchers and the Code of Conduct for the Recruitment of Researchers, both of which were approved by the universities of Europe.

Progress made in the process of defining the doctoral programme within the framework of the EHEA and the ERA has led[52] to an insistence on the importance of research training and supervision, on reaching critical mass as a research staff, and on creating an intensely focused research environment. Also of importance is the need to promote R&D+i in all sectors of society, particularly through collaborations between the programmes on one hand and industry and business on the other.[53]

The meeting of European government ministers in London in May of 2007 produced a communiqué entitled "Towards the European Higher Education Area: Responding to the Challenges of a Globalised World." That communiqué focuses on bringing the EHEA and the ERA closer together, improving career prospects and financing for researchers by integrating doctoral programmes and the relevant institutional policies and strategies. The EUA has been asked to take the initiative in unifying the two sides of the doctoral programme: teaching (as addressed in the Bologna Process) and research (as addressed in the Lisbon Strategy.) Doctoral programmes must produce high-quality research complemented by interdisciplinary and inter-sectorial courses of study. Likewise, all public institutions of higher learning must seek to improve the prospects for professional development available to their youngest researchers.

The training of researchers is a key element of any knowledge-based society. Substantial challenges remain, however, both in Spain and across Europe. These include the need to increase societal acknowledgement of the value of capabilities acquired in this early stage, to increase the number of people qualified to do innovative research, and to heighten the influence and employability of researchers both inside and outside academia. R&D+i must be promoted across all social sectors, particularly through collaborations between doctoral programmes, industry and business.

Both the unique characteristics of doctoral studies and the variety of needs and research training methods in the many fields in question require a high degree of flexibility as regards regulations applied to said studies. Because of this, doctor-

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[50] Bergen Conference Communiqué, based on a pilot project entitled "*Doctoral Programmes for the European Knowledge Society*" promoted by the *European University Association* (EUA)

[51] EUA, Glasgow, April 2005. «*Doctoral Programmes in Europe,*» Nice, December 2006. «*Third Cycle Degrees: Competences and Researcher Careers,*" Helsinki, September 2008.

[52] EUA Meeting in Zagreb, 2009.

[53] EUA DOC-CAREERS 2009, "*Collaborative Doctoral Education: University-Industry Partnerships for Enhancing Knowledge Exchange.*"

al training must be university-based on the one hand, but on the other it must work in collaboration with other national and international R&D+i organisations, entities and institutions, including those such as businesses and foundations that help to channel research into society. Doctoral programmes need these entities as allies, both as sources of funding during the period of studies, and afterwards as potential employers of their graduates. Cooperation between doctoral programmes and foreign institutions is particularly sought after in this context.

As an active member in the processes that led to the creation and development of the European Research Area, Spain has incorporated a number of legislative reforms that have led to a consolidation of university teachings in accordance with EHEA principles. Likewise, regulations have been approved as regards researchers-in-training, the creation of international joint doctorate programmes, and international mobility for doctoral students[54]. At the present moment, the Royal Decree on Doctorates is in the process of being finalised.

Doctoral programmes must remain the centrepiece of all institutional strategies as regards university-based R&D+i, allowing ample autonomy and flexibility, and seeking to reach the highest levels of quality, innovation, mobility, social acknowledgement and internationalisation.

Among the projects addressed in EU 2015 is the creation of Doctoral Schools, the promotion of policies that will strengthen the quality and output of doctoral programmes, and the need to help universities adapt to the conditions of the new Royal Decree as quickly as possible.

The push for excellence in Spanish doctoral programmes through this sort of regulatory framework has one main objective: guaranteeing that the training they impart be competent at the scientific and technical levels, both at universities and in other research groups and departments involved in the doctoral project. All evaluations will be in the hands of the National Agency for Quality Control, which will produce a provisional evaluation report prior to the resolution's announcement.

Box 10
Draft Royal Decree regulating official doctorate training

The R&D objective is to collaborate in the training of those who will both lead and participate in the transfer of knowledge for the benefit of society, through the incorporation of the main recommendations of the different European and international forums.

Article 1. Objective: To regulate the organisation of doctoral studies (the third cycle of official university teaching leading to a doctorate degree,) which would have official recognition and validity everywhere in the nation.

Article 2. Definitions of**:** doctorate degree; doctoral programme; doctoral student considerations; Doctorate School; doctoral student activities register.

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[54] Article 8 of the Researcher in Training Charter of Royal Decree 63/2006, the Science, Technology and Innovation Bill, and the Erasmus Mundus Programme.

Article 3. Structure of: doctoral studies (programmes) and length of doctoral studies, including various exceptions.

Article 4. Organisation of doctoral training including the organisation of research training within doctoral pro-grammes, the organisation of training and its control procedures, and the training activities performed by doctoral students.

Article 5. Competencies to be acquired

Article 6. Pre-requisites for doctoral programmes

Article 7. Admissions criteria

Article 8. Doctoral programmes

Article 9. Doctoral Schools

Article 10. Verification, follow up and renewal of Doctoral programme accreditation.

Article 11. Supervision and advising of the doctoral student

Article 12. Thesis advisors.

Article 13. Doctoral Thesis

Article 14. Evaluation and defence of the doctoral thesis

Article 15. European and international honours in the doctorate degree.

Article 16. Encouragement students to join doctoral programmes

- **First additional disposition. Verification of Erasmus Mundus joint international doctorate programmes.**

Joint doctorate programmes created through international consortia with the participation of Spanish and international Higher Education institutions. These programmes have been evaluated and selected by the European Commission as Excellent Programmes deserving of the Erasmus Mundus seal of approval. It is understood that they have received a favourable verification report as discussed in article 10 of this royal decree.

- **Second additional disposition. Doctorate programmes that have been previously verified or are in the process of verification.**

Doctorate programmes verified according to previously valid rules shall be adapted to the dispositions of this Royal Decree no more than three years after this Royal Decree comes into force.

Doctorate programmes which, at the time of this royal decree's entrance into force, have started the verification process but have not yet obtained the corresponding resolution can choose between continuing the procedures in progress or accepting the terms of this Royal Decree.

- **Third additional disposition. Incorporating new teachings.**

Doctoral students who began their doctoral programme when previous university policies were in effect are allowed access to doctoral courses regulated by this royal decree once said students have been admitted to the university in question, and in accordance with this Royal Decree and the university's own regulations.

- *Fourth additional disposition. Honorary Doctorates.*

In accordance with their own regulations, universities may award an honorary doctorate to any person who, given the academic, scientific or personal merits in question, is deserving of such distinction.

- **Transitional disposition. Doctoral students graduating under previous regulations.**

- **First Final Disposition. Article 11 of Royal Decree 1393/2007, of 29 October, will be rewritten to establish regulations for university instruction on the following terms:**

"Article 11. Doctorate instruction"

- **Second Final Disposition. Competitive Degrees.**

- This royal decree has been issued in order to support that which was decreed in Article 149.1.30ª of the Spanish Constitution, and is applicable throughout national territory.

- **Third final disposition. Updated indices**.

3. The Third University Mission: Social Responsibility, Knowledge and the Transfer of Technology

The three fundamental actors described by Henry Etzkowitz appear in the conceptual model defined as a "triple helix"[55]: universities and other R&D centres, industry, and administrations. Their degree of interaction defines the structure of the final model, their mutual influence, and their degree of cooperation.

There are two types of transfer at issue: knowledge transfer and technology transfer. A "conventional University" transfers knowledge to its students, and occasionally signs R&D contracts with private firms, often obtaining passive licenses. An "innovative or entrepreneurial University" generates active licenses and serves as the starting point for subsequent spin-offs[56]. Graph 6 describes the processes developed within the university, two of which, internationalisation and quality control, are transversal to all other processes.

If we want our universities to be competitive, they have to reinforce both their teaching (the university's main task) and their collaborations with the scientific (academia) and technological (industry) worlds. *Estrategia Universidad 2015* intends to support and energise universities through funding and action programmes. The CEI programme promotes multidisciplinary collaboration and the creation of the Entrepreneurial University. These features are essential if we want the university to assume the mission of transferring knowledge and technology.

Nowadays, the fact that knowledge-based societies promote sustainable economies while also taking responsibility for social well-being and the preservation of the environment is no longer in question. It is necessary to introduce new values into our economic models, our social structures and our behaviours, with social equity considered a fundamental value. The

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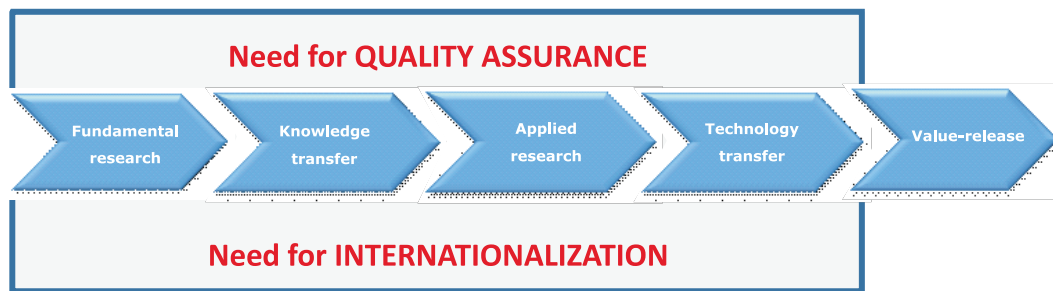[55] Tony Becher and Paul R. Trowler. *Academic Tribes and Territories:*
[56] "Spin-off": the establishment of a business that has branched off from another, previously existing business or university. (In the latter case it is called an academic spin-off.)

contribution of the education system as a whole, and in particular of the universities, research centres, and other institutions of higher education, is particularly relevant in the context of twenty-first century transformations and paradigm shifts caused by the fact that the social responsibility is now the university's reigning paradigm.

3.1. KNOWLEDGE TRANSFER AND TECHNOLOGY TRANSFER

In the academic context, "knowledge transfer" can be defined as the process by which knowledge resulting from academic research is applied in producing new technologies, capacities, or techniques that could have commercial value or practical application.

The Spanish university network known as *Oficinas de Transferencia de Resultados de Investigación,* or *RedOTRI Universidades*[57] [Offices for the Transfer of Research Findings] (OTRI) has the mission of building and promoting the role of universities as key components in a national innovation system. *RedOTRI* is set up as a Permanent Working Group of the Research and Development Sector Committee of the Conference of Spanish University Rectors.

Need for QUALITY ASSURANCE

Fundamental research — Knowledge transfer — Applied research — Technology transfer — Value-release

Need for INTERNATIONALIZATION

Graph 8. Description of functions within a university

Universities must play a fundamental role in the process of improving and changing economic principles and values and the approach to relationships with the business community and society. The foundations of Spain's new productive model must be focused on knowledge and technology transfers that will convert knowledge into innovation, using R&D findings to make the productive sectors more competitive.

OTRIs play a pivotal role as links between universities and companies, but today's environment calls for innovative models for addressing the issue of transfers. The efficiency and means of performing transfers must improve. To achieve this, Value-Release Agencies must be created to assign value to findings that, through the creation of a series of public-private interfaces, will create new technology-based companies by 2015. The "Transfer and Value creation Working Group" was created[58] to define the priorities of this effort, delineating both the specific immediate needs and the parameters of a "Guidance Plan for the Value creation and Transfer of Technology", as represented in the 2008-2012 National Plan.

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[57]   http://www.redotriuniversidades.net/
[58] By the then-Secretary of State for Universities of the Ministry of Science and Innovation

To improve the efficiency of the second and third missions of universities, value creation must be made of research findings whose values might not be recognised at first glance. The "value creation of knowledge" can be defined as the process that takes place between the creation of knowledge and the description of the commercial potential of that knowledge.

In the absence of value creation units, patent inventories may not be productive and might lead to publications that bear no innovation or market value. These actions have priority in the successive EU 2015 Action Plans, which provide for new structures that will allow value assessments of university life. Such structures might include: R&i centres with stakeholder presence[59]; the creation of new types of public-private interfaces made up of intellectual property rights experts, etc.

From another standpoint, it is important to mention the cultural changes that are taking place in the education sector, with entrepreneurship considered to be a value universities should teach. For this reason greater emphasis should be placed on starting innovative technology-based companies. Such actions can be supported by:

– The creation of innovation centres that bring together universities, corporations, R&D+i centres and end-users.
– The formation of research and knowledge transfer consortia.
– The creation of corporate chairs for collaboration on research projects; these would allow student engagement and would target research activities so as to improve the education process.

"Innovation"[60] is defined as the introduction of a new or significantly improved product, good or service, process, commercialisation method or new organisational method into the internal practices of a corporation, workplace, or foreign relations. Goals for achieving innovation might focus on the following:

- Developing mechanisms and incentives for shortening the time frames between the generation of knowledge and knowledge transfer.
- Building awareness and developing "system actors".
- Facilitating and encouraging structures that enable transfer to take place.
- Appraising outcomes and recognising researchers that are dedicated to knowledge transfer, value creation and innovation.
- Eliminate existing legislative barriers to knowledge transfer.

The generation and transmission of knowledge have been, from the outset, fundamental missions of Western universities, following the classical Humboldt[61]-Newman[62] model. More recently, the potential of universities for contributing to innovation and development of a model for sustainable socio-economic growth has arisen as a third mission that is increasingly expected by society and public administrations. This third mission involves contributing to innovation, but it also involves, in a broader sense, the sharing of knowledge with society, commitment to community, interaction with civil society organisations, helping find solutions to the greater social ills of our times, engagement in economic and social development of the surroundings, etc. In other words, while preserving their public functions of generating and transmitting

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[59] A stakeholder is any person or entity that has an interest in the carrying out of a project or task and contributes to it through decision-making power or funding.
[60] OECD's 2005 Oslo Manual
[61] Humboldt, W. von. Über die innere und aeussere Organisation der hoeheren wissenschaftlichen Anstalten in Berlin (1810).
[62] Newman, J.H. The Idea of the University. Notre Dame University Press. 1852

knowledge, modern universities are not "ivory towers" where knowledge is generated and accumulated to be transmitted to the chosen elite of society, but rather towers of knowledge that are made available to society through the interaction universities have with all economic and social actors, including corporations, which need knowledge for innovation.

Box 11
Essential strategic steps to be taken for a first phase of the Guidance Plan for the Value creation and Transfer of Technology

- Align and coordinate the "Guidance Plan for the Value creation and Transfer of Technology" designed by the universities in cooperation with EEI, identifying common goals and joint actions between the Ministry of Education and the Ministry of Science and Innovation (MICINN).

- Modify legislation that hinders the effectiveness of General State Budgets (PGEs) and fail to stimulate private investment. These changes are specified in the new Science Law.

- Encourage an entrepreneurial culture.

- Establish adaptable and evolving structures for knowledge transfer through the management, capitalisation and commercialisation of knowledge.

- Internationalise knowledge, taking into account the greater mobility of students and faculty.

- Recognise the professional careers of researchers who transfer knowledge.

- Incorporate into a six-year innovation plan.

In its recent Directive of 10 April 2008, the European Union underscores that knowledge transfer is an essential tool for the strategic development of the Lisbon Strategy and is directly related to the improvement of innovation and productivity of companies. This view was later expanded in the European 2020 Strategy.[63]

The Government of Spain, in response to requirements the Directive makes of Member States, prepared a **National Programme of Reforms**, which identified increased productivity as the key to achieving true convergence within our society and innovation in businesses as being one of the driving forces of productivity, as is the building of an entrepreneurial spirit.

The **Guidance Plan for the Value creation and Transfer of Technology** is incorporated in the 2008-2011 National Plan for R&D+i, under EU 2015, as an "*action plan*" that encompasses a range of actions and programmes.[64]

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[63] Strategy 2020 is a strategy for smart, sustainable and integrated growth. Brussels, 3 March 2010 COM (2010) 2020.
[64] MICINN developed the *State Innovation Strategy (E2I)*, using existing elements that are available to be used for changing Spain's productive model. The core elements are: Finance, Markets, Internationalisation, Territorial Integration and People.

THE CONTRIBUTION UNIVERSITIES MAKE TO INNOVATION

The **Triple Helix** model we have designed enables the creation of spin-offs from "leading or innovative universities" that apply the **"New Knowledge Production"** model. The Triple Helix model alludes to the **innovation spiral**. This spiral illustrates the reciprocal relationships that exist among the **universities, business** and **Government**. These three spheres, which once worked independently of one another, are now working together. The actors from each sphere are: academic researchers (who become entrepreneurs of their own technologies), students and administrative service personnel (who work in university laboratories or for one of the OTRI offices),[65] and industrial researchers (who run regional agencies in charge of technology transfers). These actors are usually found working within technological complexes and are also known as "*hybrid innovation actors*".
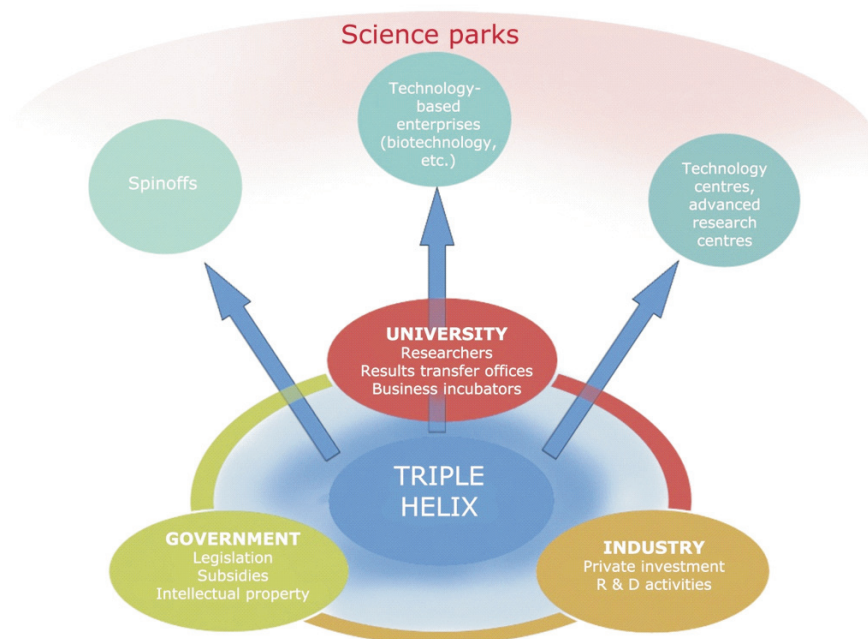
Graph 9. «Triple Helix» model for creating spin-offs from the universities

Universities gauge the success of their OTRIs by the number of patents, licensing agreements and new companies formed, as well as by other external factors such as royalty revenues or the number of successful products placed on the market. According to CORDIS,[66] the OTRIs act as an interface between university researchers and the industrial or business sector. Among their tasks are those of opening new avenues and assisting entry into the business world by encouraging the creation of spin-offs.

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[65] Created by the General Secretariat of the R&D National Plan, with the first R&D [PN] (late 1988) so the OTRI would take over the implementation role the National Plan needed in order to bring industry into the innovation dynamic, both nationally and throughout Europe. The [OM] of 16 February 1996 (B.O.E. 23/02/1996) made them official and created the Official Registrar of OTRI in the Inter-ministerial Commission for Science and Technology.

[66] Cordis http://cordis.europa.eu

Box 12
Specific objectives of OTRIs within universities

- Encouraging participation of the university community in R&D projects.

- Building a database of knowledge, infrastructure and R&D inventory for each OTRI's respective universities.

- Identifying the outcomes generated by the different areas of research, evaluate their potential for transfer and communicate them to businesses, either directly or in collaboration with other liaison organisations.

- Facilitate the practical aspects of transferring these outcomes to businesses.

- Collaborate with research areas and businesses and participate in the negotiation of research contracts, technical assistance, consulting, patent licenses, etc.

- Handle the administrative details of contracts that are in force, with the assistance of university administrative services.

- Report on different R&D programmes, offer technical facilitation in project development and handle the administrative details of projects.

According to a recent study by the League of European Research Universities (LERU),[67] universities can contribute to innovation through the complex relationships that exist between them and the business community. Their contribution can include: supplying doctors and researchers to industry, exploiting codified knowledge, the joint solving of business problems and offering university facilities as public space.

Another common nexus between universities and innovation is that of exploitation and commercialisation. Universities manage research outcomes by administering the procedures involved in intellectual property rights for patents, granting licenses and creating spin-off or start-up companies as a by-product of research activities. These activities to commercialise research draw universities closer to the market and allow them to penetrate the business community.

Additionally, with increasing frequency, news out of the United States and Europe tells of open research programmes in which large corporations and universities work cooperatively, with both sides committing to ensure the free and public access to research outcomes. In this context, the European Commission's "*open access*" initiative, which guarantees free and open access to research outcomes of the Seventh Framework Programme for Technological Research and Development, could be a landmark for university interconnectivity not only with companies, but also with major scientific publications.

In a recent report[68] a group of experts brought together by the European Commission recommended that universities should establish structured collaborations and associations with other research institutions and companies for the purpose

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[67] League of European Research Universities. Universities and Innovation: the Challenge for Europe (2006).
[68] EUR 23322 Report of the ERA Expert Group on "Strengthening research institutions with a focus on university-based research". 2008.

of jointly working on the production and application of knowledge. To accomplish this, it was recommended that public administrations create conditions, mechanisms and incentives that would favour these associations between academia and the business community. The idea is to create research and innovation ecosystems in which universities, research centres, public administrations and companies can interact, work together and achieve excellence in a setting that facilitates complex interactions among the various actors essential to the innovation process. Likewise, the recently created European Institute of Innovation and Technology (EIT)[69] seeks to develop Knowledge and Innovation Communities.

Graph 10 shows the major lines of action in the R&D+i National Action Plan for knowledge transfer.
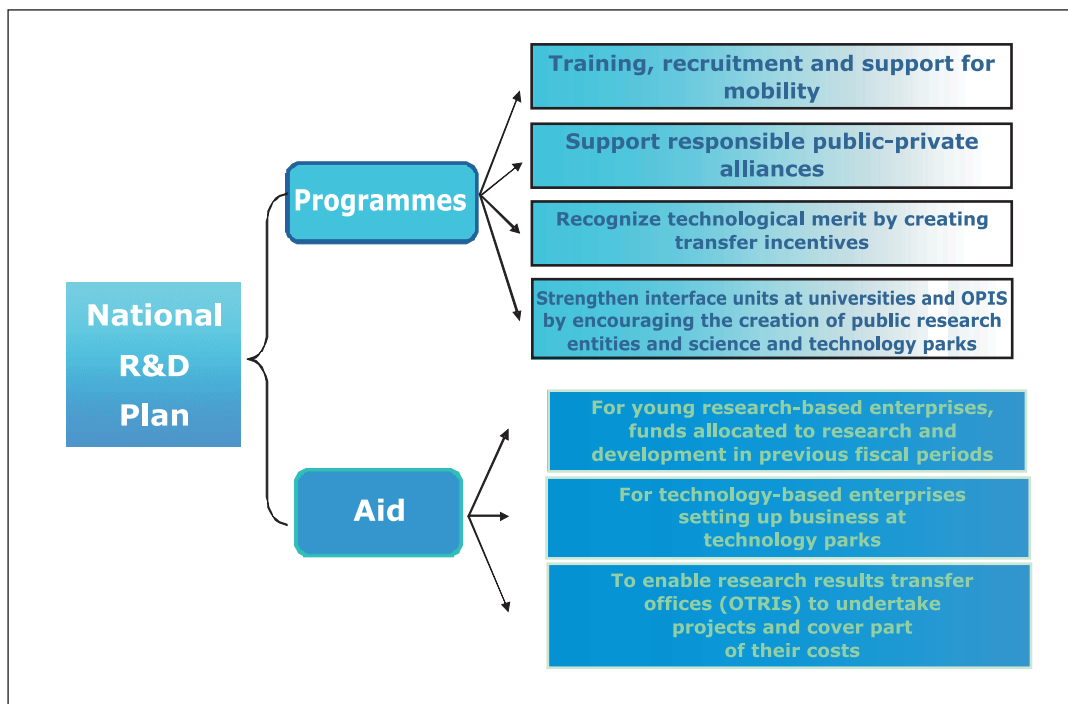
Graph 10. Programmes and assistance through the R&D national plan

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[69] European Institute of Innovation and Technology (EIT)

3.2. University Social Responsibility

One of the central axes of the Estrategia Universidad 2015 is the commitment to university social responsibility and the sustainable development of our university system and its contribution to social, economic and environmental sustainability

The international and European perspective

One of the central axes of the Estrategia Universidad 2015 is the commitment to university social responsibility and the sustainable development of our university system and its contribution to social, economic and environmental sustainability. This has implications for the university's capacities, personnel, the setting and the institution's evaluation and verification systems. These aims are to be pursued until they become identifying traits of our universities, cutting across all of a university's activities, internal management and external relationships.

The Lisbon Strategy established the goal of pursuing both economic growth and social cohesion, while at the same time fostering corporate and organisational social responsibility, highlighting the importance of education and training for meeting those goals. Later, the strategy was broadened to include the critical role education and training play in a knowledge-based society and in sustainable development. Corporate social responsibility was promoted, emphasising that education should focus on both continuous learning and retraining, as well as on the specific training of "*directors and workers*", stressing that it is fitting to offer training in social responsibility through "*courses and modules on business ethics*".[70]

The importance of the social dimension is one of the major identifying traits of both the European model in general, and of its university system in particular. This understanding is particularly significant from a comparative standpoint —that is, when comparing its specific traits with those of prevailing systems in other settings. This attention to the social aspects

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[70] Strategy 2020 "A strategy for smart, sustainable and integrated growth". Brussels, 3 March 2010 COM (2010) 2020, pages 12-18, 20. 12-18, 20.

of the knowledge triangle, as well as the notion that higher education is a responsibility and a public service, and its integration into policies that ensure equal opportunity and inclusion, is one of the major pillars of excellence for European universities and our centres of higher education.

Leaning on these pillars and on the unwavering commitment to the goal of building socially responsible and sustainable universities, EU 2015 seeks to stimulate work that will strengthen the integration of social responsibility throughout the European university system.

This proposition is conceived as an excellent opportunity to improve the quality and excellence of the university system, virtues to be upheld not only for the effective and efficient achievement of the many complex missions of the university system, but also for the responsible performance of those missions and their contribution to sustainable development. *Quality, excellence, responsibility* and *sustainability* must advance side by side. Economic growth must go hand in hand with welfare and social cohesion, both present and future.

The progress of a knowledge-based society and the solution of its social problems must also be accompanied by deep reflection on the economic models, values, forms of social organisation and behaviours that have prevailed over past decades. It is critical that the education offered by universities, the knowledge and innovation they produce and transfer, and the values they transmit be aimed at reinforcing the commitment to this cause and to finding better solutions for economic development, sustainability and social welfare.

One trait that characterises EU 2015 in the matter of university social responsibility is **its intense relationship with the priority of sustainable development** and with the fusion of economic growth and social cohesion. University social responsibility is conceived as **an open process** for moving ahead towards the environmental, social and economic commitments of universities.

Although universities are the lead actors when it comes to internalising social responsibility, EU 2015 considers the involvement of many other social actors and institutions to be necessary, as is the involvement of society as a whole.

EU 2015 treats university social responsibility as a key area towards which work should be dedicated. It is designed with the universities and with the major stakeholders who have interests in the matter. Universities are expected to integrate this commitment into their internal management systems, in performing their missions, and in all relationships that make up the university community and the whole of society.

In the context of universities' **education mission**, the commitment to social responsibility must permeate all educational processes in all their forms. Different approaches to education must incorporate this commitment into their design and execution. The idea is to have all persons related to universities become an engaged citizenry that is involved in tackling the challenges of our world and seeking solutions to its problems. This new perspective and advances made in this direction must reach as many people as possible. Ethics and professional conduct, values, knowledge and competencies related to social responsibility and sustainable development must all be included in the education of the individual.

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[1] Nota al pie de página.

The objectives of social responsibility and sustainable development of universities must place special focus on the *local setting*. Universities must become involved in the economic, social and cultural development of their own communities, building on strengths and offering solutions to problems. The commitment to the local setting must be long-term and must respond to challenges that are ever more globalised in scope, working with various initiatives to meet the more distant needs, seeking to work cooperatively towards development.

It is also important that university social responsibility become integrated with the *internal management of universities*. The university organisation must incorporate these goals, reshaping their internal management systems and ways of doing business to reflect these priorities. They must also ensure that their administration systems are transparent, effective and efficient.

EU 2015 PERSPECTIVE ON UNIVERSITY SOCIAL RESPONSIBILITY

EU 2015 seeks to stimulate a work process that will improve the integration of university social responsibility into the university system as a whole. It presumes self-defined parameters that are in line with current trends in university social responsibility, and its purpose, objectives and primary content, establishing systems of design, follow up, evaluation and verification of the process.

This plan is conceived, ultimately, as an important opportunity to consolidate the quality and excellence of the university system. *Quality, excellence, responsibility* and *sustainability* must advance side by side. This is essential if economic growth is to be blended with social welfare and cohesion, both today and in the future. In these times of change it is particularly necessary that education be of high quality, responsible, and committed to sustainable development.


Box 13
Features of EU 2015 that promote university social responsibility

a) *The close relationship between sustainable development* and the fusion of economic growth and social cohesion. This concords with the Lisbon Strategy launched in 2000, which pushed for corporate social responsibility and was later reinforced by the EU Strategy for sustainable development.

b) *It supplements existing legislation*. According to the definition in the Green Paper, social responsibility presumes a legal framework that goes beyond simply making it obligatory; it must also be voluntarily integrated into the Spanish university system.

c) *The voluntary nature of social responsibility* is, therefore, a logical corollary to the foregoing item, without diminishing the degree to which rigour and systematic effort are applied in its implementation. The goal is to achieve full integration of social responsibility throughout all institutions. This integration must go hand in hand with substantial improvements to systems and methods of design, organisation, follow-up, evaluation and verification, with as many social interlocutors and stakeholders involved as possible, as well as the whole of civil society.

d) *It is an open process* that has already begun in some universities. Some of the activities have to do with equal opportunity, gender equity, accommodating for work, personal, and family situations, attending to persons with disabilities special educational needs, development cooperation, and healthier surroundings.

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e) *Social responsibility is a concept that is developed in dialogue and plurality*. The university community must work in an environment that encourages open debate and agreement when defining specific initiatives.

f) *Social responsibility has cross-cutting applicability to all of a university's missions and capacities*, as well as to the university community and its external relationships. It should be integrated within education and research because it is an unavoidable aspect of progress towards a sustainable development model. It is important to the areas of innovation and transfer and to the internal and external operations of the university.

g) *It is a fundamental piece of a university's commitment to its society and its times*, as well as to future generations. Therefore, it is a core aspect of a university's social dimension and of its aspirations for quality and renewed excellence.

h) *Its content should be progressively included in systems that evaluate and verify quality*, as well as in projects that seek to improve universities and campuses in all of its missions and activities, as has been the case for CEI.

i) *The university must be committed to its local surroundings* and national and international communities as far as it relationships reach.

Thus, the progress of a knowledge-based society and the solutions to its social problems must be accompanied by deep reflection on economic models, values, forms of social organisation, and the behaviours that have prevailed over past decades.
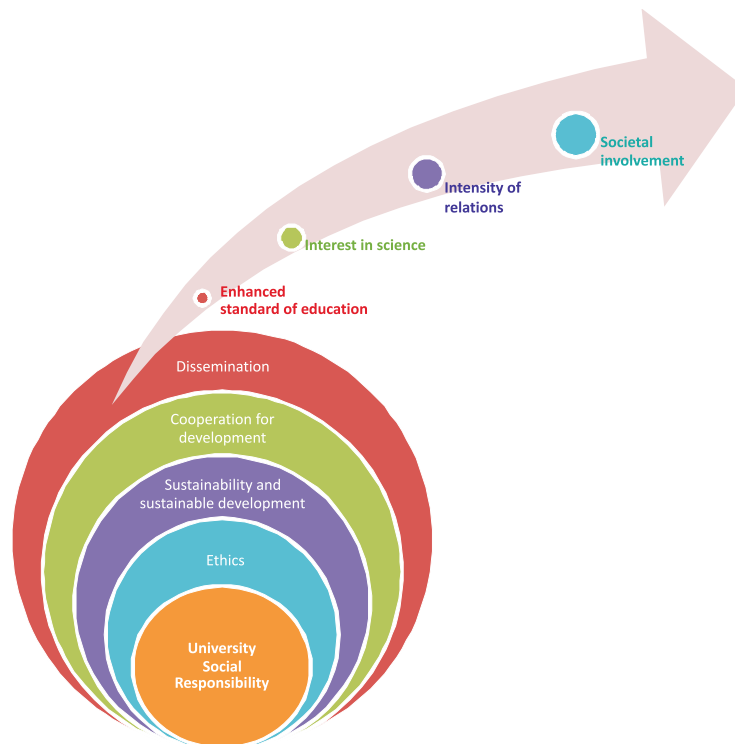
Graph 11. Areas in which University Social Responsibility are present

Contributions by the education system as a whole and particularly by universities and centres of research and higher education become even more relevant in this context of transformation and model changes. Graph 13 describes the main areas touched by university social responsibility in a context of university modernisation.

Box 14
Characteristics of the central axis of EU 2015 on university social responsibility

a) *Information, awareness and guidance*. It is essential that universities assume the task of promoting social responsibility and sustainable development. This is about building awareness of individuals so they are better prepared to meet present and future challenges.

b) *The educational mission of universities*. All education-related processes, in all their forms, should be committed to social responsibility. This objective affects knowledge, values, and capacities and competencies that are taught or promoted by the university system. It involves training all people connected with the universities and calls for new inquisitiveness, attitudes and interests in the university world, with ongoing training and retraining. It also involves specialised teaching across all degree levels, bachelor, master and doctoral, as well as in regular coursework. This is especially important in training future business leaders, directors, or others related to the business world at all leadership levels.

c) *The presence of social responsibility and sustainable development in research*. More study is needed that provides new perspectives on the current state of social responsibility and sustainable development and about its potential applications in different lines of work. Research on this issue must include research done in universities, businesses and other institutions. The scope of research must be open to different specialisations and knowledge areas and should encourage work in groups, the creation of national and international networks, comparative and interdisciplinary approaches, and collaboration among stakeholders.

d) *Transfer and innovation activities must keep social responsibility and sustainable development in mind*. It is important that these types of initiatives be informed by both principles and reaches all areas of knowledge, including art and humanities. In all areas, the goal should be to find ways to return value to society from efforts made. Universities must become involved with projects that deal with social, cultural, economic and environmental challenges of today.

e) *Internal management of the universities*. The entire university organisation must incorporate these objectives, which means they must remodel their internal management systems and ways of operating. It also presupposes ensuring that an administration has transparent, effective and efficient resources and a responsible and sustainable government that guarantees fulfilment of the universities' missions pursuant to the principles that have been established. Universities, as autonomous bodies, must commit to accountability, constantly improving their internal systems for management, evaluation and verification of outcomes achieved, both economically as well as socially and environmentally.

ESTRATEGIA UNIVERSIDAD 2015. GUIDING PRINCIPLES AND VALUES – CULTURAL DIMENSION

The action plan for the support and modernisation of Spain's public universities was accompanied by a Declaration in support and defence of Spain's public university system. Among its actions is the need to boost education and research in the areas of Humanities and Social Sciences.

Estrategia Universidad 2015 reiterates the strategic importance of the social and cultural dimension of universities already contained in successive European declarations and in Spanish law. Support for making this a central dimension is found in the richness and diversity of Europe's cultural, social and humanistic heritage, as well as in the convergence of a set of strategic values and objectives. Therefore, the goal is to enrich Europe's university centres with this heritage, which will also allow them to converge without surrendering their distinctive identities, either linguistically or in other cultural features. Further, the intent is to broaden the illustrious heritage of European universities with later values and objectives incorporated in the last century, such as the aforementioned equal opportunity, gender equity, inclusion of minority or special-needs groups in the classroom and cosmopolitan cultural diversity.

Estrategia Universidad 2015 attempts to ensure that universities incorporate, effectively apply and communicate the strategic values that should inform their operations and progress in all of their missions and activities. This has to do, very importantly, with the education and teaching tasks universities perform, whether in the classroom, in extracurricular activities, in standalone education activities, continuing education, or life-long education. The universities' outreach is also important and these same values must be included in external activities.

Because of the exponential growth of exchange among cultures, settings and groups, universities must carry out their missions in a way that reflects the transnational nature of knowledge, innovation, studies and persons. This interconnection, which is increasing, represents an excellent opportunity for universities to expand their cultural, linguistic and human richness. Strategy 2015, therefore, makes a strong push for universities to open up to inter-cultural exchange in all their missions. The inter-cultural approach is, for all effects, the most appropriate for successfully transforming what is currently a challenge into a positive contribution.

It is important that the universities deepen these values in the daily and regular execution of their activities, but also through specific programmes and actions that are designed for this purpose. And these should encompass all of a university's missions, because the values, attitudes and behaviour standards in a university model that is innovative, open and committed to social cultural progress and the quality, as sought through *Estrategia Universidad 2015*, apply to all of them. This should also include a new appraisal of all activities linked to the knowledge triangle, as well as to related jobs and the individuals who perform them, which will allow universities to be recognised as core institutions of contemporary societies.

It is also important that university education focus on the diversity and richness of Europe's cultural heritage and linguistic plurality, encouraging awareness of this diversity and the study of languages. University education must promote a proactive attitude and a spirit of reflection in both of these areas.

The encouragement of creativity, freedom, innovation and interest in knowledge and science are essential for research and transfer. Teaching methods and supplemental activities that take place within the university setting must seek to develop knowledge, capacities and competences needed for performing these functions, in the context of the institutional and academic independence that characterises a university and in the context of the commitment to social and economic progress.
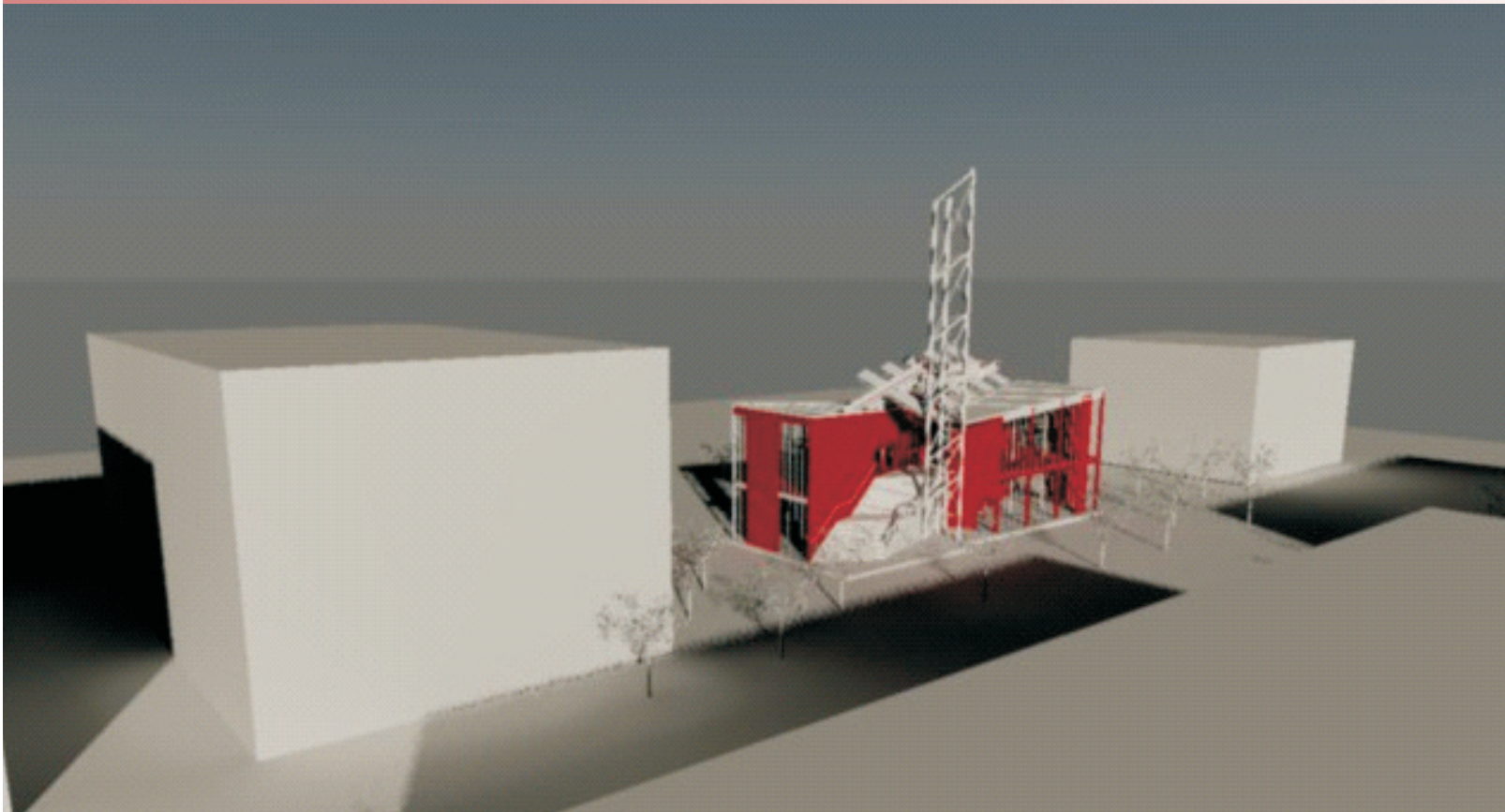
Universities must seek to project their activities outward as much as possible, expanding their contribution to the knowledge triangle by developing specific programmes for the dissemination of science and culture —locally, regionally, nationally and internationally. *Estrategia Universidad 2015* must nurture universities' engagement with these scientific, humanistic and cultural forms of expression so as to reinvigorate its central role in undergirding the cultural dimension of society as a whole. This is a task that involves, first and foremost, the universities and university community, but also the administrations and, especially, Devolved Regions and social actors.

AMBITS, STRATEGIC AXES, OBJECTIVES AND COMMITTEES			
Ambit	Strategic Axis	Lines of Action	EU 2015 Objectives
MISSIONS	EDUCATION	ADAPT DEGREE COURSES TO EHEA	• Monitor implemented EHEA-compatible qualifications • Create the University Commission for Monitoring and Accreditation (CURSA)
		MECES	• Enact the Royal Decree specifying MECES
		UNIVERSITY LIFELONG LEARNING	• Report on lifelong learning and regulatory proposal (Universities Council)
	RESEARCH	SCIENCE, TECHNOLOGY AND INNOVATION BILL	• Once the Bill is passed into law, implementation of the areas applicable to universities • Promote academic staff mobility in the framework of the Science, Technology and Innovation Bill
		DOCTORATES	• Enact the Royal Decree governing doctoral programmes • Implement doctoral schools policy
	THIRD MISSION OF UNIVERSITIES	KNOWLEDGE AND TECHNOLOGY TRANSFER	• Improve university-industry relations via proposals at the level of specific sectors • Undertake a viability and sustainability study of knowledge transfer structures (Science and Technology Parks) • Encourage open innovation via university-enterprise professorships [*cátedras universidad-empresa*] • Implement performance bonuses Innovation and knowledge transfer bonuses [*sexenios*]
		UNIVERSITY SOCIAL RESPONSIBILITY	• Create the University Social Responsibility Commission (CRSU) • Encourage USR policy at Spanish universities • Submit a report on USR to the Universities Council and the General Conference for University Policy

CHAPTER III
Peoole

1. TEACHING AND RESEARCH STAFF (PDI)

The Law 4/2007, of 12 April sets the activities and functions which university lecturers must discharge teaching, research, innovation, knowledge transfer and management

INTRODUCTION

The education policies envisaged in *Estrategia Educación 2015* (Education Strategy 2015) are based on the conviction that investment in education, especially in higher education, should place students on the road to self-sufficiency and life-long learning, preparing them to secure jobs with decent salaries and making them into cultivated and productive citizens. The new education programmes under the EHEA framework enable universities to provide students with high-quality education opportunities, which will prepare them for internationalisation and professional success (employability). There can be no such thing as a modernisation process at Spanish universities that does not involve teaching and research staff (PDI) and administrative and service personnel (PAS) based on a role more in keeping with the EU2015 objectives. This must be achieved by a PDI Charter agreed by all stakeholders, as well as modern professional training for PAS suited to the universities' new missions and, in particular, their need for internationalisation.

Estrategia Universidad 2015 (University Strategy 2015) encourages universities, via PDI and PAS, to meet all three overall objectives:
- To prepare students for leadership and service in an increasingly interdependent world, through the «*specifics of internationalisation*».
- To attract the world's most talented researchers and students.
- To position the top Spanish universities in the world rankings, achieving more research partnerships, better teaching programmes, international projects and a social commitment.

1.1. PDI CHARTER: REGULATORY PROCESS

A new regulatory framework has been prepared to take into account the diversity and complexity of the activities and functions which university lecturers must discharge (teaching, research, innovation, knowledge transfer and management) as set forth in the Universities Act 2007 (*Ley 4/2007*). This charter will render the concept of dedication more flexible in the

sense of diversity or intensification and will boost teaching staff mobility. Establishing a professional qualification enhances recognition of the merits of university lecturers and underpins their new functions (as part of the academic career of a university lecturer - PDI) linked to teaching and research activities and mobility. All of this fosters the transfer of knowledge, innovation and management activities, meeting the new needs of university activity and society. However, at a university unit (department) the various functions that are characteristic of PDI must constantly be carried out (teaching, research and dissemination/transfer) and academic management tasks must also be undertaken at all times. This is doubtless one of the characteristics which differentiates a university department from a public research body which has a teaching mission only when it is part of a doctoral school.

Since it is a charter, it will subsequently be necessary to develop the proposals launched concerning rights and obligations, kinds of dedication and intensification in certain activities, basic equality principles and guidelines regarding the incorporation of technology-based companies. This charter involves the trade unions, via the *Mesa Sectorial de Universidades* (University Sector Panel)[71], Devolved Regions and the university community via the Ministry's virtual environment.

Royal Decree with PDI Charter	
Actions enabled by regulatory development	Agreements to be reached in CU* and CGPU**
- Change in the destination supplement for university chairs and lecturers. - Regulation of the horizontal career: procedure, evaluation protocol, criteria, competent body. - Modification of Royal Decree 1086/1989 concerning remuneration to university lecturers. - Specific procedure for initial evaluation of current university lecturers for their assessment in horizontal career. - Specific treatment of teaching bodies in universities to be terminated: chairs and lecturers of *Escuelas Universitarias* (university schools). - The role of mobility among lecturers as the basis for improving the academic offering and consolidating strong research groups.	- Planning in relation to the financing of commitments undertaken in the PDI Charter and incorporation in the document for improvement and monitoring university financing policies to promote academic excellence and increase the socio-economic impact of the Spanish University System[72] - Drafting of university regulations governing dedication, intensification with respect to certain tasks, mobility, involvement in technology-based companies, aspects of compatibility, permits, inter-university agreements to foster cooperation by optimising human resources.

* CU = *Consejo de Universidades* (Universities Council)
** CGPU = *Conferencia General de Política Universitaria* (General University Policy Conference)

Table 8. Various actions of Royal Decree concerning PDI Charter

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[71] University Sector Panel comprises the trade unions UGT, CCOO, CSI-CSIF, CIGA, and central government, and is chaired by the Director General of University Policy.
[72] Central pillar of the 2015 University Strategy, University Council and General University Policy Conference, 26 April 2010.

Once the draft charter has been presented, the University Sector Panel must continue to meet in order to set an agenda to tackle other related issues, such as: the horizontal PDI career, PDI mobility, health and safety at work, assessment of employment PDI, performance of research and innovation in all knowledge branches, academic calendar, PAS employment conditions.

PROFESSIONAL CAREER OF PDI. MOBILITY

The "mobility" fostered by the PDI is one of the key elements to achieve the European convergence targets. It is an area closely linked to the axes of internationalisation and research, so there are aspects which must be considered in these axes. The European Union Council envisages the need for mobility among young people in order to create the European Research and Innovation Area (ERIA)[73]. To create this area, recommendations and commitments are established to permit cross-border mobility of students, researchers, scientists and university teaching staff in the best possible conditions. Mobility must first be understood as a change of residence for reasons of studies, professional placement or work in order to improve professionally. But it should also be understood as a particularly effective way of strengthening European citizenship and competitiveness and fostering the faculties of adaptation and employability. In other words, it is a mobility that is chosen and integrated as a result of an educational or professional project (teaching or research).

Chart 12 depicts the PDI mobility triangle. This mobility is considered to be an element of:

a) Improvement as a teacher and researcher
b) Strengthening of links between excellent R&D groups
c) Incorporation of the university institution onto the international stage
   - Through scientific productivity or R&D impact
   - Through aggregation processes in International Campus of Excellence programmes
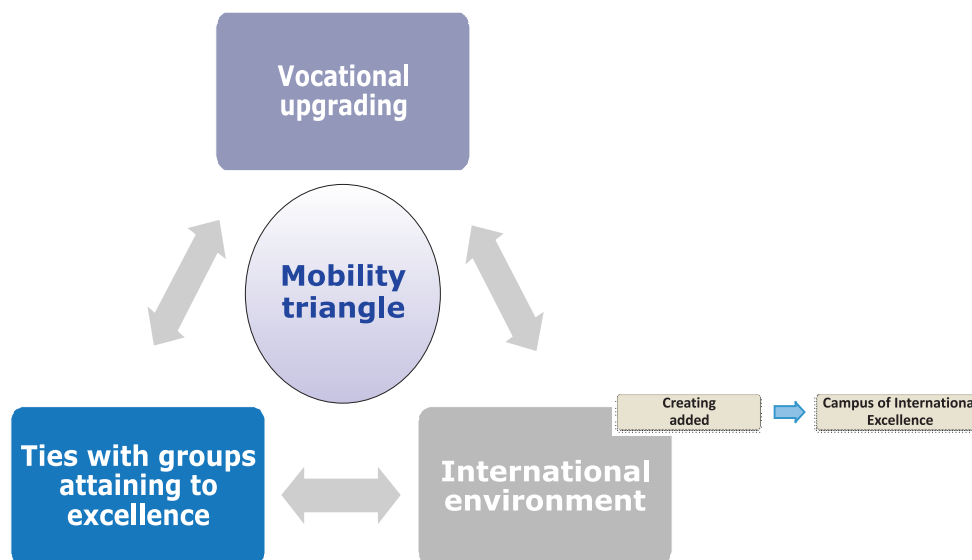
Graph 12. Professional mobility of PDI

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[73] Youth on the Move initiative. One of the seven flagship projects of Europe 2020.

Furthermore, the need to foster mobility throughout a teaching or research career is accepted by the countries partici-pating in the Bologna process as a means of gaining competitiveness. Against this backdrop, mobility acquires its broader social dimension, since the offering of quality and appeal for employability must be combined with its compatibility with a European area that is more accessible for all.
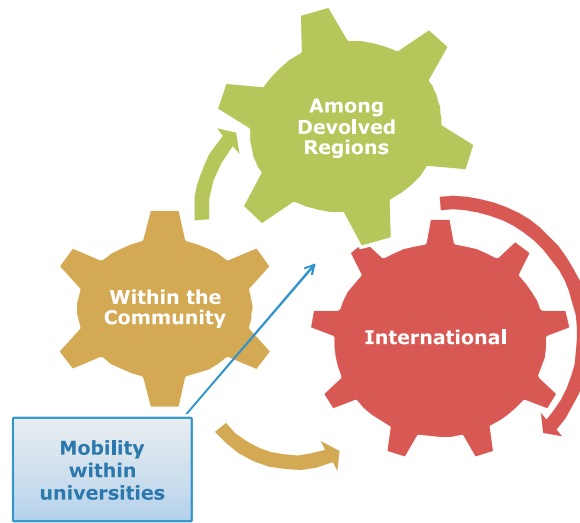
Graph 13. Geographical mobility of PDI

In this connection, the European Charter for Researchers and the Code of Conduct for the Recruitment of Researchers set forth a series of principles which constitute an excellent instrument to guide the concerted efforts to fulfil the objec-tives of mobility in Europe. Spain's regulations[74] provide that the purpose of mobility is to improve the training and research activity of teaching and research staff. These objectives are stipulated in EU2015, contributing to improve the professional conditions of researchers, fostering forms of mobility as a global human resources policy in R&D&i.

Implementation of the Bologna process has fostered the introduction of joint post-graduate training programmes which increase teaching exchanges with European centres, promoting convergence in European objectives.

Mobility programmes are envisaged in the Instrumental Line of Human Resources of the National R&D&i Plan, aimed at the training and improvement of university lecturers and researchers. At present, mobility programmes have been consol-idated that encompass the post-graduate training phase, fostering post-doctoral training through employment contracts and supplementing the offering with programmes that link access to mobility in the various stages of the PDI's profession-al career.

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74 The Universities Act 2007 (LOMLOU- article 40.4, of 2007).

Post-graduate Programmes
• Master's degrees: for visiting lecturers from the EHEA and other countries and for students studying at other Spanish and EHEA universities (MMAST-EDU).
• Doctorates: for visiting professors from other countries for doctorates with quality mention and to participate in thesis examination boards for the recognition of European Doctorate Mention.
• Mobility of students to Spanish and EHEA universities in doctorates with quality mention and to meet the requirements for obtaining the recognition of European Doctorate Mention (MDOC-EDU).
• Income-contingent loan. This is an interest-free loan which, from 1 September 2007, may be applied for by university graduates to enrol on master's degree courses (recognised by the Ministry of Education or at one of the universities of the 46 countries in the European Higher Education Area). The general purpose of these loans is to provide financing for official master's and/or PhD level studies offered in Spain or their equivalent in EHEA countries, the United States and Canada, either through an initial lump sum or, in the event, a monthly income for students who so request.
• Mobility in Hispano-Brazilian projects.

Table 9. PDI post-graduate mobility programmes within Central Government

National PDI mobility permits greater movement of students due to agreements between universities, such as the Seneca Programme, whereas international PDI mobility enables them to acquire internationalisation skills that translate into academic training and pave the way for the opening of international relations necessary for Erasmus and other cooperation agreements. It is to be borne in mind that this interaction between centres due to PDI mobility also favours aspects relating to the recognition of qualifications.

It is worth taking into account that the greater the international PDI mobility the easier it is for university students to acquire skills that help their own internationalisation. On the one hand, a high level of international PDI mobility helps create an international teaching offering, as well as combined qualifications.

Since 2004, a major aid effort has been made, but there is scant mobility among foreign students to Spanish universities, with a below-average share, significantly behind countries like Germany or the United Kingdom (EURODATA). It is worth highlighting the need to boost student mobility in university level education and to close the human resources deficit vis-à-vis Europe and, to an even greater extent, vis-à-vis Spain.

Tables 9 and 10 show the actions by the central government in mobility programmes that are envisaged in the three levels of higher education (bachelor's degree, master's degree and doctorate) and in the Instrumental Line of Human Resources of the National R&D Plan, used for the training and improvement of university professors and researchers.

Programmes and sub-programmes in the Human Resources line		
Training	Recruitment and Incorporation	Mobility
• Research staff (FPI-MICINN) • Research staff (FPI-INIA) • University lecturers (FPU-MEDU) • PhD training in the EUI (IUE-MEDU) • Development of doctoral theses in CSIC (CSIC-JAE-Predoc)	▪ "Ramón y Cajal" sub-programme (RYC-MICINN) ▪ "Juan De la Cierva" sub-programme (JDC-MICINN) ▪ "Torres Quevedo" sub-programme (PTQ-MICINN) ▪ Sub-programme for the recruitment of technical support staff (PTA-MICINN) ▪ Sub-programme for the recruitment of doctors of the Study Extension Board (CSIC-JAE-Doc) ▪ Sub-programme for the recruitment of technical support staff and knowledge transfer of the Study Extension Board (CSIC-JAE-Tec)	➢ Sub-programmes for the mobility of lecturers and researchers in centres abroad (PROEXT-MEDU). One senior modality and one junior modality (José Castillejo) ➢ Sub-programme of mobility for foreign lecturers and researchers in Spanish centres (EXTESP-MEDU). One senior modality and one junior modality. ➢ Sub-programme for post-doctoral mobility in centres abroad. (POSDOC-MEDU)

Table 10. Actions in the Instrumental Line of Human Resources of the National R&D&i Plan 2007-2011

To foster mobility, projects have been implemented such as bilateral cooperation programmes in which the institutions of countries that share objectives design preferential action areas, perform joint selection and contribute financial resources to cover expenses in a balanced set of mobility measures in both directions.

To facilitate the process of integrating foreign university lecturers and researchers at universities and research centres, Ley Orgánica 4/2000, ("the Foreign Nationals' Act 2000)", concerning the rights and freedoms of foreigners in Spain and their social integration (known as the Foreign Nationals' Act), exempts these groups from the requirement of obtaining a work permit to conduct their work in Spain.

The developing and enacting regulations of this provision, which are currently being processed and will soon be approved, establish the requirements which must be met by persons coming to Spain and the centres that receive them,

in order to ensure the correct application of the exemption. Public universities and research centres, belonging to the Central Government or Devolved Regions, will automatically be considered suitable to recruit this kind of personnel.

Programmes and Sub-Programmes under the National R&D Plan and EU Framework Programme	
National R&D Internationalisation Programme	**7th Framework Programme**
• Programme I3 (incentives for the recruitment and intensification of research activity) • Sub-programme of specialisation in international bodies. Sub-programmes of integrated actions • Sub-programme of actions relating to international infrastructure • Modality of cooperation projects in particle physics and e-science	*Specific IDEAS and PEOPLE Programmes* • Marie Curie Actions - ERC Starting Grants - ERC Advanced Grants

Table 11. Programmes and Sub-Programmes of the National R&D Plan and the 7th European Union Framework Programme

There are other regional institutions that foster mobility among lecturers at their various universities. For example, the Basque Country foundation IKERBASQUE and the Catalonian foundation ICREA, whose characteristics are described in Box 15.

Box 15
Characteristics of some leading regional foundations in terms of teaching staff mobility

Some regions, like the Basque Country and Catalonia, are developing their own mobility policies and programmes through their foundations

1. **Ikerbasque** is the Basque Science Foundation created by the Basque regional government with the main aim of helping to develop scientific research in the Basque Country, by attracting and keeping research talent. Its purpose is to strengthen the Science System in the Basque Country by recruiting, keeping and consolidating researchers and setting up basic research centres, in partnership with the scientific community and underpinned by a commitment to excellence. Its **Mobility Programmes fostered by** the Basque Regional Government (BRG) include activities such as:

- Facilitating research contracting to the productive sector
- Training and practical placements at companies
- Training (pre-doctoral and post-doctoral) of research personnel at centres in Spain and abroad
- Exchanges between members of the Working Community of the Pyrenees (CTP)
- Mobility of foreign researchers
- Training through their incorporation into companies in the sector
- Specialisation in foreign and Basque companies
- Specialisation in Basque companies
- Geographical mobility of professors

2. **The Catalonia Institute of Advanced Research and Studies (*Institució Catalana de Recerca i Estudis Avançats - ICREA)** is a foundation set up by the regional government (*Generalitat de Cataluña)* and governed by a board. ICREA belongs to *Talència*, an agency created recently by the Department of Innovation, Universities and Business (*Departament d'Innovació, Universitats i Empresa - DIUE)* to foster research in Catalonia. Within this agency, ICREA maintains its organic independence and functional autonomy. It contributes to the objectives of the Catalonia Research and Innovation Plan 2010-2013. Through a selection process based on scientific talent, it recruits researchers from all over the world. Accordingly, ICREA also helps pave the way for the return of researchers who have developed their research career outside Catalonia.

    It works actively with universities and research centres in Catalonia through stable agreements whereby ICREA researchers join the research teams of these universities and centres. At the same time, it aims to promote the incorporation of doctors into the research and innovation departments of companies, technological centres, etc. in the private sector, by granting aid to foster their recruitment. The idea is to offer contracts in compliance with the researcher recruitment plans and thereby continue to help boost research in Catalonia with the characteristics of cooperation, internationality and the quest for excellence. The aim is to recruit scientific talent from all over the world, enabling Catalonian researchers with brilliant track records at foreign institutions to return and leading foreign researchers to join the Catalonian research and development system.

    It interacts with Catalonian universities and research centres through stable cooperation agreements. Depending on the agreements established, the researchers, both national and foreign, hired by ICREA, and following a thorough process of independent selection based on scientific talent and leadership skills, join the research teams of universities and centres. Cooperation, internationalisation and the quest for scientific excellence are the linchpins. Furthermore, it offers tailor-made assistance for researchers, helping them in issues such as accommodation or finding schools for their children.

ESTRATEGIA UNIVERSIDAD 2015: ACTIONS

In parallel with the challenge of implementing the EHEA, Spanish universities are facing the additional challenge of the need to improve competitiveness, which will require a special effort to achieve an offering of excellence, and at the same time strengthen internationalisation. This places mobility measures at the forefront of the human resources objectives.

The aforementioned actions were launched primarily in response to the main obstacles to mobility triggered by the difficulty in obtaining permits and licences and the possibility of accessing help in the various stages of one's professional career. However, the new situation requires progress in actions to "*strengthen the mobility system*" which will bring with them the consolidation of basic actions in PDI training and access, alongside others that will pave the way for mobility areas and periods in line with more specific and perhaps more long-term professional development strategies. These are bilateral cooperation programmes in which the institutions of countries that share objectives design preferential action areas, perform joint selection and contribute financial resources to cover expenses in a balanced set of mobility measures in both directions.

This first measure must imply a greater institutional commitment in addition to the personal commitment, which must apply to both mobility for conducting research projects and higher post-graduate training via joint training procedures, of which the Erasmus Mundus and the joint master's or doctorate programmes are examples.

Box 16
Actions to provide incentives for mobility during the PDI training period

– To provide incentives for young people to enter the system by encouraging them to **choose a teaching or research career**, with improvements in the Charter of Research Personnel in Training: change of the current 2+2 model defined in the future Law on Science, Technology and Innovation of Doctorate Schools.

– To foster mobility during the teaching and research training phase, even promoting a minimum international training period as standard.

– To foster PDI training in programmes with standards of excellence. It will be important to obtain the «Mention» in master's and doctorate programmes.

– To aim funding at master's and doctorate schools that have obtained «the Mention of Excellence» configuring their strategies for ongoing strengthening for both visiting professors and for the mobility of their students.

– To promote institutional training offerings at foreign and Spanish centres with bilateral or multilateral agreements based on programme co-financing, facilitating mutual cooperation in the internationalisation of training.

Box 16 shows the actions necessary to make mobility attractive during the PDI training period, in other words, in post-graduate training and aimed at both students and institutions.

The actions, in the various stages of the professional career of PDI, should be aimed at improving the current offering in both economic terms and from the versatility standpoint, tailoring them to personal projects. For this purpose, it will be necessary:

- To adapt the evaluation processes to the activity and functions of the PDI.
- To facilitate processing of authorisations and permits for the mobility of researchers in the various stages of their professional careers.
- To foster temporary two-way mobility between research bodies and companies.
- To facilitate the acceptance of researchers from other countries through the transposition of the Scientific Visa Directive.

It makes particularly good sense to underpin the measures to support the mobility of university researchers, when it comes both to visiting staff and to improving the results of involvement in mobility programmes, thereby promoting the «*Euraxess: Researchers in Motion*» portal. It will also be vital to promote the use of mobility indicators, with statistical analyses that allow comparison between programmes and indicate the flows in Europe, to help guide decisions based on universities' priorities and strategies.

2. UNIVERSITY STUDENTS

Students must be the centre of the learning process in a perspective of continuing education in the university sphere and must be seen as active players in the educational process, ensuring participation and representation.

Students' rights include "*guidance and information from the university regarding the latter's activities affecting them*"[75]; it is considered to be a model that combines hard work, learning of content with strategic value, professional skills, development of pro-active approaches, initiative and entrepreneurial capacity. The system of grants, subsidies and loans, in cooperation with the regional governments, must guarantee fair access to higher education and must foster equal opportunities.

This strategy nurtures the quality factor in integrated training, services and student-care programmes (sports, language-related, voluntary services, mobility, etc.). **Students must be the centre of the learning process in a perspective of continuing education** in the university sphere and must be seen as active players in the educational process, ensuring participation and representation.

The student-care **services and programmes help optimise the learning process**, as well as students' personal, social, cultural and cognitive development. Actions must be implemented within the sphere of integral care for students in all stages and all the various profiles. The university must provide its students with the knowledge and skills necessary to identify, choose and/or redirect training or professional alternatives, in line with their potential and with their life project.

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[75] The Universities Act 2001 (article 46 c); Royal Decree 1393/2007, of 29 October, concerning the Regulation of Official University Studies.

2.1. THE UNIVERSITY STUDENT CHARTER: REGULATORY PROCESS

Article 46.5 of the Universities Act 2001 provides that "the government shall approve a charter for the university student, which must envisage the constitution, functions, organisation and operation of a University Student Council as a collegiate body for student representation, attached to the ministry to which university competencies are assigned. The regulation of the University Student Council shall entail student representation from all universities and, in the event, adequate participation of representatives of the regional student councils."

The EHEA considers that students must be active agents in their learning and training process through their own dedication, participation and involvement in the learning processes, placing students at the centre of university education. This is why it is necessary to have an institutional framework defining participation in academic life, university life in general and in the governance of universities in particular. This need has led to the drafting[76] of the University Student Charter (*Estatuto del Estudiante Universitario* - EEU) which contains the agreements reached by all stakeholders. The Charter establishes the composition of the State University Student Council (*Consejo de Estudiantes Universitario del Estado* - CEUE).

The launch of the Student Council established a direct representation channel between students, similar to the one between rectors and the regional governments through the University Council and the General University Policy Conference, which will strengthen their role in the Spanish university system. This representation body, with institutional visibility. will open up a parallel and supplementary communication channel to that of the student associations; in other words, it will be part of the framework to debate policies to modernise and develop European convergence.

There are international references to the importance of the involvement of students in both the Bologna Declaration and the Prague Communiqué (2001), where the ministers insisted on the "*involvement of universities and other higher education and student institutions, as competent, active and constructive partners in the establishment and shaping of the EHEA.*" Subsequently, the Berlin Communiqué (2003) considered the role of students in the public governance of higher education at all levels, expressly recognising that «*Students are full partners higher education governance.*» Furthermore, the London Statement (2007) re-asserted the importance of the involvement of stakeholders for the success of the convergence process, and the importance of preparing students for life as active citizens of democratic societies. Lastly, delegates at the Ministerial Conference in Leuven (2009) highlighted the need to work with students to help them develop the necessary skills to become active and responsible citizens.

The concept of participation in governance activities through the Student Council and at the universities themselves is linked to the training process since it empowers these students for future social or political representation activities.

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[76] It began in July 2009. Involved in its creation were associations and confederations of students from the State, State Conference of University Ombudsmen (*Conferencia Estatal de Defensores Universitarios* - CEDU), the Conference of Rectors of Spanish Universities (Conferencia de Rectores de las Universidades Españolas - CRUE) (in conjunction with the University Network of Student Affairs (*Red Universitaria de Asuntos Estudiantiles - RUNAE)* and the Standing Committee of University General Secretaries (Permanente de Secretarios Generales de Universidades), institutions linked with disabled persons and others who might make individual contributions.

Box 17

Composition of the National Council of University Students *(Consejo de Estudiantes Universitario del Estado,* CEUE)[77]

Chairman: the Minister of Education

First Deputy Chairman: the Secretary General for Universities

Second Deputy Chairman: a student elected by the Council and the Secretary to the Directorate General for University Education and Guidance.

Members appointed by the Chairman

Five members will be appointed by the Chairman of the Council from among reputable figures in the field of higher education who are or have been members of the governing councils of universities or student organizations. At least one such member must be an expert on especially underprivileged and/or vulnerable groups.

Representations:

- A student representative for each public or private Spanish university

- University students representing confederations of associations having a presence on the National Education Council *(Consejo Escolar del Estado)*

- Up to three university students representing federations, confederations and associations that, while having student members of the student council or governing council in at least six universities and three Devolved Regions, do not have a presence on the National Education Council.

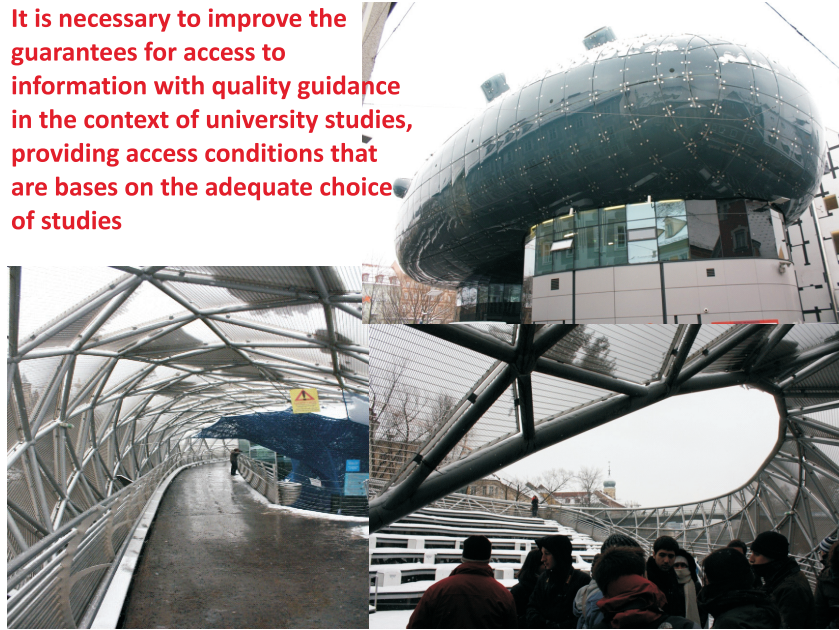- Representatives of Devolved Regional student councils in existence at the time

The **Charter's aims** are:

1. To establish methods and levels of intervention by students in the regulation of services and the governance of universities, both at each specific university and State-wide.

2. To guarantee students the right to be consulted or considered as a user (entitled to express opinions and to vote in relation to the quality of services) and to participate in university life.

3. To back the constitution of the CEUE with the participation of a representative.

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[77] Defined on 04/03/2010

GUIDANCE AND INSERTION

It is necessary to improve the guarantees for access to information with quality guidance in the context of university studies, providing access conditions that are bases on the adequate choice of studies

Part of the axis of university students, in the personal sphere is "*Guidance and Insertion*"[78]. This guidance will be open to all citizens with talent and willing to study; it will be a core element to generate opportunities, fairness and social cohesion. It is necessary to improve the guarantees for access to information with quality guidance in the context of university studies, providing access conditions that are based on the adequate choice of studies.

Similarly, it is necessary to underpin students' transition processes, providing welcoming, support, information and guidance services during students' first year of university studies, and information, training and vocational and academic-professional guidance throughout their studies and after graduation. Table 12 shows the information, guidance and support programmes offered to students which are centred around the areas of undergraduate and graduate care, tutorial action and tutor training (professors and students), as well as actions related to the University Student Charter.

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[78] The Universities Act 2001 (known by its Spanish initials as LOU), article 46 c) states that students are entitled to receive "*the orientation and information from the University regarding those of its activities which affect them.*" Royal Decree 1393/2007, of 29 October, concerning the Regulation of Official University Studies.

Action Programmes with University Students in the EU2015	
Guidance and professional insertion	**Student Charter**
• Creation of the Students Portal and Student Life Observatory. • Development of agreements with universities and regions to foster implementation of tutorial systems in bachelor's degree level studies. • Development of agreements and invitations to participate in projects to foster action programmes in the sphere of academic-professional guidance and employment insertion. • Cooperation agreements with alumni associations to foster a communicative and associative network and to develop professional careers. Basically, cooperation in professional guidance, training and qualifications, international and institutional cooperation. • Cooperation with the National University Network for Student Affairs (*Red Nacional Universitaria de Asuntos Estudiantiles* - RUNAE) to implement public student policies. • Cooperation with and support for universities to boost student- and graduate-care services. • Cooperation with the National University Network for Student Affairs (*Red Nacional Universitaria de Asuntos Estudiantiles* - RUNAE) to implement public student policies.	• Approval of the Royal Decree concerning the University Student Charter • Implementation and development of the Royal Decree • Constitution of the University Student Council • In the sphere of **participation** - To define policies on student participation. To establish specific participation spheres and styles. To promote knowledge of the areas, bodies, timing and possibilities of participation. - To establish the mechanisms for recognition of participation. - To call for applications for subsidies for Youth Associations and Student Federations and Confederations nationwide. - To offer training in participation, university policy and governance • Improvement in the participation of the entire student community through new technologies for consultation and participation and, therefore, by aiming to "introduce new ICT technologies to boost participation and consultation.

Table 12. Action programmes to be implemented with university students in the EU2015

Information, guidance and support to students	
Undergraduate and Graduate Services	• Vocational guidance requirements in the period prior to university studies to aid decision-making and the resulting development of students' professional and life project. • Personal, academic and social guidance requirements when students start university to help them adapt and adequately choose their studies. • Academic-professional guidance requirements to improve performance and help students stay the course at universities. • Professional guidance requirements when students complete their studies to help them enter the labour market, acquire skills to guarantee quality insertion and follow -up monitoring and advice during their professional careers.

Tutorial Action	• To accompan y students in adapting to the new educational context and university qualifications.
	• To help them take full personal and professional advantage of:
	   - learning,
	   - available resources,
	   - personal skills,
	   - integration in academic life,
	   - monitoring and improvement of academic performance,
	   - guidance with regard to study itineraries,
	   - advice on grant and mobility programmes,
	   - professional prospects,
	   - skills training,
	   - fostering university participation, etc.
	• To facilitate the transition to the labour market and to life-long learning.

Table 13. Training programmes and guidance in actions to aid students

Student services and programmes must respond to their needs and demands and should be devised to adapt constantly to the requirements at any given time from a dynamic and changing standpoint.

Proposal of university students' participation and actions within the EHEA framework	
Participation	**Actions implemented**
• University governing bodies. • Definition of strategic projects, including International Campus of Excellence programmes. • Cultural, sporting, voluntary and other associations. • University Student Councils. • Design of syllabus. • Quality assurance processes. • Integral student training. • Institutional areas: entities, elections, institutional representation spheres. • Back-up tutorial processes and help for students with special educational needs.	• Definition of policies for student participation. • Establishment of spheres and styles of participation. • Information concerning the institutional reality with areas, bodies, timing and possibilities of participation. • Establishment of mechanisms to recognise participation. • Definition of institutional backing for the different participation mechanisms. • Call for grant applications for youth associations and student federations and confederations. • Training in participation.

Table 14. University Student Participation in EHEA and actions implemented by the Secretariat General for Universities *(Secretaría General de Universidades - SGU)*

Spanish universities devote substantial effort and resources to developing integral student services and programmes, which translates into the continued improvement in information and guidance systems in the various stages of their education (pre-university, on enrolment, during university education, on completion, graduates and alumni), and the various profiles (disability, interculturality, excellence, equality, etc.).

In the efforts to improve the connection between the universities and society, alumni associations must develop continuous feedback systems to enable them to tweak programmes aimed at bachelor and master students and to continuously enhance quality.

Sometimes, these student care processes translate into fragmented structures[79] which require close coordination and a cooperative working method between the various organic units with competencies in student and graduate services.

The new scenario envisaged by the EHEA makes it necessary to promote the use of new technologies to increase participation, with an emphasis on innovative ventures like opinion and suggestions forums, blogs, e-voting, etc. It also means that students must be more active in the classroom, which will in turn require a process of revamping and modernisation, and they must be able to adopt a proactive approach to their own education, through permanent and applied work in tutorials and with the permanent advice of professors.

UNIVERSITY STUDENTS' MOBILITY

There are a number of studies showing that a placement abroad for university students not only enriches their lives in academic and professional terms, but can also help improve their learning of languages, their intercultural skills, their autonomy and their self-awareness. These experiences give students a better idea of what it means to be a European citizen. Furthermore, many companies welcome university graduates who have had placements abroad, and they therefore also boost their employability. This mobility has equally beneficial effects on the participants and on the receiving homes and institutions.

This is why policies developed in the *Estrategia Universidad 2015* have strengthened the various facets of university student mobility programmes. Foreign placements for studies and practical experience, the duration of which various according to the different programmes, are being increasingly promoted. Moreover, students with special needs, such as physical disabilities, may obtain additional funds to help them cover the extra costs linked to a placement abroad.

There is updated information (in Spanish) on all the student mobility programmes on the Ministry of Education's website[80]. The website contains information about each of the programmes: description, modalities, recipients, number of grants, requirements, amount, duration, how to apply, destinations, information on the evaluation and selection of candidates, incompatibilities, etc. Also available for download are the application instructions, the documentation required and the delivery location.

Because of the difficulty often experienced by persons wishing to participate in these kinds of mobility programmes, there is a dedicated section of the website with full contact details and list of FAQs for persons who need help.

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[79] University Information and Guidance System (*Sistema de Información y Orientación Universitaria* - SIOU), Guidance and Information Centres for Employment (Centros de Orientación e Información para el Empleo - COIE), Disabled Persons' Services (Servicios de Atención a Personas con Discapacidad - SAPDU), Psychological Services (Servicios de Atención Psicológica - SAP), Alumni Services, etc.
[80] http://www.educacion.es/horizontales/servicios/becas-ayudas-subvenciones/movilidad/de-estudiantes/master/movilidad-alumnos-master

Grants and Subsidies for Student Mobility	
Bachelor (grado), diplomatura and licenciatura degrees	• Mobility for university students • European Comenius Programme. Comenius assistants • Seneca grants for university student mobility • International or cross border mobility: - for training placements at companies for students and graduates (FARO and ARGO-EDU) - supplementary contribution to the EU's Erasmus programme (ER-EDU)
Master's degree students	• Student mobility in official university master's-level studies for the academic year 2010/2011 • Award of grants and subsidies to university students for general purposes and mobility • European Comenius Programme. Comenius assistants • Grants for US master's programmes • Income-contingent loan
Doctorate students	• European Comenius Programme. Comenius assistants • Quality Mention in Doctorate Programmes • Student mobility to obtain the European Mention in doctorate qualification
Non-university students	• Grants and subsidies to students in non-university post-compulsory education • Programme for secondary pupils of German (*Alumnos Premio*)

Table 15. Ministery of Education grants and subsidies to aid student mobility

Box 18

University Student Charter (*Estatuto del Estudiante Universitario* (EEU))

Chapter I. **Object and scope of application** of the EEU for Spanish public and private universities
Chapter II. **Students' rights and duties.** Students' rights and duties come under the legal framework of the EEU, Devolved Regional law and university charters.
– Article 7 makes provision for students' **general rights.**
– Articles 8, 9, 10 and 11 govern the **specific rights** of bachelor, master, doctoral and continuing education students, students in university extension programmes and informal education and training, respectively.
– Article 13 makes provision for students' **duties.** A student's breach of a duty under the Charter gives rise to liability and appropriate penalties.

Chapter III. **Access and admission** to university in accordance with the requirements prescribed in article 42 of the Universities Act 2001 and Royal Decree 1892/2008 making provision for the conditions for access to university courses at the bachelor level and the procedures for admission to Spanish public universities.

Chapter IV. **Student mobility**, for which universities will offer domestic and international mobility programmes for academic education and training and other areas of integrated education and training, for final-year bachelor and master dissertations, and for work placements outside academia.

Chapter V. **Tutorial** aspects. Students are to receive horizontal guidance and monitoring regarding their qualification itinerary.

Chapter VI. **Academic programming and student assessment in courses leading to officially recognized qualifications**. Students are entitled to become extensively familiar with academic programming prior to enrolment. Each student will have an academic tutor and a career tutor, and universities must assure the quality of this tutorial care.
– Article 25 makes provision for the assessment of a student's learning achievements. Among other things, this statutory item defines the entitlement to an assessment review procedure, specifies methodological adaptations applicable to disabled students, and makes provision for respect for intellectual property and copyright and for bachelor and master's level final-year dissertations. Doctoral theses are governed by specific provisions of their own.

Chapter VII. **Academic programming and student assessment in courses not leading to officially recognized qualifications**.

Chapter VIII. **Student participation and representation**. Students sitting on governing organs or exercising other representative functions represent students undertaking study towards official qualifications. Parity and participation in student representation by disabled students must be abided by.
– Articles 36 and 37 make provision for student representatives' rights and duties.
– Article 38 makes provision for student participation and the creation of student societies, federations and confederations.
– Article 39 makes provision for participation in national and international organizations.

Chapter IX. **Student grants and aid**. Central Government, the Devolved Regions and universities must assure pro-grammes of grants and aid and their coverage in certain situations. The Council of University Students (*Consejo del Estudiante Universitarios*) will take part in the design of such programmes. A mechanism is put in place to raise means-testing thresholds if the number of grant recipients falls below the figure for the previous year.
– Article 43 assures student participation in the University Observatory on Grants, Aid and Academic Performance.

Chapter X. **Support for active university coexistence and co-responsibility**. The university rector is the officeholder in charge of decision-making on this regime.
– Article 46 establishes the organizational structure of universities and introduces the figure of the university ombuds-man.

Chapter XI. **The National Council of University Students**. This is the senior organ of debate, consultation and repre-sentation of university students with regard to the Ministry of Education; its activities will integrate with the frame-work of the Ministry having powers in university-related matters via the Secretariat General for Universities. This sec-tion of the statute prescribes the composition and rules and regulations of the Council.
– Articles 51 to 60 govern the role of Council members.

Chapter XII. **Students' sports activities**

Chapter XIII. **Education in values**

Chapter XIV. **Students' social engagement and cooperation for development activities**

Chapter XV. **Care for university students**
– Article 66 makes provision for university accommodation services.

Chapter XVI. **Alumni associations**

OVER-QUALIFICATION AMONG UNIVERSITY GRADUATES

University policies, along with the rest of economic policies in the country, must strike a balance between universities and the economic fabric to prevent the jobs obtained by university graduates being significantly below the skill level afforded by their education. There is increasing dispersion in the returns to post-graduate education in Spain, and one pos-sible cause is the increase in over-qualification. The fact that people (as often happens at present) are over-qualified, in cer-tain jobs, generates job dissatisfaction and diminishes the economic returns of education.
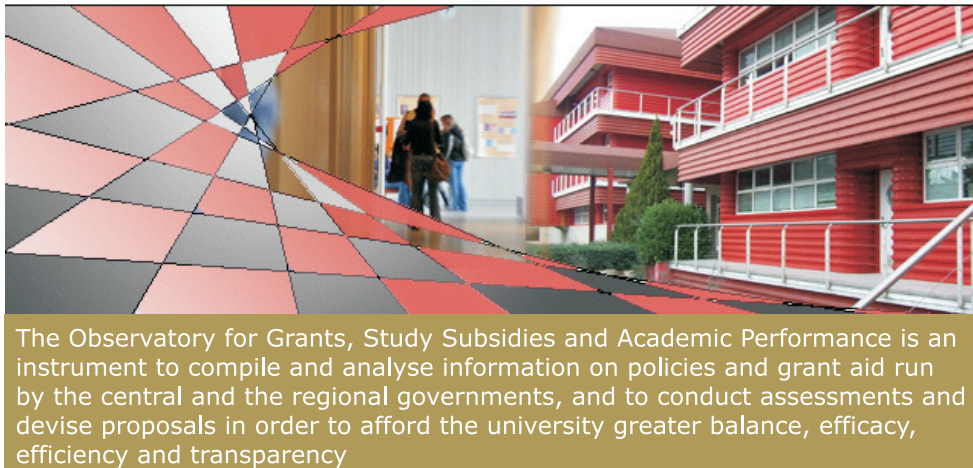
Sometimes, young people have to gain a foothold in the labour market through jobs that are well below their level of qualification if they are to have any chance of finding employment and acquiring experience. Occupational mismatching occurs mainly among people with university qualifications since there are fewer jobs for them and also because the most senior jobs are more specific and complex.

We can define three categories of graduates based on job suitability:
– those who work in a graduate job (suitably matched)

– those who are not in a graduate job but are satisfied (apparently over-qualified)
– those who are not in a graduate job and are dissatisfied (over-qualified)

The last two types are those we must consider in our policies, although the category that should raise most concern is that of dissatisfied and over-qualified graduates. The average of OECD countries presents a higher rate of dissatisfaction among university graduates than among persons holding advanced secondary education qualifications, especially shortly after graduation. The percentage of university graduates working at a lower professional level in the average of OECD countries was 23% in 2007 (21% in 2003). In Spain's case, it was 44% in the first quarter of 2007 (45% in 2003). However, there are small differences within the same country when gender is taken into consideration. In Spain's case, in 2007 the percentage was 47% among men and 41% among women (in the OECD average in 2007, 22% of women and 23% of men were working below their professional level).

The Observatory for Grants, Study Subsidies and Academic Performance is an instrument to compile and analyse information on policies and grant aid run by the central and the regional governments, and to conduct assessments and devise proposals in order to afford the university greater balance, efficacy, efficiency and transparency

2.2. GRANT AND SUBSIDIES OBSERVATORY

The Observatory for Grants, Study Subsidies and Academic Performance (*Observatorio Universitario de Becas, Ayudas al Estudio y Rendimiento Académico*) is an instrument to compile and analyse information on policies and grant aid run by the central and the regional governments, and to conduct assessments and devise proposals in order to afford the university greater balance, efficacy, efficiency and transparency.

STUDENT GRANTS AND SUBSIDIES

The call for applications for grants and subsidies may be seen as a contract between students and society. To guarantee the efficiency of the system, it is therefore worth combining the consideration of the grant as a right with other mechanisms to encourage students to achieve the utmost levels of social commitment, for example, in the form of supplementary funds to reward effort and excellence in academic performance.

The Central Government, regional governments and universities guarantee grants and subsidies and their coverage in certain situations. The grants system envisages a broad range of grants and subsidies based on needs, raising income thresholds if the number of students receiving grants is lower than in the previous year, in a percentage[81] that ensures that the budget earmarked for income-contingent student loans does not detract from the budget earmarked for grants and subsidies. Both the Ministry of Education and the regional governments and universities fast-track the process of managing grants, guaranteeing that applications are resolved quickly.

The EU2015 aims at increasing the investment in grants, subsidies and loans in the period to foster access by the most disadvantaged groups to universities.
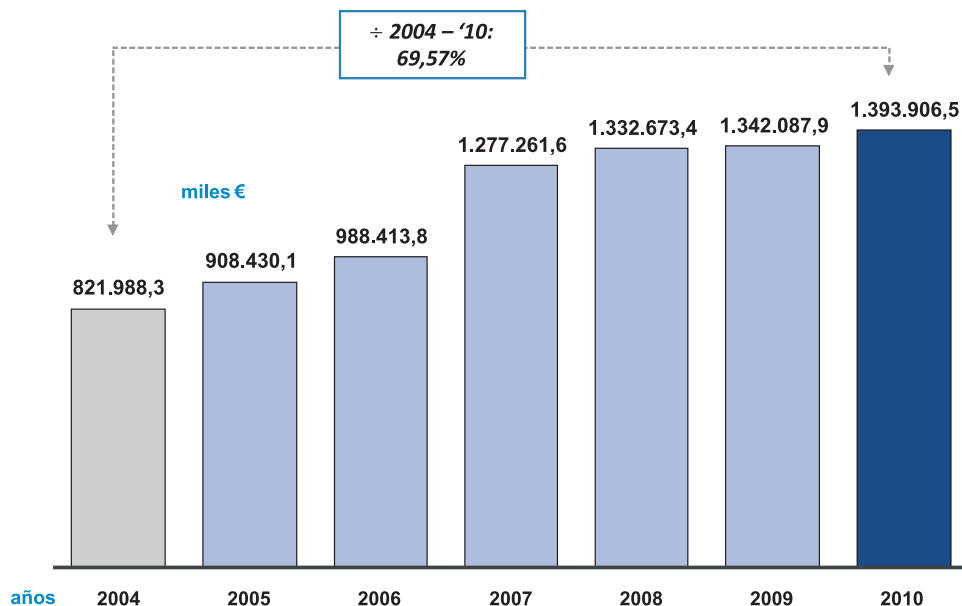
Graph 14. Loans for student grants and subsidies (2004-'10)

Political decisions are the result of a combination of evaluation criteria and empirical conditions. Accordingly, once the valuation axes on which the grants system is based have been defined, the next step is to ascertain the real conditions for their application. The Observatory aims to compile sufficient information to gauge the performance of the system affected by the variables that impact on the grants system. The Observatory will focus both on economic and on academic and sociological variables; in other words, how spending has evolved in the last few years, how it is shared out according to education levels, modalities and components of grants, by region, etc. The available data show the investment made: from 2004 to 2010 public spending on grants and subsidies increased from over 821 million euros to over 1.393 billion euros (see Chart 14 above for exact figures). These figures are for the entire Spanish education system, although the investment has been especially notable in university education.

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[81] Published in Ministerial Order of the present year (2010).

University Observatory for Grants, Studies Subsidies and Academic Performance		
Tasks		
Observatory	**Economic Committee**	**Grants Committee**
• To assess and report on grant and studies subsidies programmes at bachelor's degree, master's and doctorate level, from the central government, regions and universities. • To analyse the annual results of the programmes. • To ensure compliance with the grants and subsidies calendar. • To encourage development of a normalised and integrated information system. • To analyse academic performance and propose measures for improvement. • To evaluate fairness, efficiency and transparency. • To ensure full accountability to society.	• To draw up recommendations and sponsor agreements for improvement. • To foment measures for accountability and good governance. • To encourage, promote and guarantee the development of homogeneous measurement systems. • To draft recommendations and foster agreements that are necessary as part of its function. • To foster and encourage development of an integrated information system to facilitate the compilation of information needed by the UTOU.	• To seek formulae that speed up procedures. • To promote and encourage creation of a census with data to be reviewed annually. • To promote the provision to students of a swift and updated information system. • To devise recommendations and foster the necessary agreements. • To promote research that analyses academic performance and its causes. • To devise recommendations to improve academic performance. • To foster and encourage the development of an integrated information system.

Table 16. The observatory's functions and the committees of which it is comprised

However, it is not enough to plough in greater resources unless they are accompanied by measures to boost efficiency. In a recent report[82] issued by the European Commission's General Directorate for Economic and Financial Affairs indicates that the efficiency of university financing systems is more closely related to outputs (e.g., the number of graduates or scientific production) than with inputs (the student-to-lecturer ratio). These parameters are not the only ones to take into account, and in measuring efficiency it is vital not to lose sight of the aspiration to achieve greater levels of fairness.

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[82] Aubyn, M.; Pina, A.; Garcia, F. and Pais, J. (2009) *Study on the efficiency and effectiveness of public spending on tertiary education*. http://ec.europa.eu/economy_finance/publications/publication16267_en.pdf

Box 19
Actions by the University Observatory for Grants, Study Subsidies and Academic Performance

Setting up the Observatory and giving it a structure. In the structure, it is worth distinguishing between the political-institutional sphere and the technical area. In the technical sphere, actions will be implemented to fulfil the Observatory's objectives, according to the functions set forth in its incorporating Royal Decree*, and that of its Committees. A proposal for possible projects to be undertaken by the committees includes[83]:

Efficiency, Efficacy and Accountability Committee:

- Proposal of a document including an analytical General Public Accounts Plan adapted to universities, allowing comparison.
- Definition of a set of economic indicators regarding the grants system
- Request, compilation and processing of information relating to the indicators.

Grants, Study Subsidies and Academic Performance Committee:

- Creation of an inventory of all grants and subsidies to the university system and development of an information system.
- Analysis of the social impact of grants: student profiles depending on sociological variables, combination of work and studies, etc.
- Analysis of the impact of the grants policy on academic performance: average time to complete studies, academic results, drop-out rates, etc.
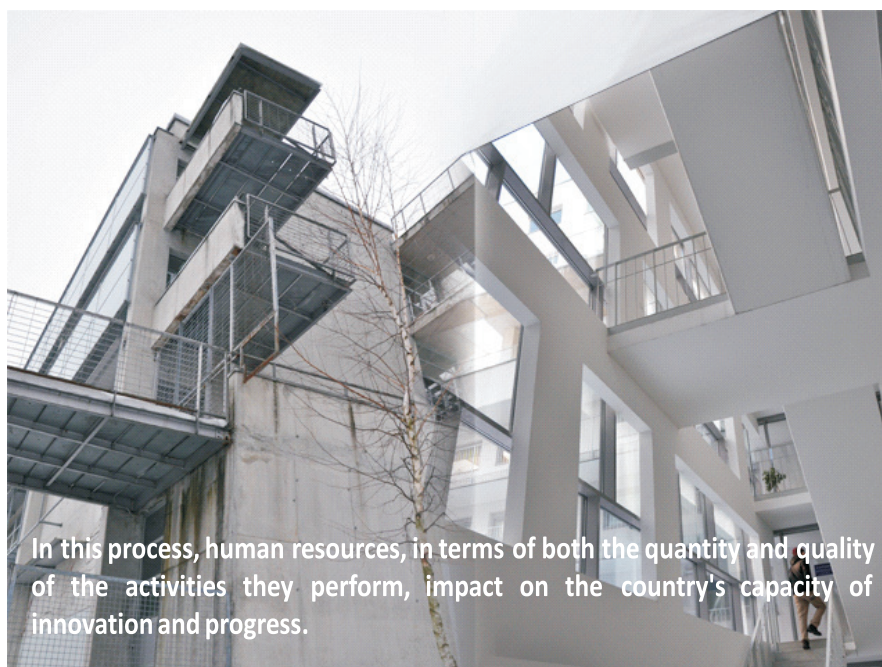
* At the time of drafting the report it is pending publication

The Observatory for Grants, Study Subsidies and Academic Performance, belonging to the Ministry of Education's Department of Universities, is a collegiate body comprising representatives of the University Council and the General University Policy Conference, social and economic stakeholders and students. The structure of the Observatory will comprise the Efficiency, Efficacy and Accountability Committee, and the Grants, Study Subsidies and Academic Performance Committee[84].

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[83] *Operating Protocol of the University Observatory for Grants, Study Subsidies and Academic Performance.*
[84] The Observatory will operate in Plenary Session and Standing Committee, and will have a permanent secretary who will be the Deputy Director General of Analysis, Research and University Prospection.

3. ADMINISTRATIVE AND SERVICES PERSONNEL (PAS)

In this process, human resources, in terms of both the quantity and quality of the activities they perform, impact on the country's capacity of innovation and progress.

The success of an innovation system is based on the optimum operation of its elements and sub-systems (companies, public R&D system, administration, support organisations and environment). To achieve success these elements must all interact adequately. In this process, human resources, in terms of both the quantity and quality of the activities they perform, impact on the country's capacity of innovation and progress.

Table 17 shows the number of people working at the various Spanish universities and the training level and type of contract in the case of public universities; for them to work properly there must be a balance between the academic personnel and the administrative and services personnel. At public universities 65.7% are PDI and 34.3% PAS.

Academic year 2007-08				Universities	
	Public			Private	Total
	Civil servants	Recruited	Total		
No. of PAS	29,067 (+5.2%)*	21,561(-0.8%)*	50,628	5,146	55,774

Academic year 2007-08 Public universities		
Training level	**Group A and contract type I**	**Group C and contract type III**
No. of PAS	5,246 (10.3% of the total)	21,179 (41.6% of the total)

Table 17. Breakdown of PAS at Spanish universities in the academic year 2007-2008

3.1. PAS AND THE IMPROVEMENT IN EFFICIENCY AT UNIVERSITIES

It is not possible to design a model for modernising universities without implementing actions to support the professional careers of administrative and services personnel. This group must be involved in designing improvements, in order to help boost the efficiency of the Spanish university system as a whole. The actions to be implemented at universities include:

1) **Improvingthe PAS-to-PDI ratio.** The recruitment of administrative and services personnel at universities should be aimed, among other things, at boosting capacities directly linked to support services for innovation and teaching support relating to the new learning-teaching model within the framework of the EHEA. The PAS-to-PDI ratio must grow by promoting employment linked to higher vocational training. This would aid recognition of this educational standard, not only in the professional spheres of productive sectors, but also in university education activities. Incentives must be introduced to recruit technical professionals with vocational training (*Formación Profesional* - FP) related to the implementation of the EHEA in all three levels: bachelor's degrees, master's degrees and doctorates.

2) **Improving the professional qualifications** of administrative and services personnel. For this purpose it is fundamental to progress in the specification of PAS job descriptions throughout the university system. Persons belonging to PAS groups A1 and A2 represent less than 25% of the total (10% group A1). This indicates the need for PAS career programming (training, professional recycling and mobility), linked to the vision of a university that is more modern, international and highly diversified in terms of its functions and missions.

Administrative and services personnel often have more training than corresponds to the activities they perform, due to the lack of adaptation of job descriptions to new requirements, and at the same time there are teaching and research staff performing tasks which should be performed by the right administrative and services personnel. Accordingly, a two-pronged productive inefficiency is being fomented, which, at the same time, impacts on the level of professionalisation at Spanish universities.

3) **Functional reconfiguration of the current workforces**, **boosting levels of flexibility and adaptability** envisaged in the current job descriptions, as well as a mobility programme among universities in the same region, in order to rationalise workforces, and among universities of different regions, within the framework of training programmes.

4) **Job descriptions for PAS** providing services in specific university research activities. This situation, envisaged by the future Law on Science, Technology and Innovation, is aimed at improving the professional careers of technical personnel focused on management tasks and scientific-technological support for research groups. For this purpose, it is necessary to take into account the costs incurred by improvements to mobility, participation in research projects based on methodological and technological development and life-long learning.

Mobility of non-teaching education staff

As is the case for teaching and research staff and university students, there are also grant and subsidies programmes for non-teaching education staff. The need for mobility in this group stems from the fact that they manage R&D at universities and they must be familiar with the best way to transfer technology and manage university Offices for the Transfer of Research Findings (*Oficinas de Transferencia de Resultados de Investigación* - OTRIS). To maximise profitability, it is vital to know how this transfer is performed in other countries. Furthermore, they must also implement quality assurance indicators at universities which must be in line with the indicators in place in other countries.

Grants anzd subsidies to aid mobility among non-teaching university staff
• European Grundtvig Prrogramme. Visits and exc hanges
• European Comenius Programme. Help for lifelong learning among educational professionals.
• European Grundtvig Programme. Help for lifelong learning among adult education professionals.
• European Grundtvig Programme. Grundtvig Assistants.
• European Comenius Programme. Comenius Assistants.

Table 18. Ministery of Education subsidies to aid mobility among non-teaching university staff

Box 20
Administrative and Services Personnel (PAS)

Public Universities

There are two kinds of administrative and services personnel at public universities: civil servants and recruited personnel. These two categories are defined in **Law 7/2007, of 12 April, concerning the Basic Charter for Public Employment.** The classification is based on the qualifications required for their hiring, according to three main groups:
• Group A, (sub-groups A1 and A2). They are required to hold a bachelor's degree, although other university qualifications may be taken into account. Access to specific corps and sections of each sub-group depends on the level of responsibility of the tasks to be performed and the characteristics of the entry exams.
• Group B. Candidates must hold a higher technical professional qualification (*Técnico Superior*).
• Group C (sub-groups C1 and C2). For access to sub-group C1, advanced secondary education or technical certificate is required, and for access to sub-group C2, candidates must hold the certificate of compulsory secondary education.

As well as the aforementioned classifications, there are *other different groups*, access to which does not require any of the qualifications offered in the education system.

The existing classification groups belong to the professional civil servants' professional classification groups, in accordance with the following scale of equivalence:

Group A: Sub-group A1	Group B: Sub-group A2
Group C: Sub-group C1	Group D: Sub-group C2
Group E: Other Professional Groups without qualification requirements	

The civil service PAS includes both career civil servants and temporary civil servants. In the case of universities, recruited PAS are classified according to the collective bargaining agreement governing each university. Since public universities do not have a single agreement for all recruited personnel, they are classified in accordance with the qualifications required for entry thereto.

Private Universities

Among PAS at private universities there are four general sub-groups of non-teaching staff:
- Sub-group 1, Qualified personnel. This includes mid- and higher-level VT graduates.
- Sub-group 2, Research personnel. This includes leading researchers and research assistants.
- Sub-group 3, Assistant and administrative personnel. This includes the categories of residence guidance provider, residence security personnel, chief clerk, clerk, IT technician, IT expert and IT operator
- Sub-group 4, Miscellaneous. This includes lab technicians, lab assistants, library assistants, general services personnel, ancillary clinic personnel, ancillary personnel and apprentices hired for training.

These sub-groups are defined by the *"Fifth National Collective Bargaining Agreement for Private Universities, Private University Centres and Post-Graduate Training Centres"*.

Private Universities run by the Church

Among PAS corresponding to private universities run by the Church there are five sub-groups of non-teaching general personnel:
- Sub-group 1, Qualified Personnel. This includes mid- and higher-level VT graduates.
- Sub-group 2, Research Personnel. This includes researchers, research collaborators and research assistants.
- Sub-group 3, Administrative Personnel. This covers three areas: a) Administration – senior manager, chief clerk, clerk, ancillary personnel, in training, b) Data processing – analyst, programmer, operator, in training, webmaster, IT architect, web designer and others, and, c) library – librarian, qualified library assistant, in training, library assistant: service manager.
- Sub-group 4, Service Staff. There is a distinction between orderly, porter or caretaker, security guard, cleaner, telephonist, in training;
- Sub-group 5, General Services Staff. This includes the following sub-categories: general services manager, technical specialist in trades, chief driver, driver, chief ancillary trades or laboratory clerk, ancillary trades or laboratory clerk, ancillary services or laboratory assistant, general services ancillary personnel, barman, library and reprographics ancillary personnel, gardener, cleaning service personnel, in training.

These sub-groups are defined by the "*Twelfth State Collective Bargaining Agreement for University Education and Research Centres*".

AMBITS, STRATEGIC AXES, OBJECTIVES AND COMMITTEES			
Ambit	**Strategic Axis**	**Lines of Action**	**EU 2015 Objectives**
PEOPLE	**TEACHING AND RESEARCH STAFF**	ACADEMIC STAFF CHARTER	• Preliminary agreement for adoption of the draft Academic Staff Charter by the Sectorial Bo ard University Sector Panel [*Mesa Sectorial de Universidades*] • Parliamentary passage of the draft paper as a Royal Decree and subsequent enactment • Horizontal career development for academic staff • Develop academic staff mobility policy • Propose improvements to the various types of assessment of civil-servant academic staff performance
	UNIVERSITY STUDENTS	UNIVERSITY STUDENT CHARTER	• Enact the University Student Charter • Create the National University Student Council • Develop a system of student involvement via electronic voting • Create a technical committee to draw up regulations on university discipline
		SOCIAL DIMENSION	• Develop a grants and aid model consistent with the new EHEA • Improve and update domestic and international mobility grants • Implement the University Accommodation Plan and improvement of residential grants
		GRANTS AND AID OBSERVATORY	• Create the Grants, Aid and Academic Performance Committee (cbara) • Create the Effectiveness, Efficiency and Accountability Committee (CEERC) • Review of the architecture of university grants: means-testing ceilings and components • University grant impact assessment • Development of academic performance and excellent incentives
	ADMINISTRATIVE AND SERVICE STAFF	ADMINISTRATIVE STAFF CHARTER	• Develop incentives and programmes in support of the domestic and international mobility of administrative staff • Propose an administrative staff career path aligned to the needs of implementing the EHEA and the ERA

CHAPTER IV
Capabilities

CHAPTER IV
Capabilities

The new university institution needs more agile, flexible, professional and adequately resourced management systems able to provide higher transparency and fuller information on expenditures. We must improve university governance systems so as to accommodate all stakeholders and so make of the university a space shaped by and for everyone.

The new university institution must be internationally visible, attracting the foremost academics and scientists on the international circuit and the most talented students: the professionals of the future. *Estrategia Universidad 2015* accordingly undertakes the restructuring of the present funding model so as to safeguard the principle of social cohesion that underlies the ideal of education. A quality assessment system assuring the objectivity of individual and collective assessment procedures stands as guarantor of the functioning of the university system as a whole; therefore, *Estrategia Universidad 2015* envisions actions towards improving present procedures. The facet of strategy that concerns capabilities is aimed at reinforcing research and innovation capacity in Europe by acting on university funding, governance, internationalization, assessment and communication.

These steps seek to optimize the use of the leading Spanish and European research facilities so as to create new and increasingly relevant infrastructure. The capability for innovation of Spanish SMEs is also to be reinforced by linking them to university and research institute research and development capabilities. We need to support the development of regional research-focused clusters formed by universities, public research institutes, enterprises and regional authorities.

In the capabilities ambit, *Estrategia Universidad 2015* is concerned to bolster research excellence in the regions and stimulate the integration of scientific and technological endeavours and research policy with Spain's social and cultural fabric. The strategy is directed to improve the effectiveness and coherence of national and Community research policies, their interaction with other policy areas, and the impact of public research on industry. This strategy encourages international cooperation both within the EU and with third countries in research so as to support European competitiveness and address specific worldwide issues.

1. THE FUNDING OF SPANISH UNIVERSITIES (2010-2015)

Improving and monitoring university funding policy to promote academic excellence and boost the socio-economic impact of the Spanish university system (SUE)

The paper titled *Mejora y seguimiento de las Políticas de Financiación de las Universidades para promover la excelencia académica e incrementar el impacto socioeconómico del Sistema Universitario Español (SUE)* ("Improving and monitoring university funding policy to promote academic excellence and boost the socio-economic impact of the Spanish university system (SUE)") relating to the *Estrategia Universidad 2015* initiative was presented[85] as a transversal vector cutting across the Spanish university modernisation project. The paper calls for the creation of a joint committee[86] with the role of issuing diagnoses and specifying an action plan capable of introducing improvements on an immediate basis.

The intention of the Government of Spain to improve education in general and the funding of the Spanish university system in particular –as required to bring to completion the adaptation of university qualifications to the new European Higher Education Area– faces the challenge of world economic recession. The financial improvements under the new fund-

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[85] Joint session of the Universities Council and of the General Conference for University Policy, 26 April 2010.
http://www.educacion.es/dctm/ministerio/educacion/universidades/educacion-superior-universitaria/finaciacion/2010-documento-financiacion.pdf
[86] The Joint Funding Committee, created in September 2008, comprises two university representatives drawn from the Universities Council, two Devolved Regional representatives from the General Conference for University Policy, two members of the Secretariat General for Universities and two members of the Sub-Directorate General of Accounting of the Ministry of the Treasury, who are to play a coordinating role.

ing model to be specified must accordingly adapt to the 2015 time horizon, and, in some specific cases, may go beyond that horizon to 2020. However, the viability of that horizon will be determined by the growth performance of Spain's economy.

Modernization of economic and financial management

Publicly available information supporting evaluation of
- **higher education**
- **Research**
- **knowledge transfer**
- **and innovation**

Publicly available, adequate and robust information system
- **composite scorecard of effectiveness indicators**
- **composite scorecard of efficiency indicators**

Publicly available advanced management tools
- **strategic planning,**
- **accountability data,**
- **costs data,**
- **analytical accounting, etc.**

Graph 15. *Estrategia Universidad 2015* contributions to the Spanish university system towards modernization of financial management

Spanish universities are called upon to make a commitment to go hand in hand with Spain towards that shift in economic model towards a knowledge-based society, making a clear bid to create new technologies and push out the boundaries of human learning. The proposals for the new funding model must attract an initial consensus among each of the Devolved Regions before it can be set down as a multi-annual modernisation plan for the universities.

Box 21
Fields in which universities can contribute within an economic model towards a knowledge-based society

1. **Fostering of humanistic culture and the culture of science and technology.** Necessary to enable society to grasp scientific and technological achievements and developments and pass ethical judgment on them on a proper basis of understanding. This will nurture a freer and better prepared society.

2. **Training**. Citizens must be better and more comprehensively prepared to assimilate the new knowledge, capabilities and attitudes required by fast-moving, pervasive and ongoing change. Training must be reinforced specifically for key professionals for this process, such as scientists and engineers, so as to boost their contribution to technological improvement.

3. **Research, development and innovation**. The generation of research results must be reinforced, and the connection strengthened between research and social needs, the economic fabric and innovation. Both factors are essential to set in motion a virtuous circle of innovation, which fosters knowledge within the economic fabric and establishes a feedback loop between business demand and science and technology institutions.

4. **Shift in economic structure**. This action aids the improvement of existing businesses and industries that need to migrate to activities generating higher value added within their sectors, so as better to bear associated costs. The training of new professionals, technologists and entrepreneurs must be enhanced and supported. Encouragement must be given to the creation of technology-based enterprises and the entrepreneurial spirit of graduates and professionals, whose presence is essential to the emergence of a new breed of enterprises.

5. **Social cohesion**. This approach avoids inequality between rich and poor in the field of knowledge, thus facilitating equality of opportunity in higher education via appropriate support to policy on grants and aid. Domestic and international mobility of students and faculty is to be encouraged, and the supply of higher education must be improved for all ages (lifelong learning).

6. **Regional socio-economic development**. Recent research reveals that government investment in universities generates enhanced returns to regions and society, both directly and indirectly.

The improvements proposed by the funding paper referenced above include:

- Funding in line with the EU-27 average
- Coordination between central and Devolved Regional funding
- Issuance of a template financial schedule embracing all matters relating to income and expenses
- Introduction of a cost accounting model to the Spanish university system
- Making universities accountable for their undertakings to modernise, internationalise and enhance the effectiveness and efficiency of their academic and financial performance

- Promoting a social model of grants and aid directed at removing inequalities and rewarding academic performance
- Fostering a consensus among academic and social actors towards modernisation of universities
- Implementing the European Higher Education Area in such a way that the costs of improvement stay abreast with the full implementation of future bachelor and master qualifications
- Bolstering research, knowledge transfer and academic innovation via incentives for scientific, technological and innovation productivity
- Introduction of an information system

The overarching aim is to frame a funding improvement plan for the 2015-2020 time horizon, by mutual agreement between the Devolved Regions and Central Government, in exchange for an undertaking as to internal improvements in the effectiveness and efficiency of management performance, information transparency and the overall modernisation of the university system so as to place it in a position to face the new challenges posed to Spanish society amid the processes of globalisation. Table 19 summarises these proposals to improve university funding policy by dividing them into six fields so as to lend them closer coherence and greater explanatory power. These six fields call for a pact between Central Government and the Devolved Regions on the one hand and, on the other, between universities and society at large.

Proposals to improve university funding over the period 2015-2020
• Grants and aid for university studies and public tuition fees. University Observatory on Grants, Study Aid and Academic Performance [*Observatorio Universitario de Becas, Ayudas al Estudio y Rendimiento Académico*]
• Institutional financial fairness across Devolved Regions
• Human resources. New academic staff charter. Adaptation of human resource s to the European Higher Education Area. The Science, Technology and Innovation Bill [*Ley de la Ciencia, la Tecnología y la Innovación*]. Teaching and research careers. Talent attraction.
• Adaptation of university infrastructure to the European Higher Education Area (EHEA) and the European Research Area (ERA). International Campus of Excellence (Spanish "CEI").
• Research, technological development and activities in support of innovation. Incentives to science, technology and innovation.
• Efficiency and effectiveness in the management of Spanish universities. Accountability and transparency.

Table 19. Proposals under the financial improvement plan for the 2015-2020 time horizon, agreed between the Devolved Regions and Central Government
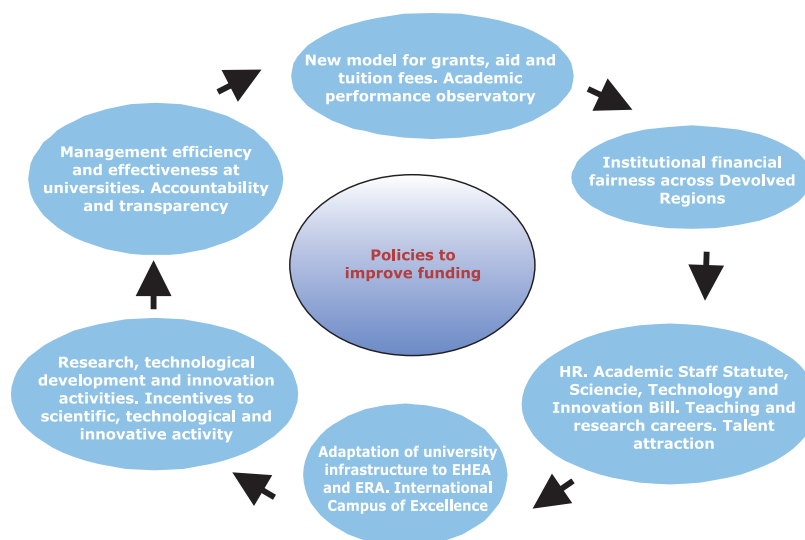
Graph 16. Proposed policy aras for funding improvement under *Estrategia Universidad 2015*

Appendix III specifies the "2010-2020 Action Plan to Implement University Funding Policy", following a report issued by the Joint Funding Committee [*Comisión Mixta de Financiación*][87] and the modernisation of SUE within the framework of *Estrategia Universidad* 2015. The plan contemplates a range of measures directed at resolving some of the issues raised in the funding paper, and to reinforce, modernise and strengthen the SUE so as to support academic excellence, raise its socio-economic impact and place it on the international footing on which it ought to stand. In this period it shall also be necessary to accelerate austerity plans at universities, supplemented by a policy of strategic rethinking in line with the new situation, which will have a considerable impact throughout the period 2010-2020.

Each proposed measure is coupled with a specific monitoring indicator so as to enable annual assessment of the progress made towards implementing the measures set out in the funding paper presented here.

Appendix III presents the austerity measures put forward in the Control Committee's paper directed to "the economic sustainability of the present university system". The document breaks down the measures into their components and objectives set by the Ministry of Education.

The Joint Committee of the Congress and Senate [the lower and upper houses of the Spanish national parliament] for relations with the Audit Court [*Tribunal de Cuentas*], at its meeting of 25 November 2009, having regard to the report submitted by that Court with respect to the audit report on public universities for 2003, urged the Government to take a series of steps in the form of 12 action points. Most of those recommendations were adopted in the document titled *Mejora y*

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[87] *Documento de mejora y seguimiento de las Políticas de Financiación de las Universidades para promover la excelencia académica e incrementar el impacto socioeconómico del Sistema Universitario Español (SUE)* [improving and monitoring university funding policy in support of academic excellence and the socio-economic impact of SUE the Spanish university system (SUE)]

seguimiento de las Políticas de Financiación de las Universidades para promover la excelencia académica e incrementar el impacto socioeconómico del SUE [improvement and monitoring of university funding policies to promote academic excellence and increase the socioeconomic impact of the SUE].

The document was agreed upon by the collegiate organs of the Ministry of Education, the Universities Council and the General Conference for University Policy at a joint plenary session on 26 April 2010.

One of the recommendations is that there be introduced a standard accounting plan allowing for uniform treatment and comparative analysis of all public universities' activities. In response, the Ministry of Education has set up a committee, chaired by the Controller General of Central Government [*Intervención General de la Administración del Estado*].

2. University Governance under Estrategia Universidad 2015

The vital question for Spanish universities today is their ability to adapt in response to societal demands in both teaching and research.

The process of modernising the Spanish university system must rely on an exhaustive review of the issues surrounding university government in a strict sense and "governance" in its broader meaning. The government of a university must assure "institutional governability" and, as a corollary, the attainment of its strategic objectives and overall role. "Governance", however, entails greater complexity and a range of distinct facets. Governance encompasses:

a. The essential concept of "university autonomy".
b The financial organisational structure of universities, impacted by the pattern of relations and distribution of powers among the Devolved Regions and Central Government.
c. The internal model of university structures, by which duties and responsibilities are allocated (departments, centres, faculties, university institutes, university hospitals, foundations, etc). Some models may include independent juristic persons controlled by the university and other bodies falling within what might be termed the "university group".
d. The organisation of research and academic innovation.
e. Institutional relations in strategic campus projects, such as alliances among institutions operating within the Knowledge Triangle (International Campus of Excellence).

Box 22
Constitutional basis of Spanish public universities in the realm of "university government"

The Spanish Constitution of 1978, article 27 (10), treats universities as institutions endowed with autonomy. Moreover, the preamble of the Universities Act 2007 *[Ley Orgánica de Universidades4/2007,* "LOMLOU"] clearly indicates that the amendment made under that statute is directed to reinforce university autonomy, counterbalanced by increased accountability. Article 2 of the Act thus provides that, "universities are endowed with legal personality and pursue their objects under a regime of autonomy and of coordination among all universities." Subparagraph 2.1 exhaustively specifies the scope of university autonomy as follows, such that universities may:

- draw up their own governing charters (basic institutional rules);·
- elect, replace and remove organs of governance and representation;·
- create specific teaching and research and development structures (university structure);·
- determine curricula;
- develop teaching and research staff;
- make the rules of admission, continuing enrolment and verification of knowledge acquired by students;
- award official qualifications; draw up, adopt and manage their own budgets;
- stipulate their lists of job positions;
- and enter into relations with other institutions in furtherance of their objects, among other powers and discretions.

Article 3 of the Act provides that the autonomy and activities of the university institution are founded on the principle of **academic freedom**, embodied in freedom of teaching, research and study.

Article 6.3 provides that, "public universities shall be organised in such a way that within the terms of this Act their organs of governance and representation represent the different sectors of the university community."

Title III LOMLOU, *University Government and Representation,* Chapter I, makes provision for university government, for public universities in particular. The statute draws a distinction between collegial organs (Social Council *[Consejo Social],* Governing Board *[Consejo de Gobierno],* Faculty Assembly *[Claustro Universitario],* faculty or institution boards, and the department boards) and single-member organs (rector, vice rector, secretary general, managing director, dean, university institute director). Article 20 (2) widens the possibilities as to the method of election of university rectors, who may be elected by faculty alone or by universal suffrage weighted by criteria laid down in the university's charter.

The process of modernising universities, in the ambit of "capabilities" and the strategic vector of governance, involves four distinct angles of approach.

1) Governance, university funding and accountability
2) Governance and university structures
3) Governance and university government
4) Governance of strategic aggregations (International Campus of Excellence).

1) GOVERNANCE, UNIVERSITY FUNDING AND ACCOUNTABILITY

The organisational structure of university funding and accountability has been determined by the Joint Committee on Funding of the Universities Council and the General Conference for University Policy. The main conclusions and actions under the 2010-2011 action plan are set out in the paper adopted on 16 April 2010, *Mejora y seguimiento de las políticas de financiación de las universidades para promover la excelencia académica e incrementar el impacto socioeconómico del Sistema Universitario Español (SUE)* [improving and monitoring university funding policy towards promoting academic excellence and enhancing the socio-economic impact of the Spanish university system (SUE)] and in the *Conclusions of the Meeting of European Directors General at Zaragoza under the Spanish Presidency of the European Union, May 2010.*

2) GOVERNANCE AND UNIVERSITY STRUCTURES

A technical working party will produce a situation and opportunity report before the end of 2010 with regard to the internal model of university structures, encompassing both the units envisioned in LOMLOU (centres and faculties, departments, university institutes) and units otherwise introduced by Devolved Regional or Central Government.

Box 23
Statutory development towards modernising universities structures

The concept of a university department was introduced in 1965, and departments have since evolved in step with the changing roles of the university institution itself. The Universities Act 1983 was the first statute specific to university departments; it was implemented by Royal Decree 2360/1984 on university departments, and the time period for adaptation was extended to 30 September 1992 by Royal Decree 1173/1987. Royal Decree 2630/1984[88] specifies the basic organs entrusted with organising and implementing research and teaching within their respective disciplines across one or more faculties, higher technical schools [*Escuelas Técnicas Superiores*] or university schools [*Escuelas Universitarias*].

Later, the Universities Act 2001 [*Ley Orgánica 6/2001 de Universidades*], title II, *University Structure*, article 9, defined a university department as, "the organ in charge of coordinating teaching in one or more disciplines and one or more centres in accordance with the curriculum of the university, supporting the teaching and research activities and initiatives of academic staff, and exercising such other functions as the university charter shall determine."

The Universities Act 2007 [*Ley Orgánica 4/2007, de 12 de abril de Universidades*], or LOMLOU, at articles 7 to 11, specifies the university structures of public universities, and, at article 12, of private universities. Article 7, *Centres and Structures*, specifies the organizations composing a public university, which are to comprise schools [*Escuelas*], faculties [*Facultades*], departments, university research institutes and such other centres or structures as may prove necessary for the performance of their functions. The statute thus defines:

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88 BOE number 12 of 14 January 1985, pages 967 to 968

> **Departments:** *teaching and research units in charge of coordinating teaching in one or more disciplines at one or more centres in accordance with the curriculum of the university, supporting the teaching and research activities and initiatives of academic staff, and exercising such other functions as the university charter shall determine.*

> **Department board**: *chaired by the department head, this is the governing organ of the department. It is to comprise doctoral graduates who are members of the department and representatives of non-doctoral teaching and research staff in such manner as the charter shall determine. At all events, the charter shall assure the representation of students and administrative and service staff.*

> **Schools and faculties:** *centres in charge of organising the teaching and academic, administrative and management procedures leading to the award of* bachelor *degrees. They may also impart teaching leading to the award of other qualifications and carry out such other functions as the university shall determine.*

> **School or faculty board**: *chaired by the dean or director, this is the governing organ of a school or faculty. Its membership and the procedure for its election shall be determined by the charter. At all events, a majority of members shall be academic staff permanently engaged by the university.*

> **Faculty deans and school principals:** *persons vested in the power to represent their respective centres and exercising duties of ordinary management. To be elected as stipulated by the charter from among academic staff permanently engaged by the university."*

Against the background of the present process of modernising Spanish universities, those structures come under Devolved Regional authority and feel the effects of the increasing creation of independent juristic entities engaging in research and innovation, and of the statutory developments calculated to create a new third cycle within the European Higher Education Area and the concomitant growth of doctoral schools. Special consideration ought to be given to a course of reform that updates the role and adapts the government of university structures so as to bring them into line with a model of university governance capable of rising to new challenges.

The aims expressed in LOMLOU as to the role of university research institutes has been superseded by the present structure of Devolved Regional research centres and institutes of excellence, in which universities are involved as partner institutions that contribute human resources (teaching and research staff, researchers still in training and infrastructural support staff) and sites or buildings in which these new institutions are located.

Support must be given to knowledge and technology transfer activities and the promotion of innovation. In recent years these pursuits have flourished in settings where there are foundations partnered with science and technology parks, value-release and business incubator initiatives and other teaching institutions, the conversion of veterinary hospitals into foundations, and certain lifelong learning units awarding their own qualifications.

The aim of *Estrategia Universidad* 2015 is to lay the groundwork for the existing structures involved in organising the three missions of modern universities. To this end, the present statutory framework will be brought up to date and coordi-

nating elements will be introduced so as to support an advanced model of governance. A range of different experts have advised that these features of university modernisation be given priority by updating structural governance.[89]

GOVERNANCE AND UNIVERSITY GOVERNMENT

The theme of governance and university government is one of the topics most widely addressed in university and socio-economic forums. Much of the extant critical analytical literature on the Spanish university system rests its expectations on the attainment of this objective, all too often disregarding the fact that, though central to improved university performance, this is not the only aspect that falls to be addressed.[90] A typical approach is to undertake a comparison with university governance patterns prevailing elsewhere in Europe[91] or in the United States. These papers are not always welcomed by university insiders, who construe their conclusions more as a threat to the present balance than as a critical analysis of past experience. The Fundación CYD is one institution to have addressed this issue, publishing a range of conclusions in its annual reports.[92]

However, a more appropriate approach should be taken to the intricate fabric of single-member and collegial organs entrusted with government duties so as to facilitate decision-making in a university establishment called upon to fulfil increasingly complex functions and aims. When the Universities Act 1983 was passed into law – a statute based on academic autonomy, financial autonomy and the capacity to select and engage academic staff – it could not be within the law-makers' contemplation to make provision for the multifaceted balance of the university system in its interaction with the powers of the Devolved Regions and of Central Government.

In 2008, the Secretary of State for Universities at MICINN [the Spanish Ministry of Science and Innovation] commissioned a perception study as to the causes of the shortfall in decision-making effectiveness despite the fully participative character of the existing system. The Fundación CYD and the CRUE were asked to bring together a team of foreign experts to evaluate the Spanish university system's model of governance and make suggestions for improvement and reform.

In July 2008 the study group[93] conducted a week-long study visit, in the course of which they interviewed over 50 people in Barcelona, Madrid and Santander. The visit served as the basis for an analysis and evaluation of the state of university governance in Spain as compared with the systems prevailing in their countries of origin. The team's comments and suggestions were presented at the seminar titled *Alternatives and Proposals for the Governability of Universities*,[94] hosted by the Fundación Conocimiento y Desarrollo (Fundación CYD) and the Conference of Spanish University Rectors (*Conferencia de Rectores de las Universidades Españolas*, "CRUE"). The conclusions of the study were memorialised in the paper *La gobernanza de la universidad y sus entidades de investigación e innovación* ["the governance of universities and their research and

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[89] J Gonzalez Garcia, *Gobernanza Universitaria y Sostenibilidad*, 2010.

[90] A Pulido, *El futuro de la Universidad. Un tema de debate dentro y fuera de las universidades*, pp 275-292, Universidad Autónoma de Madrid, Madrid, 2009.

[91] A vision of the universitie sphere in France: S. Mignot-Gérard, "Leadership and Governance in the Analysis of University Organisation: Two Concepts in need of de-construction", in *Journal of the Programme in Institutional Management in Higher Education*, Higher Education Management and Policy, 15, (2), pp. 135-163, 2003, OECD, Paris.

[92] D Samoilovich, "*Escenarios de Gobierno en las Universidades Europeas*", Col. Documentos CYD 8/2007, Fundación CYD, Madrid. In addition, see the bibliographical essay, pages 71-78.

[93] The members were Maria Helena Nazaré, of the University of Aveiro in Portugal, Lauritz Holm-Nielsen of the University of Arhus in Denmark, and Francesco Profumo of the Polytechnic of Turin in Italy. These European experts were coordinated by Daniel Samoilovich, executive director of the Columbus programme.

[94] Santander, Spain, 4 and 5 September 2008, chaired by Professors Federico Gutiérrez-Solana and Martí Parellada.

innovation entities"], presented by the team coordinators at the Fundación Del Pino in Madrid. The paper had been commissioned originally by the Ministry of Science and Innovation and had then come within the remit of the Ministry of Education; however, its content is to be treated as a raft of technical proposals put forward by experts, not as the official position adopted by *Estrategia Universidad* 2015 in the form of an action plan.

After actions have been completed in the first phase, *Governance and Funding of Universities* [2010-2011][95] and in the second phase, *Governance and University Structures* [2011][96] the plenary sessions of the Universities Council, the General Conference for University Policy and the University Student Council will create a joint committee in charge of producing a university governance modernisation report [2011-2012].

Box 24
Controversies surrounding university governance

1) The professionalisation of university management. The training of university management executives recruited at the international level has now become a path to be explored.

2) Academics having the greatest reputation and experience (regardless of their institution of origin) should hold single-member offices, in particular the office of rector, at modern Spanish universities.[97]

3) University autonomy must be real; it must be shielded from public authorities exerting financial pressure so as to extract a measure of submission. In exchange, machinery must be put in place to assure robust accountability.

4) Agile decision-making mechanisms to enable public universities more swiftly to respond to new societal challenges.

5) Universities should be granted varying degrees of governance on the basis of the extent to which they have internationalised.[98]

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[95] The initiative will produce the cost accounting template for Spanish public universities, drawn up by a joint committee of the CU and CGPU in late November 2010, and universities will have two academic years to implement the template. The template will be accompanied by the implementation of a university information system and the setting in motion of the Grants, Study Aid and Academic Performance Observatory, both of which projects will be fully operational in the academic year 2010-2011.

[96] The committee of technical experts will start work in early October, and the conclusions are expected to be submitted to the Universities Council in the form of a report to the plenary session in the first quarter of 2011.

[97] Amanda H. Goodall, University of Princeton, *Socrates in the Boardroom* (2010)

[98] S. Mignot-Gèrard, "Leadership" and "Governance" in the Analysis of University Organisations: Two Concepts in Need of De-construction", Higher Education Management and Policy Volume 15, No. 2

GOVERNANCE OF STRATEGIC AGGREGATIONS (INTERNATIONAL CAMPUS OF EXCELLENCE)

Chapter 5 of this paper, *Environment*, section 3, discusses the modernisation of university campuses; at section 3.4, it addresses the governance of strategic aggregations within the framework of *Estrategia Universidad* 2015.

The inference could be drawn that the self-government and autonomy of universities in the past two decades is the upshot of a change in the statutory framework in the legal framework. This model has indeed brought about a major step forward in democratising universities, but strategic and organisational needs counsel that in some respects the present scheme of governance be reformed.

In particular, the second and third missions of the university system entail an increasing degree of complexity which will force a shift in culture among faculty and university staff in general and the highest standard of professionalisation in all those participating in university life.

Professionalisation is set to bear upon numerous aspects of university life. First, the system by which university rectors are elected. The present scheme inevitably places the rector in the midst of a clash between the urge to fulfil the hopes of his or her electors and the duty to satisfy the strategic objectives laid down by Devolved Regional and Central Government authorities. The experience of other European countries which have reformed their methods of election of university rectors ought to be considered so as to find a better balance between societal and regional demands on one hand and, on the other, university autonomy.

Another class of organs that ought to become involved in the reform of governance and the proposal and assessment of strategic plans are the Social Councils [*Consejos Sociales*]: representing social stakeholders, their role is to ensure that societal demands are heard.

Support for partnerships between universities and public research bodies [Spanish *OPIs*] should be strengthened and given wider flexibility by extending a number of examples of these strategic alliances. University/OPI hybrid centres should be one of the key factors in search of efficiency and excellence in our system of research, development and innovation. Enterprise-professorship [*Cátedra-Empresa*] structures should be created so as to accommodate and support researchers for the purposes of specific projects.

The university-business relationship and industry in general form part of the second and third missions. A properly articulated system requires instruments of technology transfer. The model to be adopted must be comprehensive, socially and politically accepted and capable of bringing about the shift in culture needed to drive through reform and monitor the extent to which it has been achieved. The university system must satisfy industry's need for scientists and technical experts; cooperation between universities and businesses should accordingly be encouraged via appropriate mechanisms, introducing new organisational formulas and people-oriented incentives.

3. INTERNATIONALIZATION

Internationalization

The strategy for university internationalization identifies the challenges that the university system as a whole must face in an open environment of international cooperation and competition.

The strategy for university internationalization identifies the challenges that the university system as a whole must face in an open environment of international cooperation and competition. In response to these challenges, the strategy lays down objectives and proposes the structures and processes necessary to attain them.

The internationalization strategy is of a piece with the **future development of the European Union strategy for international cooperation** in higher education supported by the Spanish Presidency of the EU Council in the first half of 2010.

This strategy is to serve as a guide and support for the initiatives to be set in motion by institutions of higher education and, in particular, research-intensive universities to enhance their visibility, recognition and positioning in a dynamic arena of increasing globalization.

The Estrategia Universidad 2015 focuses on faculty **accreditation** systems and the machinery in place for the **recognition of periods of study** and qualifications so as to assure the necessary **standards of quality** for an international context.

The strategy must reinforce coordination and the exchange of information and expertise on global opportunities and challenges so as to support the attainment of each institution's goals while preserving its autonomy, and, moreover, must operate in furtherance of the internationalization of the entire system by enabling the use of synergies.

The internationalization strategy meets the challenges posed to our higher education system by an environment of increasing globalization and global competition for talent and knowledge-related investment.

University internationalisation can be viewed as a response to economic and social globalisation.[99] A distinction must be drawn between the two aspects of internationalisation: competition and cooperation. In the closing decades of the twentieth century, university education expanded from a largely domestic role to an increasingly international scope. Enhanced resources, technologies and media helped institutions to expand and seek partnerships beyond national boundaries.

University Internationalisation

University education must be open both to its local reality and to the world; it is the setting in which tomorrow's researchers and innovators are forged, and thus shapes the country's competitiveness. University education within the European Higher Education Area fosters international cooperation and cultural exchange. Institutions of higher learning have undergone a powerful change brought on by cross-border flows of ideas, students, and teaching and management staff, coupled with the development of information and communication technologies. Over the past two decades, the number of internationally co-authored papers doubled.

Estrategia Universidad 2015 seeks to move towards a new form of university education that is to evolve in the coming years; the difficulty is to ensure that government and universities keep abreast with new challenges and grasp new opportunities.

Analysis must address the question of how Spanish universities are undertaking internationalisation, with reference to their size, age, location, and disciplinary range. Activities must be international, national and regional; to this end, some universities must raise their profile and reputation, whereas others must focus on exchanging knowledge with foreign universities. An econometric review of the effect of internationalisation would ascertain the economic returns that it garners, while identifying the two key drivers: **competitiveness** and **cooperation.**

Competitiveness ties in with the concept of globalisation and the economic trend whereby education is becoming more liberalised and commercialised. Cooperation is associated with internationalisation and Europeanisation; it is the process of convergence among universities that encourages student and staff mobility. These two aspects, however, are not wholly separate but often flow into one another.

Today, internationalisation is so vital an issue that international bodies such as the OECD, the European Commission and the Education Council of the European Union are currently conducting studies and implementing strategies.[100]

During the Spanish Presidency, the Education, Youth and Culture Council adopted a set of conclusions which, for the first time in the history of the European Union, invite the Commission to implement a strategy for international cooperation in higher education.[101]

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[99] Van der Wende, M. (2001). Internationalisation Policies: About New Trends and Contrasting Paradigms, *Higher Education Policy*, 14, 3, pp. 249-259.
[100] Higher Education to 2030, Volume 2: Globalisation OECD ISBN: 9789264056602 Publication: 20/11/2009.
[101] EYC Council Conclusions on the internationalization of higher education, May 2010 (3013)

In its conclusions on the internationalization of higher education, the Education, Youth and Culture Council, after out-lining the progress made in the Bologna Process and in the implementation of the agenda for modernization of universi-ties, underscored the significance of international cooperation in higher education and the need to join national efforts with new Community initiatives, and accordingly invited the Member States to:

A. Nurture a genuine international culture across universities by supporting international mobility of all community groups, encouraging involvement in international networks, providing students with the skills needed to work in international environments and carrying through internationalization strategies.

B. Enhance the international appeal of universities by supporting academic excellence and the international visibility of the leading university campuses, by participating in international cooperation networks running joint training and research programmes, creating international joint qualifications, and putting in place quality assurance mecha-nisms allowing for the recognition of periods of study and qualifications obtained overseas.

C. Promote the global dimension and raise awareness of universities' social responsibility, by encouraging new forms of cross-border cooperation, improving fairness in access to higher education, supporting international mobility schemes, returning knowledge to the community at the local, national and global levels, and helping to resolve the key societal challenges.

Furthermore, this set of conclusions invites the European Commission to:

1. Set in train, in cooperation with the Member States and having regard to university autonomy, an EU strategy for the internationalization of higher education so as to enhance the coherence and complementarity of national and EU initiatives and so raise the appeal of higher education and research in the EU.

2. Ensure that study and research mobility between the EU and third countries forms part of the strategy.

3. Support international partnerships in higher education, international academic cooperation, and capacity-building actions in the framework of political dialogue with third countries in the higher education sphere.

4. Promote the exchange of experience and good practices in this field.

The OECD has produced a quantitative and qualitative study of the prospects for the globalisation of higher education by 2030. This paper forecasts rising world competitiveness in higher education coupled with cross-border cooperation, both internationally and at the European and regional levels within countries. A prospective exercise should be engaged in so as to examine how world higher education might evolve over the coming twenty years.

Analysis in this regard should deploy a synthetic model that, besides considering the international factor, scrutinises the disjunction between public and private funding and the dichotomy between supply-and demand-oriented education. Aca-demic research can range over different potential scenarios to clarify the options available to each university.

Graph 17 shows a simplified schema of university research with reference to the above dimensions. The resulting sce-narios are obviously not pure: they are intended to reflect the predominant features of each case considered.

- *Open cooperation*
- *Furtherance of the national interest*
- *Competitive research on the international market*
- *New public management*

The future of university education lies in mobility: mobility of students, academic staff and management executives. Mobility policy falls to be reinforced in Europe and beyond. The geographic, historic, cultural and economic features of Spain counsel that it also undertake internationalisation efforts oriented to Latin America, Africa, the Mediterranean and Asia.

International

Open cooperation

Internationally competitive research

Government

Market

Supporting national interests

New public management

Domestic
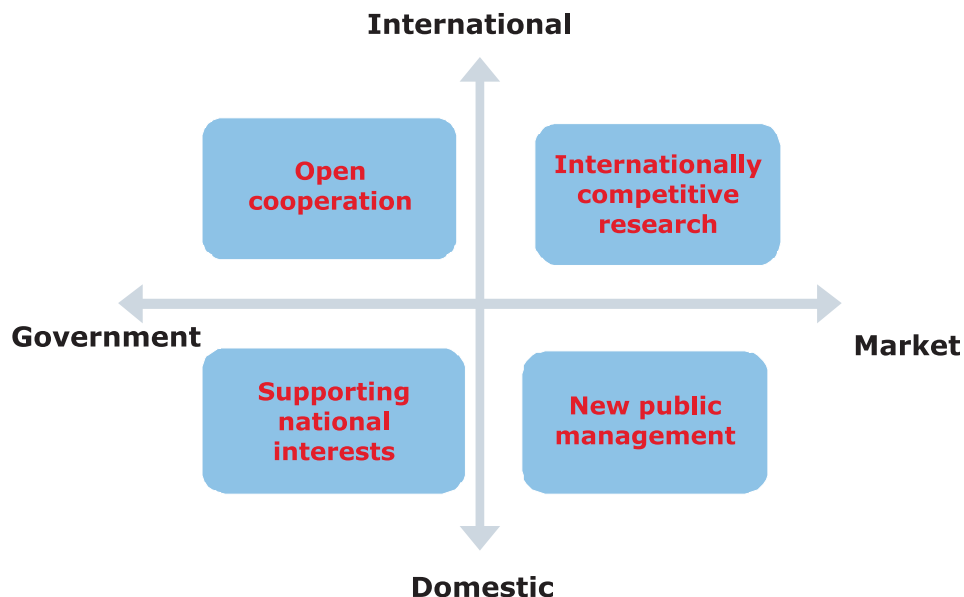
Graph 17. Simplified schema of university research with reference to the internationalisation/makert orientation dimensions.

International rankings weighted towards research criteria are likely to increase worldwide competition, particularly as regards the attraction of persons of high ability, because many countries support universities of international excellence. Hence *Estrategia Universidad* 2015, within the campus environment vector, contemplates the International Campus of Excellence programme as one of its lines of action. A key challenge for the Spanish university system is to create a national research infrastructure having sufficient depth, reach and competitiveness.

International cooperation among universities in the sphere of research is on the rise, partly on the back of increased international funding for research, although this still represents only a small proportion of research funding as a whole.

Mobility, a practice that reflects greater trust among institutions, calls for a mechanism that assures quality. In the joint ambit of European actors linked to higher education, the governing instrument is the assessment paper *Criteria and Guide-*

lines for Quality Assurance in Higher Education, which provides a range of good practices and quality assurance guidelines to higher education institutions and assessment agencies. This helps the European Higher Education Area develop as a robustly funded edifice which, though shared, offers a diverse and pluralistic structure allowing for comparison across systems and the resulting higher education products (programmes, qualifications and institutions) and facilitating student, teacher and researcher mobility. This topic is addressed in greater depth in section 1 of Chapter III, *People*.

Students' preferences as to destination universities emerge from:
- university rankings,
- funding options,
- language – the most sought-after destinations are English-speaking, and there has been a considerable rise in Chinese and Indian students.

In future, institutional mobility may be altered by the relationship between cost and risk. In addition, the market may expand if host countries' universities become exporters of higher education services. New forms of partnership may emerge on the basis of linguistic, religious or strategic features.

Academics' preferences as to geographic mobility chiefly make for movement from south to north and from east to west, drawn by better facilities and higher pay.

Universities must undertake a quantitative and qualitative analysis of the key issues surrounding internationalisation of students, academic staff and institutional agreements, paying special heed to academic research. The effects of globalisation require us to assess educational supply in such a way as to support our industry, funding, governance and quality assurance, with an emphasis on international cooperation. The concern for quality has prompted a shift towards assessment of educational outcomes and the labour market ("*outputs*") instead of the former focus on inputs.

The quantitative data produced by the Heiglo project[102] reveal the extent to which universities meet the challenges of internationalisation, Europeanisation and the trends underlying globalisation. The Heiglo analysis considers the internationalisation of universities in Austria, Germany, Greece, the Netherlands, Norway, Portugal and the United Kingdom.

Estrategia Universidad 2015 should be the occasion for a similar study aimed at comparing the performance of Spanish universities with those of these other countries so as to appraise the state of our institutions. Indicators should be constructed to ascertain both positive factors and the obstacles to the successful implementation of policy in our country. The targets for indicators appear in box 25.

Among Spanish universities, those strongest-placed to attract the best international talent and recruit academic staff are of course those boasting the highest research potential, the highest placement on international rankings, and the highest quality-of-life in their host territories, provided that they offer competitive pay. One of the initiatives supporting internationalization policy is the International Campus of Excellence Programme. The internationalization of staff at Spanish universities can be encouraged by offering part-time work on appropriate terms at two universities simultaneously: a Spanish university and a foreign institution. This measure would help attract foreign talent and retain Spanish talent seeking experienced abroad.

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[102] Heiglo Project higher education instiutions respond to the challenges CERI OECD www.utwente.nl/cheps/documenten/heigloupdate.doc

Box 25
Target internationalisation indicators in *Estrategia Universidad* 2015

- Define the concepts of Europeanisation, internationalisation and globalisation and delineate their scope
- Analyse the elements of national higher education policy, existing regulatory frameworks and the extent to which they help or hinder universities' internationalisation activities
- Characterise universities' perceptions of the challenges of internationalisation, their responses and any changes in their organisational structure
- Compare the various national policies and their impact on internationalisation and the rest of international-level factors that help or hinder internationalisation processes
- Issue recommendations based on the above analysis to policymakers for the purpose of more effectively coordinated policy and a management approach to higher education that looks outward to the international sphere

3.1. PROPOSED STRATEGIES FOR INTERNATIONALISATION IN *ESTRATEGIA UNIVERSIDAD* 2015

University internationalization strategy must meet the challenges outlined above and support individual institutions in their own internationalization efforts. This concern must be an aspect of an overall foreign strategy to enhance Spain's appeal as a candidate location for knowledge-intensive businesses, thus supporting the shift in economic model and the societal renewal of our country.

The vision underlying this strategy might be enunciated as: *"To establish a strong and internationally attractive university system that nurtures society's ability to function in an open, competitive international environment and that meets society's needs by developing the social dimension and social responsibility and reinforcing Spain's international competitiveness."*

The attainment of this vision of growing internationalization in higher education policy necessitates a range of general measures relating to a systematic presence overseas, international monitoring of activities, and systematic promotion of Spain as an ideal location for higher education, research and innovation activities.

In order firmly to establish a highly internationalised university system, our institutions of higher learning must supply the training and skills to perform in an open international environment. This aim calls for academic staff with international experience able to support students' internationalisation. A world-class standard of quality must be attained in priority subjects taught in English and/or other international languages. The number must be increased of academics, researchers and students holding foreign bachelor, master and doctoral degrees.

Graph 18 shows a schema of objectives towards effective internationalisation in *Estrategia Universidad* 2015.

Universities could be made more internationally appealing by raising the visibility and international recognition of the best university campuses as attractive places to live, study and research. The quality and quantity must be improved of services in support of the arrival, accommodation and departure of foreign students and visitors. Spanish universities should play a more active role in world-class international educational and research networks, projects and programmes.

| Develop a highly internationalized university system | Raise Spanish universities international appeal | Deepen social dimension and responsibility in response to society's global challenges | Intensify cooperation with other regions on a long-term view |

Objectives towards effective internationalization

Graph 18. Objectives towards effective internationalisation under *Estrategia Universidad 2015*

Institutional cross-border cooperation

- Education and training
- Research and knowledge exchange

People

- International mobility of all groups
- Attraction of foreign students and researchers

Axes of action for international cooperation

International political cooperation

- Strategic alignment of international cooperation instruments
- Contribution to local socioeconomic development

International structures, organizations and programmes

- Adaptation of the network of education units overseas
- Active involvement in international programmes and organizations

Graph 19. Schema of action vectors towards internationalisation targets under *Estrategia Universidad 2015*

Universities' social dimension and global social responsibility can be promoted in response to the global challenges faced by society by fostering a university community that is committed to a pluralistic and multicultural society, and thus contributing to world understanding, peace and prosperity. Cooperation should be reinforced towards the modernisation and strengthening of higher education systems in Africa, Latin America and Asia within our priorities in Spanish development aid overseas. This cooperation is important for the socio-economic development of those countries and goes hand in hand with international efforts in one of the major world social challenges: the fight against poverty.

The vectors of action towards achieving the internationalisation objectives of *Estrategia Universidad 2015* are shown in diagram form in Graph 19. The content of these vectors would be as follows:

People.
International mobility will be encouraged for all university groups: students, teaching and research staff, administration and service staff. Attraction of foreign students, academics and researchers. Recognition of all academic staff's international activities for the purposes of career development.

Institutional cross-border cooperation.
– *Education and training:* Joint international degrees in master and doctoral cycles. Raising quality in university teaching in relation to international standards.
– *Research and exchange of knowledge:* Spanish universities' involvement in international networks, clusters, and ecosystems and communities of knowledge, research and innovation attaining to a world class standard of excellence in strategic areas of knowledge.

International political cooperation.-
Strategic alignment of instruments of international cooperation in higher education with Spanish foreign policy, in particular, aid and cooperation for development, wherever possible in accordance with the priorities agreed with partner countries. Contribution to the local socio-economic development of such countries on the basis of cooperation with Spanish institutions of higher education for mutual benefit.

International structures, organisations and programmes.-
Adaptation of the network of overseas education departments as an instrument for the implementation of the strategy. Active involvement in international programmes and organisations in higher education. Adoption of an international agenda for cooperation in higher education in all spheres of influence, in particular, the European Union, the Union for the Mediterranean, and Latin America.

As a result of the actions specified for these vectors, we expect to achieve a coordinated presence of Spanish higher education overseas, within the framework of Spanish foreign policy, supplying qualified information and know-how to help resolve the international cooperation needs of industry, the economy and Spanish society at large. The implementation of the strategy requires coordination and alignment of systems of incentives and programmes of financing of international activities in higher education and at the institutional, regional, national and international levels.

The attainment of the strategy's aims will be monitored by a system of targets and indicators for each vector of action. The degree of progress and benefit for Spain's socio-economic development will be evaluated on a regular basis by an independent committee of Spanish and foreign experts appointed by the Ministry of Education.

INTERNATIONALIZATION ACTION PLAN IN *ESTRATEGIA UNIVERSIDAD 2015*

The aim to modernise Spanish universities via *Estrategia Universidad* 2015 specifically involves helping Spain's leading universities rise to the status of international benchmarks in academia and science. The necessary actions include increasing academic publications and closer involvement in cross-border networks and European programmes in education, research and innovation.

It is to these ends that higher international mobility of Spanish students must be undertaken, and an increase in the number of foreign students coming to Spanish universities encouraged, so as to achieve the OECD average by 2015. This mobility must embrace bachelor degrees and master and doctoral studies.

At the European level, Spanish universities should be urged to participate in existing European programmes supporting student and staff mobility and cross-border cooperation in education, research and innovation. The completion of the first phase of the Bologna Process in the construction of the European Higher Education Area entailed the introduction of a range of tools to facilitate international cooperation in higher education, such as a common qualifications framework, a European system of credit transfer and recognition of qualifications, and the development of a broadly based understanding in areas such as quality assurance.

These initiatives configuring the European model of higher education may be of value and practical use in other regions around the world.[103]
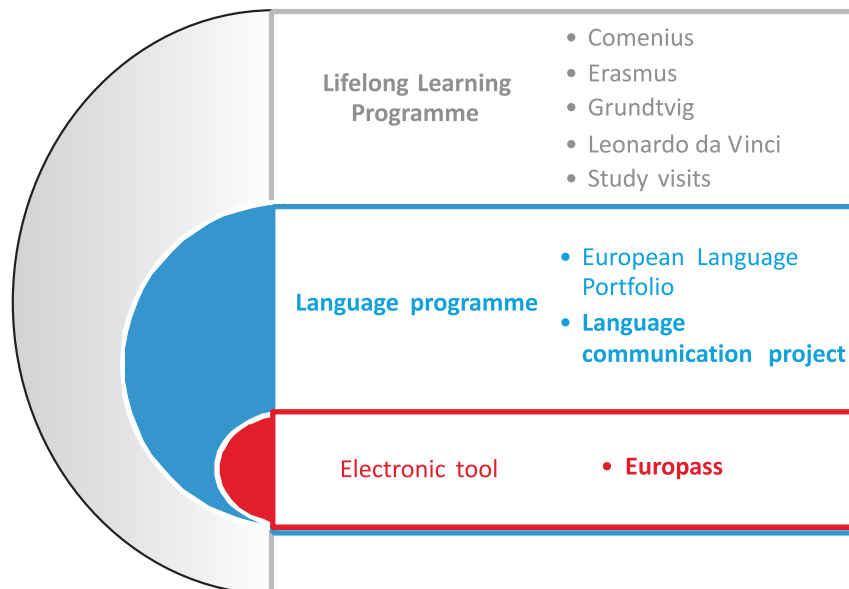
Graph 20. Internationalization programmes conduted by OAPEE in the framework of *Estrategia Universidad 2015*

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[103] In 2009, the Bologna Policy Forum was established in for the purpose of internationalising the Bologna Process, with involvement and dialogue being thrown open to third countries.

Estrategia Universidad 2015 involved the implementation of internationalisation programmes conducted by the Autonomous Body of European Educational Programmes,[104] whose aim is to support education and training with the active participation of Spanish universities in programmes such as those listed in graph 20 and table 26.

Comenius **School education**	**Erasmus** **Higher education**	**Horizontal programme** **Study visits**	• **Policy implementation;** • **Language learning;** • **ICTs;** • **Dissemination and value-release**
Strategy for internationalization of higher education in Spain 2010–2015/Lifelong Learning Programme			
Leonardo da Vinci **Vocational training**	**Grundtvig** **Adult education**	**Jean Monnet programme**	• **Jean Monnet action;** • **European institutions;** • **European associations**

Graph 21. Lifelong Learning Programmes under *Estrategia Universidad 2015*

The *Tempus* programme also supports the agenda for modernisation of universities by creating areas for cooperation with neighbouring countries, such as the member states of the Union for the Mediterranean. The programme helps finance joint projects for institutional development, structural measures for educational system reform and ancillary measures for the dissemination and exchange of information on best practices.

Box 26
Programmes conducted by the "*Organismo Autónomo Programas Educativos Europeos*" OAPEE

Lifelong Learning Programme

The Lifelong Learning Programme is intended to contribute to the creation of an advanced knowledge society deploying sustainable economic development, more numerous and higher quality jobs, and closer social cohesion. The overarching aim is to facilitate exchange, cooperation and mobility among the education and training systems of participating European countries so as to attain the status of world-class quality benchmarks.

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[104] http://ec.europa.eu/dgs/education_culture/index_en.htm The European Union's objective as to education and training is to enhance the quality of learning systems and offer more opportunities for everyone at all stages of life. Each member state is responsible for its own education and training, but a coordinated action is in train that may help the attainment of common goals.
The European Commission focuses, first, on cooperating with national authorities and European stakeholders towards the improvement of good practice exchange policies and, secondly, on developing and managing financing programmes.

This objective is in harmony with the priorities of Spanish educational policy, in so far as it strengthens European ties through mobility and cooperation and promotes intercultural dialogue, language learning and innovation transfer.

The objectives set down in the work plan have been achieved. In addition, cooperation has been enhanced with actors in education and training at the national, regional and local levels and cooperation with other authorities and the Commission via sector-specific working groups, by means of which common solutions have been arrived at and information has been exchanged regarding networks, partners and procedures.

Lifelong Learning Programme actions that may contribute most directly to the attainment of the objectives of *Estrategia Universidad* 2015, given that today's secondary school pupils are our future university students and staff, include:

Erasmus

Intensive Language Courses impart the least widespread and least taught languages of the countries and regions involved in the sector-specific Erasmus programme of the Lifelong Learning Programme.

Courses in the co-official languages of Spain are now being offered for the first time.

Box 27
Activities undertaken by OAPEE for the horizontal programme

Key activity 1. Policy cooperation and innovation in lifelong learning. This action finances:

- Study visits for educational and occupational training specialists, managed by the National Agency [*Agencia Nacional*]

- European comparative research and study projects managed by the Executive Agency [*Agencia Ejecutiva]*

Key activity 2. Promotion of language learning via the funding of multilateral projects, networks or ancillary measures the aim of which is to support the teaching and learning of foreign languages. Managed by the Executive Agency.

Key activity 3. Development of teaching methods, practices, content and innovative and ICT-based lifelong learning teaching methods, practices, content and services. This action finances multilateral projects, networks and ancillary measures and is managed by the Executive Agency.

Key activity 4. Dissemination and use of the outcomes of activities subsidised under the Lifelong Learning Programme and earlier similar programmes, and exchange of good practices. This action is managed by the Executive Agency.

Finally, these actions are to be supplemented by the new Jean Monnet programme, which supports institutions and activities directed at European integration, and is also managed by the Executive Agency.

The European Commission's 2020 strategy for intelligent, sustainable and comprehensive growth comprises the *Youth on the Move* initiative, the objectives of which are to enhance the quality and the international appeal of the European system of higher education via student and young professional mobility.

FUTURE INTERNATIONALISATION ACTION PLANS IN ESTRATEGIA UNIVERSIDAD 2015 IMPLEMENTED VIA OAPEE

The future action plans of the Autonomous Body of European Educational Programmes (Spanish "OAPEE") are aimed at supporting new actions within programmes to increase the number of participants, and to set up mechanisms to disseminate existing projects. It is crucial to set in motion a project to create a web-based portal aimed at Spanish and European institutions, students and enterprises.

Hand-in-hand with the dissemination action shown in the university communication sector, chapter 4.5, the dissemination will be intensified of these programmes and tools among the educational community and society at large via advertising campaigns and training activities. The implementation of the European Portfolio[105] of languages, in its hardcopy and electronic versions, will be coordinated and evaluated. A further objective is to develop and improve the programme of professional stays.

The importance of creating a web-based portal[106] (with programmes, initiatives, services and news) resides in the fact that it can serve as a vehicle to inform students desiring to undertake a study or work experience mobility stay and searching basic information about the functioning of the Erasmus programme. Information could also be provided about institutions' selection processes for study or work placement mobility stays, and practical information could be provided for students to prepare their stay in another country. Via this website, students who have completed an Erasmus stay can share their experiences with other students in their same situation and students considering whether or not to take part in the programme.

The creation of this website will foster relations among higher education institutions and enterprises based in Spain and in the countries taking part in the programme. Enterprises will be informed about the benefits of participating in student mobility actions for work placement, thus contributing to programme visibility. Spanish and European institutions will be provided with a database of contacts details for enterprises willing to accommodate work placement students. The initiative will also provide Spanish and European enterprises with a common application by means of which to offer work placements and jobs, and will enhance the employability of Erasmus students.

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[105] Portfolio is a personal document promoted by the Council of Europe in which a person who is learning or has learned a language – whether at school or otherwise – can record his or her experience of and reflections on learning languages and coming into contact with other cultures.
[106] http://www.oapee.es/oapee/inicio/oapee.html Among OAPEE programmes, only Erasmus relates to universities.

Graph 22. Future action plans to be set in motion by OAPEE

3.2. OVERSEAS PROMOTION OF SPANISH UNIVERSITIES: UNIVERSIDAD.ES

The overseas promotion of the Spanish university system is a central axis of the process of internationalisation of higher education in Spain, and is likewise a necessary element for change and modernisation in Spanish institutions of higher learning. To this end, a public-sector foundation was formed with the object of promoting the Spanish university system throughout the world: universidad.es, a state-controlled public-sector foundation dedicated to the promotion of the Spanish university system throughout the world. An initiative of the Central Government, it was formed jointly with regional governments and universities themselves.

Under the Universities Act 2007 [*Ley Orgánica 4/2007, de 12 de abril, de modificación de la Ley Orgánica de Universidades*], in October 2008 the Council of Ministers authorised the creation of the Fundación para la proyección internacional de las universidades españolas "Universidad.es". Formally incorporated on 23 December 2008 by the holding of the first meeting of its Board of Trustees, the Foundation began its activities in February 2009.

The Universities Act 2007[107] envisions the need to "strengthen the international visibility of the Spanish university system and university mobility", to which end it makes provision for the creation[108] of a state-controlled public-sector foundation dedicated exclusively to that object. This was a government initiative set in motion in close cooperation with the Devolved Regional governments and universities themselves.

In order to have available a map of the present state of international education in our country a forward-looking study was conducted. This paper provided the basis to design the main tools for international promotion: an online space designed specifically for international students and researchers; promotional and informational materials on the Spanish university system and its academic and scientific supply; and the design of a brand image for the Spanish university system for the purpose of participation at trade fairs and other international events.

Internationalisation of universities	
Objectives	**Planned actions**
• Create a brand image for the Spanish university system overseas to raise the international visibility of Spanish universities • Make Spain a significant destination for international students and researchers • Increase the presence of Spanish students and researchers around the world • Support Spanish universities in the creation and design of their internationalisation strategies • Support cross-border education led by Spanish universities • Support the involvement of Spanish universities in international cooperation projects for development	• Creation of a database of fully updated information on the educational supply offered by Spanish universities • Creation of a map of the present state of education in Spain and internationally • Participation in international education fairs in conjunction with Spanish universities and with the cooperation of the foreign network of the Ministry of Education and of Spanish embassies and institutions such as ICEX and the Cervantes Institute • Setting in motion and management of fellowship programmes so that foreign students can continue their academic training in Spain • Creation of support programmes and open-ended subsidies to Spanish universities in the process of internationalisation

Table 20. Objectives and actions within the strategic axis of internationalisation of universities

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[107] *LO 4/2007, de 12 de abril, que modifica la LO 6/2001, 21 de diciembre*, additional provision 16.
[108] The Council of Ministers, at its meeting of 24 October 2008, authorised the creation of Fundación para la proyección internacional de las universidades españolas – Universidad.es. The body was formally incorporated on 23 December 2008 and started its activities in February 2009.

3.3. Internationalization of academic and technical staff
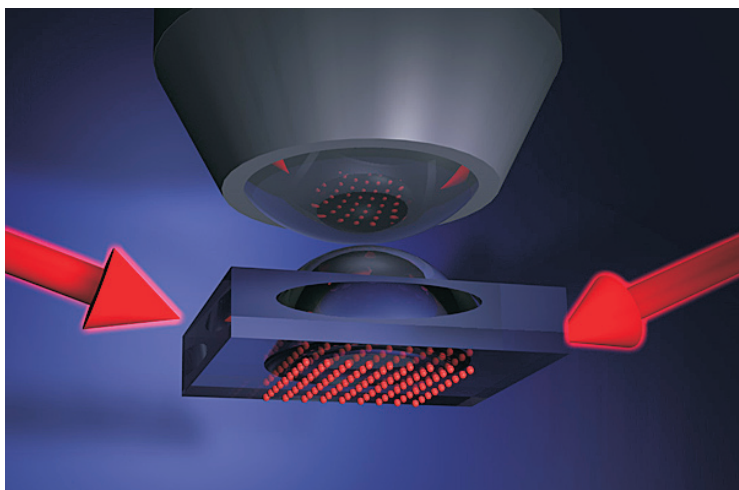
The main European response to the globalisation of higher education is the creation of the European Higher Education Area, at first limited to the European ambit alone but increasingly opening up to other geopolitical regions via the Bologna Policy Forum. The internationalisation of academic and technical staff is contemplated via international cooperation and mobility networks, applicable to training (including joint programmes) and research.

For the temporary incorporation of researchers and academics from less competitive universities, European and Spanish universities act in two directions: brain drain[109] and brain gain. These flows are uneven, fluctuate over time, reversible, and influenced by government policy and the entrepreneurial environment. At present, given the trend towards internationalisation, one might speak less of a brain drain than of a "brain flow". The predominant direction of flow is chiefly determined by budgetary considerations, and the ease of obtaining a residency permit, attractive projects, facilities, etc. Researchers often place as high a value on the availability of state of the art facilities as on the level of pay.

Box 28
Actions for the internationalisation of academic staff[110]

1. Traditional academic exchange (staff visits and sabbaticals across institutions)
2. Doctoral and postdoctoral training (grants and contracts at career outset)
3. Temporary recruitment of staff from countries having less competitive universities
4. Internationalisation of universities' permanent academic staff

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Among Spanish universities, those strongest-placed to attract the best international talent and recruit academic staff are of course those boasting the highest research potential, the highest placement on international rankings, and the highest quality-of-life in their host territories, provided that they offer competitive pay. **One of the initiatives supporting internationalization policy is the International Campus of Excellence Programme**.

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[109] Britain's Royal Society coined the expression "brain drain" to characterise the flow of scientists and technologists to the United States and Canada in the 1950s and 1960s. OECD Observer of 5 July 2002. *5/7/02.*

[110] *Constructing Paths to Staff Mobility in the EHEA: from Individual to Institutional Responsibility.* Conor Cradden (2007). "Making Bologna a Reality-Mobility of Staff and Students" y Higher Education TO 2030, Vol. 2: Globalisation. ISBN: 9789264056602. OECD, Publication: 20/11/2009.

4. INDIVIDUAL AND COLLECTIVE EVALUATION

One of the key constituents of any *"mutual recognition agreement"* is the external evaluation of quality agencies conducted in Europe in the framework of the Bologna Process, under the auspices of the document *Criteria and Guidelines for Quality Assurance in Higher Education*

It is a widely acknowledged fact that the methodological challenges faced by research call for assured systems of quality so as to harmonise the methods developed by researchers and so enable them to share their work with others working in their own and adjoining fields. A uniform standard of accuracy, and of methods of determining such accuracy, are needed in research and with regard to the demands of consumer protection. Methodological transparency must not be impaired in teaching or research.

A good quality system prevents, detects, investigates, evaluates and corrects errors and breaches of method in both teaching and knowledge transfer.

With regard to the quality assurance processes now under development in Europe as part of the Bologna Process, the European Commission has said that it is necessary to harmonise quality criteria and to achieve mutual recognition among European agencies. This will mean that a common higher education area will exist not only for students but also for the holders of qualifications.

One of the key constituents of any "*mutual recognition agreement*" is the external evaluation of quality agencies conducted in Europe in the framework of the Bologna Process, under the auspices of the document *Criteria and Guidelines for Quality Assurance in Higher Education,* and an international panel of experts, coordinated by the European Association for Quality Assurance in Higher Education (ENQA). A positive assessment confers full membership of the ENQA, and this reinforces confidence in the methodology and processes of the agencies beyond the specific regulatory features or cultural traditions of each European university system. This "wave of mutual trust" has laid the foundations towards bringing agencies so desiring together in the scheme of mutual recognition.

The assessment criteria are the technical corpus used by all European actors relating to higher education in response to the mandate given by ministers of education at the Bologna Follow-Up Conference at Berlin in 2003.

The purpose of the ministers' agreement was to lay down common criteria and guidelines to extend good practice in quality assurance and to institutions of higher education and agencies. The European Association for Quality Assurance in Higher Education (ENQA), the European University Association (EUA), the European Association of Institutions in Higher Education (EURASHE) and the European Students' Union (formerly ESIB, now ESU) accordingly drafted the document that today constitutes the foundational methodological instrument shared by 46 countries to define the processes and identify the underpinnings of an institution's self-assessment or self-diagnosis and an external visit by a panel of experts conducting the assessment, encompassing both universities and the quality agencies to whom control of the system is entrusted.

This assures the delicate balance required by the principle of subsidiarity, whereby mechanisms and tools must fit the specific historic and cultural context of each country in which they are implemented.

In Spain, ANECA, a member of ENQA, discharges its transparency and accountability duties before the organs vested for the purpose in appropriate powers by national legislation, and is voluntarily accountable to supranational organisations for the purpose of demonstrating its suitability in the eyes of its European counterparts. This reinforces its image as an independent technical body acting as a safeguard with respect to the government that created it by means of the Universities Act 2001, the university institutions it is called upon to assess, and society at large, the ultimate beneficiary of its role as guarantor of quality in higher education. The effort was completed in December 2008, when ANECA was admitted to the European Quality Assurance Register for Higher Education (EQAR), an organisation created in the course of the Bologna Process; Spain's was one of the first three European agencies to be awarded this distinction.

4.1. QUALITY ASSURANCE INSTRUMENTS

The introduction of Spanish *sexenios* [research-based bonuses], or, rather, of the criteria of award of *sexenios*, brought about a revolution in the Spanish university system. These were a new benchmark, in so far as quality assessment was now to be performed to international standards of research quality. A major proportion of the academic community accepted the challenge of improving the quality and internationalisation of their research; this shift was further aided by structural changes and considerable improvement in the funding of research, which were the decisive elements in increasing the quality and quantity of academic output.

The process of assessment has undergone major changes since the enactment of the Universities Act 2001, which had prescribed as a requirement of qualification committee membership that candidates have a threshold number of successfully evaluated research periods. *Sexenio* research bonuses have become entrenched as an academic requirement with a wide range of repercussions on an academic's career: pay supplements, ability to participate in various academic decision-making bodies, etc. The paper entitled *Informe sobre las evaluaciones de la CNEAI*[111] provides results and analysis for the year 2009.

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[111] http://www.educacion.es/horizontales/ministerio/organismos/cneai/2009-info-v5.pdf.

4.2. National Committee for Research Assessment *(Comisión Nacional Evaluadora de la Actividad Investigadora*, CNEAI) and the new National Agency for Quality Assessment and Accreditation *(Agencia Nacional de Evaluación de la Calidad y Acreditación*, ANECA)

The CNEAI was created in 1989 as an instrumentality of the University Reform Act 1983 [*Ley de Reforma Universitaria*] and the Science Act 1986 [*Ley de la Ciencia*]. Formed with the object of introducing a simple, transparent and objective form of assessment of research, its activities were governed by later assessment statutes that exerted an influence on the rise – in terms of both quality and quantity – of research at Spanish universities.

The Committee embraces powers vested in both central and regional governments.[112] The Universities Act 2001 [*Ley Orgánica 6/2001, de Universidades*] provided that Central Government may stipulate additional pay for teaching staff on the basis of individual teaching, research and management merit.

Later on, the technical evaluative function of Central Government pay supplements was transferred to ANECA, such that a harmonious fit between the two institutions became necessary. It is of the essence that the academic community not perceive any change in the assessment process. Initially, therefore, the thematic structure of committees, their mode of functioning, their timetable of activities and assessment criteria must be preserved in their present form. The membership of assessment committees must be a shared responsibility of ANECA and CNEAI, and CNEAI must remain outside the management structures of ANECA.

ANECA is a state-controlled foundation the objects of which are to help improve quality in the higher education system through evaluation, certification and accreditation of courses, staff and institutions. This objective is in alignment with the aim of building the European Higher Education Area in 2010.

The law provides that ANECA is vested in all assessment, certification and accreditation functions as to teaching, research and management activities of university staff commended to it,[113] without prejudice to analogous activities carried on by the Devolved Regions' assessment organs. CNEAI's membership of ANECA entails that Central Government has a single assessment body for all university staff activities, thus lending consistency and robustness to the university assessment system.[114]

From the outset, ANECA played an active role in international networks relating to quality assessment and accreditation and in the construction of the European Higher Education Area as one of the actors involved. After Royal Decree 56/2005, regulating official postgraduate studies, the body took on a new activity: the assessment of proposed postgraduate programmes at universities based in Devolved Regions not having their own assessment bodies.

Internationally, ANECA is a member of European organisations and their executive committees, takes part in joint European projects via the European Consortium for Accreditation, such as the development of streamlined accreditation procedures for joint master's degrees, and the development of tools in support of transparency in institutions' results and qualifications accredited by European agencies, etc. In addition, ANECA operates in Latin America through the Latin American network of higher education accreditation agencies (RIACES)[115] and contributes within this network to the project in support of the development of internal quality assurance in development agencies (CINTAS).

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[112] Members include representatives of the Devolved Regions, of Central Government and 12 highly regarded academics nominated by Central Government, one of whom acts as the overall coordinator of the technical assessment process.

[113] The body also evaluates and certifies teaching leading to universities' and higher education centres' own diplomas and degrees and qualifications, and the teaching, research and management activities of university staff, pay supplements and other assessments regarding academic faculty conferred on the body by current laws and regulations.

[114] At the time of writing, this action had been postponed as a result of budgetary constraints.

[115] ANECA is a member of the Executive Committee since its foundation in 2003.

Evaluation of syllabus verification and accreditation	Assessment of university staff	Assessment of university institutions, centres and services
a) Evaluation of changes made to verified syllabi b) Monitoring of the implementation of verified syllabi in cooperation with regional agencies c) Accreditation of verified qualifications six years after implementation, or less for master's degrees	a) Provide indicators on staff's teaching and research activities so as to improve quality in accordance with international benchmarks of excellence b) Improve transparency and impartiality so as to minimise complaints c) Become a benchmark for academic staff research, teaching and management standards and define the academic career of Spanish university staff in accordance with an international system of academic quality	a) Evaluation of university processes and services in its role in support of quality assessment policies directed at improvement of the system as a whole b) Support lines of work driving processes at the European and international levels, thus contributing to the internationalisation of the Spanish university system

Table 21. ANECA actions in the new phase

Assessment activities are undertaken end to end: drafting of criteria and protocols, admission of applications, assessment, drafting of reports, communication to applicants, response to claims and queries, decisions on appeals, and publication of final reports. In partnership with the Devolved Regions ANECA produces an annual report on quality assessment at Spanish universities.

Within its quality promotion activity, ANECA supports universities as part of its quality promotion activity and, in the development of staff teaching activity assessment procedures, provides guidance and evaluates those universities voluntarily requesting certification of their systems. These activities are implemented in cooperation with regional Devolved Regions' assessment agencies.

ANECA will implement mutual recognition procedures with other regional, national and international agencies. These procedures are in accordance with those carried out by international organisations and the provisions of the CGPU where recognition takes effect within a Devolved Region.

ADAPTATION OF ASSESSMENT PRACTICES TO THE NEEDS OF THE SCIENTIFIC COMMUNITY

The action plan proposed in *Estrategia Universidad* 2015 in furtherance of the modernisation of Spanish public universities included renewed support for training and research in all scientific fields: technology, experimental science, health sciences, environmental sciences, juristic sciences, humanities, social sciences, etc.

Estrategia Universidad 2015 places renewed emphasis on the strategic significance of the social and cultural dimension of universities in the direction taken by the recent line of European declarations and Spanish legislation. Today, priority

appears to attach to those academic ambits relating to technology and experimental science. However, the social sciences and humanities act as a support by upholding the richness and diversity of European cultural, social and humanistic heritage and by fostering convergence around a range of values and strategic objectives. The Advisory Committee for the Promotion of Training and Research in the Social Sciences, Juristic Sciences and the Humanities, concerned with the implementation of new study plans in the framework of the European Higher Education Area and with the improvement of individual assessment in all areas of activity of the assessment agencies (ANECA and CNEAI), considers obstacles standing in the way of support for research in these areas and their specific features of knowledge transfer to the wider community.

The Committee comprises reputable experts in the social sciences, law, the arts and humanities, economics, archaeology, philosophy, history, literature, sociology, geography, and so forth, so as to create a forum for dialogue and debate in these realms of knowledge.

The papers produced so far reflect a concern with the process of adapting qualifications in these disciplines to the European Higher Education Area. Areas for improvement have been identified, in particular, as regards the methodology for the assessment of research activities and the need to make provision for the specific features of study, research and knowledge transfer in the human and social sciences as opposed to the realm of science and technology. A need has been detected to visualise the social value of the knowledge generated by these disciplines, their impact and applicability.

Knowledge transfer and in this ambit exhibits special features that set it apart from knowledge transfer in the experimental sciences. We must accordingly consider these specific traits, enhance returns on university activity in these fields of knowledge, and assure their quality and their suitable assessment and recognition. Knowledge transfer must in no event be circumscribed to experimental or technological disciplines alone. The renewed centrality of these disciplines often reflects the importance of the services performed by highly qualified professionals in support of technological production and development. In the so-called "services to production" the contribution of graduates of the social sciences and the humanities is taking on growing importance.

The sectors relating to social dynamics play a strategic role as regards training activities, health, improvement of quality of life, care and leisure activities. In addition, the arts are a crucial social and economic sector, in particular, in a society such as Spain's, for which culture is a key asset. The management of large organisations also calls for the involvement of professionals and experts in the social and human sciences with a strong grasp of human relations and economic, psychological, social and cultural mechanisms, and of how these might be mobilised so as to attain the intended objectives. We must accordingly support the contribution of the social and human sciences to society in a broad sense, and in training, research and knowledge transfer, and move forward in the suitable recognition and assessment of these activities.

INSTITUTIONAL ASSESSMENT

One of the paths to university excellence and better placement on international rankings is educational quality.

The concept of "**quality**" emerged from the need to enhance social productive processes so as to foster a culture of quality in the processes and products of productive systems in developing countries. Quality is not an end in itself but a means to a better outcome in processes and products. Quality in university education emerges from the inter-relations holding between all elements of the educational process so as to obtain better results in knowledge transfer (in a broad sense) and technology transfer within the university.

Assessment is a process to improve educational quality. It involves inter-related actions towards the achievement of a university's predetermined goal. *Estrategia Universidad* 2015 is predicated on the view that the assessment process helps universities to measure, specify, appreciate and estimate their strengths and weaknesses. Assessment within the university must be an ongoing cyclical process producing valuable information for decision-making.

It is a difficult proposition to construct **indicators** to quantify "*educational quality*". Such indicators should reveal the present state of an institution, the existing educational factors, and whether or not the institution is operating optimally. So as to quantify the quality prevailing at a university, a combination of the following variables fall to be considered:

- Functionality: does the university satisfy the needs of the host community?
- Effectiveness: does the university achieve its intended aims?
- Efficiency: does the university achieve those ends at a reasonable cost?

The process of institutional assessment comprises three stages:

- **Self-assessment or internal assessment:** Conducted by the university itself, it is directed to the same goal as external assessment, namely, to improve the educational quality of the institution or unit. A self-assessment committee specifies and evaluates the university's situation with respect to certain established criteria, initially identifying a number of proposed improvements which will form the basis of action plans to be set in motion at the end of the process. The product of this stage is a self-assessment report.

- **External assessment:** Conducted by a party of evaluators external to the assessed unit, appointed by ANECA and operating in accordance with its guidelines and supervision. The assessment team analyses the self-assessment report via documentary study and a visit to the evaluated unit, and issues recommendations and proposals for improvement. The outcome of this phase is an external assessment report.

- **Final phase:** The key results of the assessment process are collated and combined. During this phase, the unit improvement plan is implemented: improvement actions recommended as a result of the assessment phase are enumerated, tasks towards achieving such actions are defined, as are the people responsible for carrying them out, the resources involved and the timetable for completion. Indicators are constructed to monitor identified actions and quantify their expected benefits.

The assessment activities to be carried out at a university are:

- Assessment of courses and institutions
- Assessment of postgraduate programmes
- Assessment of academic staff
- Assessment of services

In addition to ANECA, regional assessment agencies are in operation. As at July 2010, agencies with recognise powers were operating in Andalucía, Aragón, Islas Baleares, Canarias, Castilla-La Mancha, Castilla y León, Cataluña, Galicia, Comunidad de Madrid, País Vasco and Comunidad Valenciana.

STANDARDISATION OF INSTITUTIONAL ASSESSMENT

The European Higher Education Area framework and emerging Spanish legislation requires that in their activities universities assure the attainment of the aims of the courses they offer and improve them on an ongoing basis. Universities must accordingly have in place formally stipulated and publicly available internal quality assurance systems and policies.

As guidance for universities' implementation of internal systems of quality assurance, ANECA, in partnership with the AQU and ACSUG agencies, has developed the Audit Programme;[116] the programme is supported by a range of documents – listed in table 22 – intended to aid universities in the preparation of their own quality systems. A number of horizontal concerns are directed at the university community as a whole (e.g., academic staff, material resources and services, etc).

The issues considered by the Audit Programme are congruent with those which will form the subject matter of the future VERIFICA programme, based on the statutory requirements attending the authorisation and registration of new bachelor and master programmes. Efforts are thus brought into alignment and universities are given the opportunity to take part in the processes verifying future qualifications.

The ANECA website provides a list of centres and universities that have earned a positive assessment score. This dynamic list will later include universities that have not so far succeeded once they have corrected any nonconformities or shortfalls.

Working documents in aid of drawing up an internal quality assurance system	
System design documents	University education quality assurance system design guide Guidelines for the design of university education internal quality assurance systems Diagnostic tools
Assessment	University education internal quality assurance system design assessment guide Protocol for the preliminary review of documents received Protocol for assessment of the design of a centre's internal quality assurance system Assessment report template

Table 22. Documents developed in the framework of the Audit programme for the creation of internal quality assurance systems

ACADEMIC CLASSIFICATION OF UNIVERSITIES OR ACADEMIC RANKING OF UNIVERSITIES

One of the aims of *Estrategia Universidad* 2015 is to raise the leading Spanish universities to prominent places on international rankings. Indicator-based actions will be intensified so as to identify which lines of action must be reinforced so as to achieve this goal.

Academic league tables of universities are ranked lists that classify universities and higher education and research institutions in accordance with a rigorous bibliometric methodology[117] deploying measurable, reproducible criteria.[118] These league tables are designed to put on display the relative performance and quality of universities. There are two types: league tables may be general or specific. General league tables use at least two, and usually a large number, of criteria. Specific tables are drawn up with reference to a single category and are designed to evaluate particular aspects in which an institution may stand out individually.

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[116] http://www.aneca.es/actividadesevaluacion/evaluacionenseñanzas/audit.
[117] Bibliometry is a form of scientific measurement that applies mathematical and statistical methods to academic literature and its authors so as to study and analyse academic activity. This discipline invokes bibliometric laws based on regular statistical behaviour over time displayed by the various elements of a given academic discipline. The instruments used to measure this social phenomenon are bibliometric indicators, which disclose information about the results of academic activity in all its guises.
[118] *Nature* is today one of the most highly regarded academic journals in the world and is thus used as a bibliometric yardstick by which to classify universities.

League tables based on bibliometric criteria are the most widespread, being objectively reliable, because the data is not provided by institutions directly and can therefore form the basis of more rigorous analysis.

League tables based on non-objective bibliometric criteria are prepared on the basis of information provided by universities themselves, in their own discretion. Not being always verifiable, the data is open to being manipulated. Much of this information is considered "confidential", so league tables based on it are not entirely reproducible. The measurements considered here are directed not so much to estimate the impact and quality of an institution as its infrastructure, budget, etc.

Bibliometric indicators used for university league tables	
Objective indicators	• Number of publications in peer-reviewed, indexed journals circulated internationally: this measures an institution' capability for generating new knowledge • Number of citations of papers published by its academics: this indicator measures the acceptance of the knowledge generated by the institution among the international academic community • Number of publications in high-impact journals (*Science, Nature*, etc): this indicator estimates the penetration of the knowledge generated among the academic circles regarded as the most rigorous • Number of alumni winning international awards (Nobel Prize, Fields medal, etc): this indicator indirectly measures the institution's capability for training graduates who will have a high impact in future • Number of academics receiving international awards (Nobel Prize, Fields medal, etc): this indicator, similar to the above, measures the quality of the knowledge generated and transferred to students • Number and volume of academic content on the Internet: this indicator measures the institution's capability for distributing knowledge, its impact and recognition, using modern information technologies
Non-objective indicators	• Number of enrolled students[119] • Number of graduates as a proportion of enrolled students • Number of academics holding doctoral qualifications • Number and type of courses taught • Number of postgraduate degrees registered with quality schemes • Number of ISBN[120] titles in libraries • Number of subscriptions to ISSN[121] journals

Table 23. Bibliometric indicators used to compile league tables of universities

[119] Some league tables do not regard this indicator has bibliometric.
[129] International Standard Book Number (ISBN)
[121] En publicaciones periódicas como revistas se usa el Número Internacional Normalizado de Publicaciones (ISSN, *International Standard Serial Number*).

Many university rankings are in circulation and new ones are in the offing, such as the league table being developed by the European Commission on a discipline-by-discipline basis. Each league table uses measurable and largely reproducible objective yardsticks, in combination with non-objective indicators supplied by universities and other institutions in their own discretion and in confidence. As a rule, the most readily obtainable reliable indicators are those relating to research and development; the same cannot be said, however, for training and technology transfer. We would like there to be a league table measuring a university's effective socioeconomic contribution to its environment (jobs, return on patents, utility models and software registrations, business creation, contribution to development, etc.).

Furthermore, the Academic Ranking of World Universities (ARWU) is heavily slanted towards Nobel prizes and publications in *Nature* and *Science*, thus discriminating against Spanish universities. A major aspect of academic rankings (and bibliometry in general) is the language factor. English is the predominant language of academic publications, and Spain is clearly at a disadvantage with respect to English-speaking countries. It is especially significant, for example, that in the field of the social sciences the first 52 positions on the ARWU are held by universities located in English-speaking countries, and among the topmost 100 institutions only 9 are located in countries having an official language other than English. Rankings are a spur to university improvement, but a university's presence or otherwise on a league table cannot be taken as an accurate gauge of the quality of its role as a whole, in particular, its teaching capability.

Estrategia Universidad 2015 is crucially concerned to raise Spain's universities to more prominent positions in academic rankings:[122]

- *The Times World University Ranking*

  The UK publication *Times Higher Educational Supplement* (THES) compiles a university league table based on objective criteria (not all of which are bibliometric, however). Scores are weighted as follows: 60% for "research policy", 10% for graduate employability, 10% for "international presence", and 20% for the student-faculty ratio. The 2010 edition of the league table will introduce a number of improvements to enhance the rigour, balance and transparency of the ranking.

- *Academic Ranking of World Universities (ARWU) or Shanghai Jiao Tong University Ranking*

  One of the world's most widely known academic rankings, this league table is compiled by a team of bibliometric experts at Jiao Tong University, Shanghai, China. The world's leading higher education institutions are included, ranked in accordance with a formula that considers the number of Nobel laureates (10%), winners of the Fields medal (20%), number of researchers earning a high citation index in 21 general topics (20%), number of articles published in the academic journals *Science* and *Nature* (20%), impact of academic papers as recorded by by the Science Citation Index (20%), and, finally, the "size" of the institution.

- *CSIC Webometric league table*

  This league table is compiled by the Cybermetrics Laboratory of Spain's Higher Council for Scientific Research (CSIC).[123] The Cybermetrics Laboratory is an observatory of the science and technology available over the Internet. The league table is compiled from a database of around 15,000 universities and over 5000 research centres. The table ranks the 4000 uppermost institutions. The bibliometric methodology considers the volume of web-based content and its visibility and impact as a function of external links pointing to their web location. The methodology thus objectively evaluates the significance of each institution within the social network of university websites around the world.

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[122] In addition to the rankings listed here, reference might be made to the QS World University Rankings and SCIMAGO Institutions Ranking (SIR).
[123] http://www.webometrics.info

- *UNIVERSIA LEAGUE TABLE*

Universia is a web portal for Latin American university students which publishes a bibliometric study of Latin American research institutions. The league table quantifies a number of peer-reviewed publications on the Science Citation Index database.

Top 200 universities by country

Top 500 universities by country

Top 200 universities by region

Top 500 universities by region
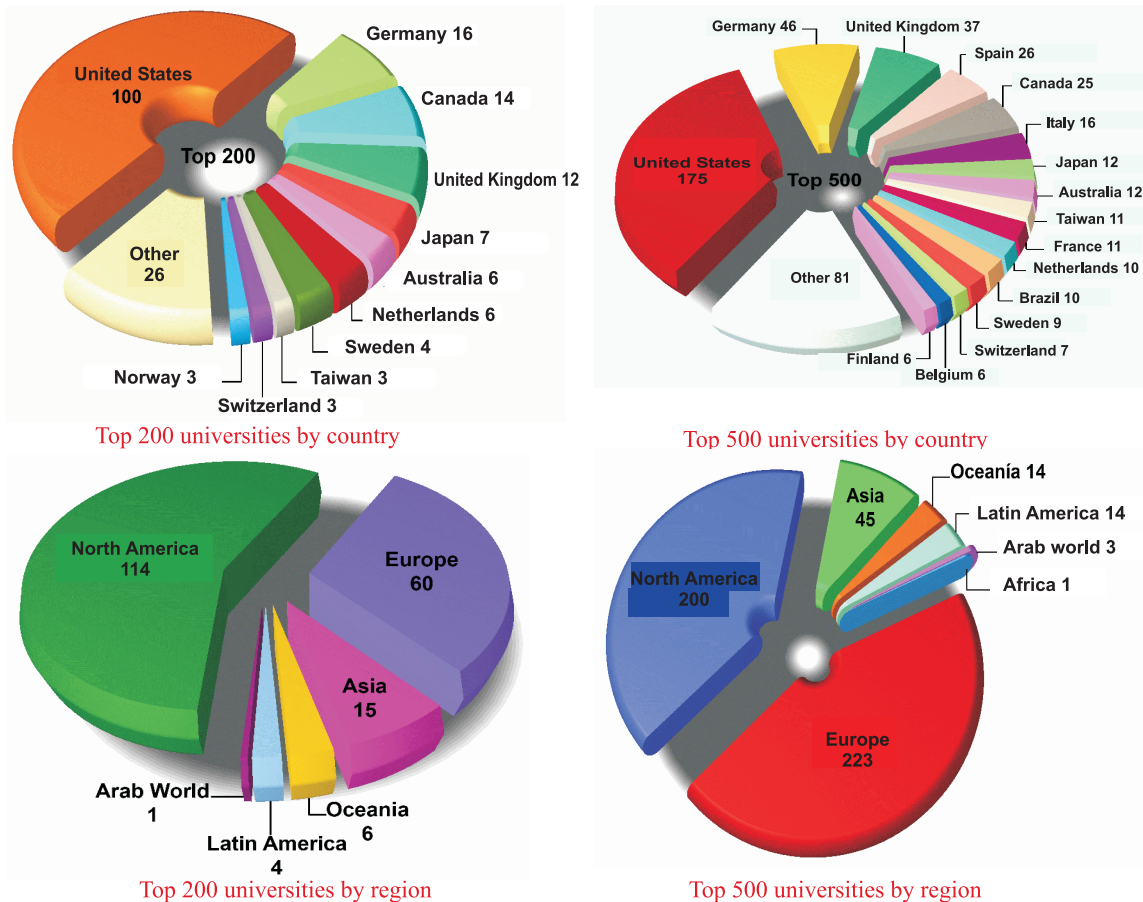
Sources: CSIC Cybermetrics Laboratory http://www.webometrics.info
Date: July 2010 edition of *Ranking Web de Universidades del Mundo*

Graph 23. Distribution of universities ranking among the top 200 and 500 in the *Ranking Mundial de Universidades en la Web* compiled by the Cybermetrics Laboratori, CSIC, Spain, by country and region.

ANALYSIS OF SPANISH UNIVERSITIES' PERFORMANCE

I. ARWU 2009

In the 2009 report, the world's 500 most competitive universities included 11 Spanish institutions. Only 4 Spanish universities were present among the top 300 (the University of Barcelona (UB) in the 152-200 range, so ranking in the 59-79 range in Europe;[124] the Autonomous University of Madrid (UAM), the University of Valencia (UV) and the Universidad Complutense de Madrid (UCM), ranking in the 80-125 tranche in Europe). The Autonomous University of Barcelona (UAB) and the Polytechnic University of Valencia (UPV) lay in the 301-401 range, and other listed institutions included the Universities of Granada (UGr), Pompeu Fabra (UPF), Santiago de Compostela (USC), Seville (USe) and Zaragoza (UZa).

The table below shows the scores and weightings underlying each of these Spanish universities' rank. Other than UCM, none scores in the first two columns (alumni (10%) and awards (20%)). HiCi (20%) [highly cited researchers in 21 broad subject categories] indicates our highest-ranked scientists in their respective 21 subject areas. Of the 11 Spanish universities, 5 earned a score of zero, 5 scored 7.3, and only UAM attracts 12.6 points. The fourth column (*Nature* and *Science* (20%)) distinguishes universities contributing the most to high impact journals such as *Science* and *Nature* (the contribution of Harvard University represents a score of 100). The fifth column (PUB (20%) [papers indexed in SCI and SSC]) discloses publications output, and here our scientific productivity reveals our best competitive strength (eight of the 11 universities exceeded a score of 30). The sixth column (PCP (10%) [per capita academic performance][125] places the previous five indicators in relation to full-time faculty numbers. The sources of this data are unknown, and this is where differences might arise. However, the narrow range of variation in university staff numbers should lead to similar values persisting in this column from year to year.

	I(alumni)	II(award)	III(Hici)	IV(N&S)	V(PUB)	VI(PCP)
UB	0	0	7,3	14,5	50	24,2
UAM	0	0	12.6	12,5	37,6	19,1
UCM	17,3	0	0	10	41,5	20,4
UV	0	0	7,3	8,6	40,3	19,2
UAB	0	0	0	7,1	40	18,7
UPV	0	0	7,3	9,7	29,2	14,6
UGr	0	0	0	3,5	33,7	15,6
UPF	0	0	7,3	10,6	20	10,9
USC	0	0	0	5,3	30,7	14,3
USe	0	0	0	7,4	30,4	14,4
UZa	0	0	7,3	11,3	22,7	14,4

Table 24. Percent weighitings of scores assigned to certain Spanish universities in the Academic Ranking of World Universities 2009.

[124] In the THES Top 200 World Universities ranking, the University of Barcelona placed 171st. In 2008, it ranked 186th, and in 2007 it stood 194th.
[125] *"The weighted scores of the above five indicators derived by the number of full-time equivalent academic staff."*

II. *ARWU 2010*

In the 2010 report, one of Spain's 11 institutions formerly included among the top 500 dropped from the chart: the University of Seville. The University of Barcelona, formerly in the 150-200 group, dropped to the next group down, comprising positions 210-301. Detailed scrutiny of the results can aid an understanding of the reasons underlying the performance of Spanish universities on this league table.

	I(alumni)	II(award)	III(Hici)	IV(N&S)	V(PUB)	VI(PCP)
UAM	0,0	0,0	12,5	14,3	38,6	16,6
UCM	16,9	0,0	0,0	9,0	43,3	11,1
UB	0,0	0,0	7,2	14,0	51,4	15,9
UV	0,0	0,0	7,2	10,1	40,9	13,2
UAB	0,0	0,0	0,0	7,7	42,4	16,2
UPV	0,0	0,0	7,2	11,5	31,4	15,4
UPF	0,0	0,0	7,2	10,1	31,1	14,6
UGr	0,0	0,0	0,0	6,1	36,3	11,2
USC	0,0	0,0	0,0	5,6	32,5	12,3
Uza	0,0	0,0	7,2	1,5	31,8	12.2
U Leuven	**0,0**	**0,0**	**21,6**	**15,0**	**53,8**	**25,5**
U Singapore	**0,0**	**0,0**	**10,2**	**14,6**	**59,1**	**27.0**

Table 25. Data on certain Spanish universities in the Academic Ranking of World Universities 2010 compared to the universities Universities of Leuven and Singapore, which lie in the range 101-150.
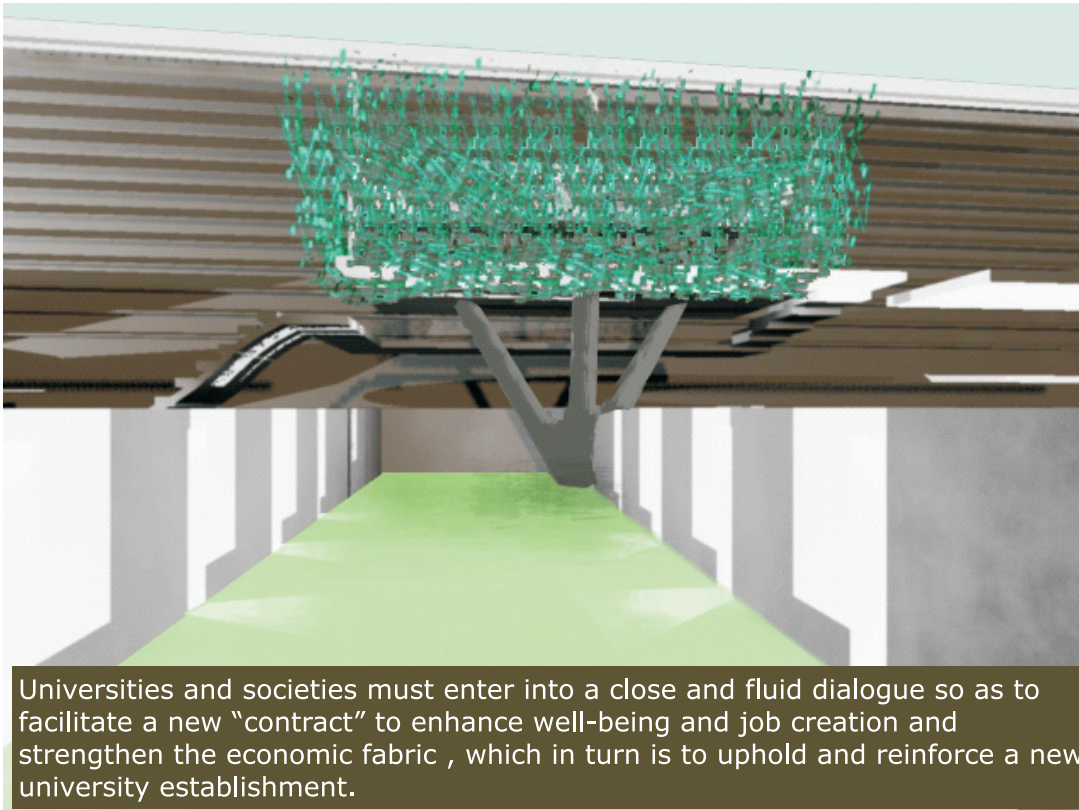
The universitie's sigles ar in the Appendix Acronyms.
Alumni of an institution winning Nobel Prizes and Fields Medals (Alumni)
Staff of an institution winning Nobel Prizes and Fields Medals (Award)
Highly cited researchers in 21 broad subject categories (HiCi)
Papers published in Nature and Science (N&S)
Papers indexed in Science Citation Index-expanded and Social Science Citation Index (PUB)
Per capita academic performance of an institution (PCP)

COMPARISON OF SPANISH UNIVERSITIES ON THE ACADEMIC RANKING OF WORLD UNIVERSITIES 2010 IN RELATION TO EUROPEAN INSTITUTIONS IN THE TOP 101-150

Spanish universities on the league table will be compared to European peers among the top 101-150, the range in which we should aim to gain an initial foothold. Of the 50 universities in this tranche, 30 exhibit double zero scores in alumni (1) and awards (2), and only eight are European. Two obvious point stand to be made: first, column 3, the high citation indicator for leading researchers, invariably exhibits value s more than double those attained by Spanish universities; secondly, the academic output (column 5) of these universities lies within the same range as that of Spanish institutions, such that the PUB index for the University of Barcelona is virtually equal to that of the leading institution in this group, the University of Amsterdam. Only the UB and UAM display competitive and comparable values for output published in *Science* and *Nature*.

Accordingly, if we re-scale this data with reference to the size of full-time faculty, we find that Spanish universities are in no way competitive. All the European universities being compared display PCP (column 6) values of 20 to 30, while Spain's universities lie in the range 10 to 20.

Surprisingly (and the underlying reasons are to be considered in depth), in 2009 the University of Barcelona earned a PCP score of 24.2, comparable to its European counterparts, whereas in 2010 that value had slipped to 15.9. Only UPF has improved, rising from 10.9 in 2009 to 14.6 in 2010.

Another key comparison falls to be made between the Universidad Politécnica de Valencia, the highest-ranked Spanish polytechnic university, and the Swiss Federal Institute of Technology at Lausanne, whose faculty impact more than trebled the impact of Valencia's and which is also ahead in all other indicators.

The Universidad Complutense de Madrid, for its part, exhibited alumni scores (column 1) of 17.3 in 2009 and 16.9 in 2010, and should accordingly be one of our highest-ranked universities: for the purposes of this analysis, one might compare it to the University of Milan, whose alumni score was 19.2.

In the **2010 report**, among the top 100 universities 58 were North American (4 Canadian institutions and 54 United States institutions), 33 were European (32 were European in 2009) and 9 were located in the Asia Pacific region. Of the top 20, 17 were in the United States, 2 were in the United Kingdom, and 1 was in Japan. European weakness is perfectly apparent: as against 54 United States universities and 5 Japanese institutions, in Europe we find only 11 in the United Kingdom, 5 in Germany, 3 in France, 3 in Sweden and Denmark and 1 in Finland, inter alia.

Among the 200 best, we find 100 American universities (99 in 2009), 74 European institutions (79 in 2009) and 26 Asia-Pacific institutions (22 in 2009). Looking at the 400 best universities worldwide, some measure of balance is restored between the United States and Europe. North America accounts for 162 universities, as compared to 168 European institutions, 68 universities in the Asia-Pacific region, and 2 African universities.

Among the 500 uppermost institutions, China had 34 (having made a major effort to climb the table, and having had 30 in 2009). Out of the 50 public universities in the Spanish universities system, only 10 placed among the 500 best in the world, and 4 were in the 201-302 range. France placed 22 universities, the United Kingdom placed 38, Germany had 39, Italy 22, Sweden had 11 and Finland had 6. The case of Finland reveals that smaller countries than Spain are able to attain higher success.

	I (alumni)	II (award)	III (Hici)	IV (N&S)	V (PUB)	VI (PCP)
Swiss Federal Institute of Technology of Lausanne	0,0	0,0	23,9	20,1	40,4	34,0
VU University Amsterdam	0,0	0,0	23,9	13,4	51,8	28,2
Radboud Un. Nijmegen	0,0	0,0	10,2	19,4	48,5	29,9
University of Durham	0,0	0,0	19,0	18,6	33,3	20,5
University of Padua	0,0	0,0	12,5	18,8	48,8	18,7
University of Southampton	0,0	0,0	19,0	17,9	42,6	18,2
University of Warwick	0,0	0,0	24,4	14,8	37,5	20,3
European universities ranked within the range 101-150						
	I (alumni)	II (award)	III (Hici)	IV (N&S)	V (PUB)	VI (PCP)
U Milán	19,2	0,0	19,0	13,2	48,6	19,4
UCM	16,9	0,0	0,0	9,0	43,3	11,1
Scores on the University of Milan and Universidad Complutense de Madrid						

Table 26. Data on certain Spanish universities in the Academic Ranking of World Universities 2010 compared to the universities Universities of Leuven and Singapore, which lie in the range 101-150

Conclusions regarding the Academic Ranking of World Universities 2010

a) A properly thought out merger can place the resulting University and its metropolitan environment in the forefront of the globalization of knowledge. A very notable advance was achieved by the University of Manchester,[126] which, under its present name after the merger of two former institutions, placed 44th in the world, behind Cambridge (5), Oxford (10) and University College London (21). An instructive strategy for improvement of university competitiveness is to be found in the programme *The New University Challenge*, set in motion by the Department for Innovation, Universities and Skills (DIUS). Spain's International Campus of Excellence programme merits mention in this connection, in so far as it should promote interaction between complementary universities.

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[126] It is a worthwhile exercise to read the University of Manchester's strategic plan, updated for 2010, especially as regards internationalization: *Advancing The Manchester 2015 Agenda. The Strategic Plan of The University of Manchester.*

b) The fact of having no world-class leading researchers in some of the 23 areas considered impairs our competitiveness. High impact recruitment of leading researchers has been undertaken by institutes of excellence (ICREA, CSIC, ERC) rather than universities, so this effort does nothing to raise the visibility of our university system.

c) Publications. The complex system of bibliometric scoring should be considered for the purpose of making the best use of co-authored papers. In relation to the International Campus of Excellence programme, joint publication authorship policy should be aligned with the methodology underlying this type of scoring and ranking system.

d) The rankings seek to scrutinize academic efficiency by placing indicators in relation to the number of full-time faculty. Spain's university system, having undergone an accretion of schools and qualifications associated with scant research and development, is accordingly seen to perform poorly.
Only research-intensive world-class universities can compete at a global scale for prominent places on the league table of knowledge. Disparagement of the method of assessment used by THES and ARWU while doing nothing to raise at least a handful of universities to preeminent positions would be a mistake that *Estrategia Universidad* 2015 seeks to avoid. The Devolved Regions should be more receptive to the Ministry's International Campus of Excellence initiative and so help to move forward towards a new map via a rethinking of the role of higher education.

e) The Government of Spain should provide incentives to raise those indicators that directly drive up universities' rankings. An example might be target-driven funding: additional funds would be forthcoming for a university on the basis of its *Science* and *Nature* publication score. Likewise, SSCI publication should be encouraged in the human, social and legal sciences.

f) A more in-depth inquiry should be undertaken into the reasons why only 10 of our universities are among the world's 500 best and, of these, only five or six stand any chance of ranking among the top 150-200 even after the conduct of a powerful modernization strategy. The intention is that *Estrategia Universidad* 2015 include an analysis and recommendations initiative within the action plan, aimed at improving universities' ARWU ranking by 2015.

5. UNIVERSITY COMMUNICATION

Universities and societies must enter into a close and fluid dialogue so as to facilitate a new "contract" to enhance well-being and job creation and strengthen the economic fabric , which in turn is to uphold and reinforce a new university establishment.

The objectives of this strategic ambit rest on two interrelated planes of communication:[127] societal recognition of the role of universities, and the dissemination of *Estrategia Universidad* 2015. Universities and societies must enter into a close and fluid dialogue so as to facilitate a new "contract" to enhance well-being and job creation and strengthen the economic fabric, which in turn is to uphold and reinforce a new university establishment. For this dialogue to take place the importance of the universities' role must be communicated, and society –including sectors unrelated to the university community– must be made to become involved so as to achieve the necessary support for higher education and research.

The development of an advanced and competitive democratic society rests on the pillars of education and science. Citizens must have available comprehensive and accurate information on the educational system as a whole. The information has not always been sufficiently accurate, and this has brought about uncertainty and alarm, such as in the early stages of the European Higher Education Area. One of the compounding factors of this state of affairs is the inadequate media coverage typically accorded to this subject, often circumscribed to a narrow range of facts and topics and sometimes engaged upon without due rigour.

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[127] This section is based on the report produced by Díaz Benito, V.M: Plan Director del Comunicación. Propuesta de actividad 2009-2010.

Estrategia Universidad 2015 sets down the contents of a communication strategy directed to raise awareness of the importance of universities. First, the special features must be identified of the university as an institution and of its attached organisations. The communication model must comprise a mechanism for assessment of its own effectiveness and efficiency, including comparison between the communications carried on by Spanish universities and those of universities in other countries.

We must prevent a situation in which a shortage of information leads young people, and university-bound young people especially, to lose confidence in the ability of public authorities to manage education, and to form an inaccurate picture of the university establishment and the possibilities for developing their own potential.

Estrategia Universidad 2015 must itself be made widely known: it is the most ambitious project of university policy deployed in recent years and enhanced visibility will generate strong societal support for universities. A wide-ranging communicative effort should be set in motion, adopting a variety of institutional initiatives and making use of the benefits of new communication systems: periodicals and other publications on university policy, Internet-based television, websites, online newsletters, expert forums and networks, information offices and local points of contact, institutional advertising, and so forth.

Estrategia Universidad **2015 communication**	
Objectives	**Planned actions**
• Raise the value placed by citizens on the university as an institution that aids economic development and social progress • Raise the international visibility of the Spanish university system as a generator of ideas, projects and opportunities • Nurture academic vocations among young people so as to assure the future of research and development • Socially disseminate the image of the *Estrategia Universidad* 2015 as an initiative for quality and a force for modernisation and change • Establish the public image of the Ministry of Education as the department in charge of university policy • Promote the university's three missions	• Treat communication as a strategic line of action for universities • Attract the best students and researchers: press offices oriented towards communication in foreign media • Raise awareness of the value of science and of the role of academic research and development • Foster societal regard for universities and higher education and training • Communicate the Estrategia Universidad 2015 • Disseminate the strategy among the university community • Raise awareness of the strategy in society at large • Specific media-oriented messages • Customise dissemination for each province • Student involvement and direct dissemination

Table 27. Objectives and actions for the communication of *Estrategia Universidad 2015*

Communication
as a university
strategy

Attract the best students and researchers
- Create international communication units coordinating all educational levels

Nurture academic locations
- Create international communication units for dissemination purposes

Raise societal regard for universities and higher education
- Circulate reports on the economic impact of universities
- University support for business spinoffs of university projects and partnerships with enterprises
- Dissemination of personal success stories relating to universities

Raise awareness of EU 2015 among the university community
- **Specific messages for the media**
- **Tailored dissemination for each specific province**
- **Student involvement and direct dissemination**

Communication of EU 2015

ESTRATEGIA UNIVERSIDAD 2015

Dissemination of _Estrategia Universidad 2015_ to society at large

Disseminate the Spanish Government's project to modernize Spanish universities

Disseminate the consensus policy arrived at by universities and the Devolved Regions via the CU and the CGPU

Graph 24. Communication as a strategy for universities and for _Estrategia Universidad 2015_

One line of action that may create added value is to encourage press offices to supplement their day-to-day activities with special actions: international dissemination of the university's initiatives and projects, academic and scientific popularisation, and raising the university's profile as an economic actor. If every Spanish university and research institution were to address these themes in their communication policy, the outcome would be that we would have at least 77 press offices around Spain issuing ongoing reminders of the economic and scientific significance of Spanish universities. Spanish universities would form a "communication cluster", thus winning higher domestic and international prestige, generating wider societal support and nurturing more academic vocations. A communication project emphasising values must be achieved so as to lend support to the successes garnered by *Estrategia Universidad* 2015.

One of the aims of communication strategy is to arrive at coordination among the press offices of universities, CRUE and the Devolved Regions. This goal calls for making use of all institutions relating to universities so as to entrench their "fundamental ideas", such as International Campus of Excellence aggregations (institutes, university hospitals, technology parks, etc).

**AMBITS, STRATEGIC AXES, OBJECTIVES AND COMMITTEES**			
Ambit	**Strategic Axis**	**Lines of Action**	**EU 2015 Objectives**
CAPACITY BUILDING	**FUNDING**	**FUNDING MODEL**	• Assessment and monitoring of annual action plans resulting from the document *University Funding Policies to Promote Academic Excellence and Raise the Socioeconomic Impact of the Spanish University System*
		SYSTEM INDICATORS	• Develop an integrated system of indicators
		ACCOUNTABILITY	• Adoption of a cost accounting model for Spanish public universities
	GOVERNANCE	**AND ACCOUNTABILITY**	• Review the rules and structure of universities' Social Councils
		UNIVERSITY STRUCTURES	• Create an expert committee entrusted with drafting the Royal Decree on university governance structures
		OFFICES HELD BY INDIVIDUALS	• Propose improvements to the system of governance of the Spanish university system in the light of the analysis and papers published on governance in Spain from 2010 to 2015
		UNIVERSITY SYSTEM	• Develop a governance model for International Campuses of Excellence
	INTERNATIONALIZATION	**INTERNATIONALIZATION PLAN**	• Adopt and implement the Master Plan for University Internationalization (Spanish "PDIU") • Support the Fundación Universidad.es in its efforts to promote Spanish universities overseas • Introduce measures to attract foreign students to the Spanish university system <table><tr><td>Studies \ Years</td><td>2010</td><td>2015</td></tr><tr><td>First- and second-cycle and bachelor's</td><td>4%</td><td>8%</td></tr><tr><td>Master's</td><td>18%</td><td>25%</td></tr><tr><td>Doctorate</td><td>23%</td><td>35%</td></tr></table> • Promote the creation of mechanisms to hire foreign academics via agencies (on the pattern of ICREA) • Reinforce Ramón y Cajal programmes to recruit young researchers • Remove red tape and legal barriers (permits and visas) so as to encourage internationalization
	ASSESSMENT AND AGENCIES PLAN	**EXTERNAL ASSESSMENT**	• Annually publish the results of international assessment of E*U 2015* • Promote international assessment within the OECD Increase human resources and improve the performance of the CNEAI via coordination with ANECA
CAPACITY BUILDING	**ASSESSMENT AND AGENCIES PLAN**	**NATIONAL ASSESMENT**	• Increase human resources and improve the performance of the CNEAI via coordination with ANECA • Develop ANECA as an agency • In the context of the Sectorial Board of Universities, analyze systems for assessment of administrative staff • and academic performance bonuses • Improve the system of complaints operated by quality assurance and assessment agencies • Produce an annual report to be submitted to the Universities Council and the General Conference for University Policy on the results garnered by research performance bonuses
	UNIVERSITY COMMUNICATION PLAN	**SCIENTIFIC VOCATION**	• Promote the Program Summer Science Campus" • Increase communication between the university and secondary education establishments
		INTERNATIONAL RECOGNITION	• Establish a database of universities incorporate media • Plan inter-communication in the field of academic functions

CHAPTER V
ENVIRONMENT

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ENVIRONMENT

1. UNIVERSITY AND TERRITORY

Furthermore, in recent decades our universities and other research centres have played ever greater roles in terms or public policy, particularly policies related to encouraging the federal and regional governments toward greater innovation.

In the course of completing the tasks that constitute higher education and the diffusion of knowledge, our universities have traditionally also contributed to local and regional development. Furthermore, in recent decades our universities and other research centres have played ever greater roles in terms of public policy, particularly policies related to encouraging the federal and regional governments toward greater innovation.

These days, universities are concerned not only with the teaching and production of knowledge that in turn raise the levels of scientific and humanistic culture in our society. They are also concerned with wielding their influence so as to contribute to social and economic development in their communities and regions. As a result, society now demands that the universities play major roles in the creation and diffusion of knowledge that will encourage the nation's companies to innovate as well. This is true not only of private universities; our public universities, too, as well as their individual departments, research groups and institutes, must join forces with government entities and a wide range of other public and private entities.

While these new demands can create new and useful perspectives for academics, they can also create tension between and among academic institutions, and occasionally bring to light institutional contradictions that should not be overlooked. Our universities must therefore be prepared to advance on numerous fronts at once.

In recent decades, universities in Spain have undergone an intense period of transformation. Their internal structures have had to be rearranged as new forces pushed them to achieve ever greater quality and efficiency. To take only a few examples, programme contracts, competitive bidding for research groups and institutes, and faculty evaluations both for those who teach and those who do research all form part of an unprecedented internal push toward higher quality within Spanish universities. Their active participation in the development of science parks, technology parks and technology centres, the creation of university chairs funded partly by private businesses, other agreements between universities and businesses, and the growing role of university-based social councils are just a few examples of the kinds of initiatives that are strengthening the bonds between universities and their communities. All of these reforms, whether internal or external,

have contributed to the creation of a new university model: one that is both more efficient and more sensitive to societal demands.

However, this new relationship between universities and their surroundings, as well as the proliferation of social initiatives created by universities, occasionally create conflict between those with a vested interest in this new relationship, and those who believe the universities should focus as before on training and scientific enquiry.

1.1. Universities as instruments for Promoting Development in their Communities

The university's role as an engine for local development grows ever more important here in Europe. Beginning in the 1970s, many local and regional governments in the United Kingdom, Germany, France and Italy formed partnerships with public universities, so as to increase the number of local university graduates, and to help businesses become more competitive. As of the 1990s, these initiatives were strengthened further by the strategic use of information and communication technologies (ICTs), consolidating their position as the central axis for the creation, absorption and transfer of knowledge.

Box 29

The Importance of ICTs: The creation and diffusion of knowledge strengthen the influence of universities within their communities

In today's society, innovation and technological development have become essential elements for companies hoping to achieve competitive advantages in the marketplace; that said, most organizations would find it difficult if not impossible to carry out their R&D without the support of the public system of science and technology. What is more, both in technological and in organizational terms, business innovation is all the more fruitful if the local population has a high average level of education, and the abilities necessary to adapt to new technological parameters.

The university, fulfilling its role as a sort of cultural entrepreneur, must unite with the production sectors of society, providing them with access to the results of its academic research. The initiatives they establish together with private businesses, researcher/entrepreneurs and investors will lead to the fruitful exploration of new niches and the development of new ideas. Universities are obligated to participate in the challenge that global change comprises, but society must also make a commitment to do its part, encouraging public administrative bodies, businesses and workers to strengthen their ties to the universities in their communities.

A university's influence can be increased immensely if its "surroundings" are defined not only as its immediate urban environs, but more widely, to include other nearby cities that together make up an urban network. In these cases, every purchase made by or in regard to the university brings benefits to the surrounding community.

Traditionally, high-tech activity has been concentrated in cities and their greater metropolitan areas, in part because such densely populated zones serve as what are known as "nursery cities." However, since the economic crisis of the 1970s, there has been a marked change in the types of location most commonly chosen for technological invention and innova-

tion. As numerous recent studies have shown, it is more and more often the case that high-tech companies group themselves together in small, highly dynamic, intensely innovative communities. These communities are often centred around a single university. The aforementioned studies are generally concerned with analysing how certain European and American universities have affected their regional economies. The European universities, with their urban locales and medieval origins, generally dedicated themselves to higher learning to the exclusion of all else; American universities,[128] meanwhile, were often built in small towns a certain distance from the nearest large city, and were from the beginning closely linked to the local economy, serving as engines for economic growth on a regional level.

Science parks, together with universities, stimulate creativity and development, particularly in the field of high technology. There is every reason to believe that the current industrial renovation taking place in so many big cities is occurring thanks to the high-tech industry. Governmental policies that promote scientific and technological development, together with the support of computer technology, will be fundamental in helping private companies succeed in the 21st century.

2. THE CONTRIBUTIONS UNIVERSITIES MAKE TO SOCIO-ECONOMIC DEVELOPMENT IN THEIR COMMUNITIES

The transfer and diffusion of knowledge have taken on an important role in terms of industrial development, particularly as regards small and medium-sized businesses (SMEs).

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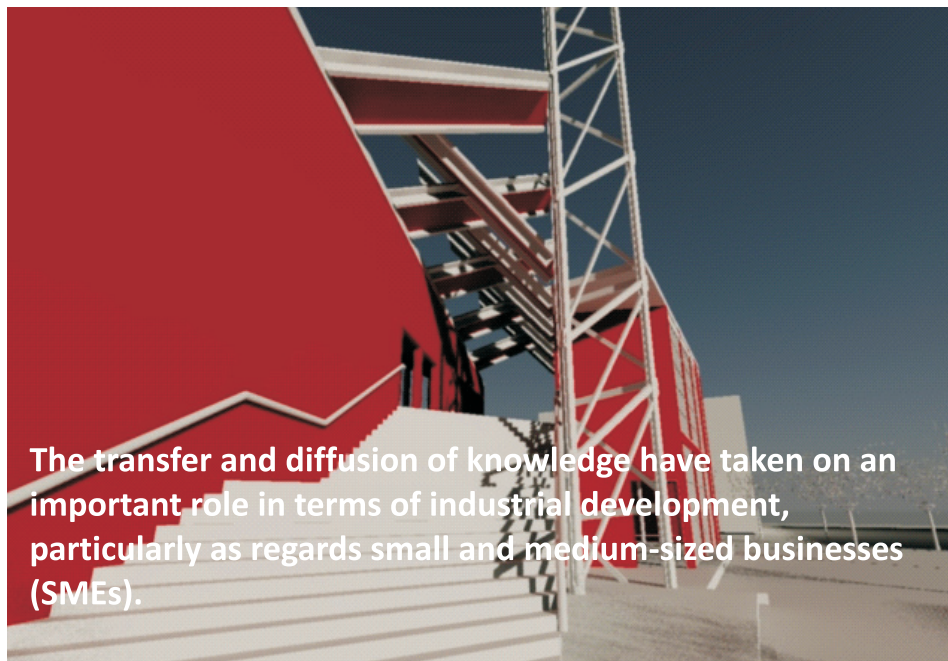
[128] European models built along these lines between the 11th and the 13th centuries include Bologna, Paris, Oxford and Salamanca; examples of American universities that correspond to the model described include Harvard and the University of Virginia, founded in the 17th and 19th centuries, respectively. Examples of highly concentrated technological communities built around single universities include Silicon Valley in California and Route 128 in Massachusetts. These two focal points of economic activity are highly specialised in high technology, particularly in the fields of electronics and computer science, where the transfer of knowledge among businesses and other institutions is particularly intense.

Local and regional economies can in some ways be seen as small-scale national economies. Beginning in the late 1970s, Spanish municipalities and regional governments have become ever more active in promoting growth and training in the areas for which they are responsible.

Most models of internal growth attribute a major role to the economic development of the surrounding areas. Major private-sector investments generate benefits that go well beyond the companies that make them; they create a ripple effect that helps to increase productivity throughout the local economic system. At times this effect comes as a result of capital investments. At other times, they occur thanks to investments in infrastructure, research and development, or human resources. Universities can help build bridges in regard to all of these types of investment, through *teaching, research, and the transfer of knowledge*.

Box 30
The effects of technological progress, and their relationship to regional socio-economic developments.

1) External effects and their relationship to the size of the market. Growth in the size of the market leads to greater specialisation and a clearer division of labour, which in turn leads to greater efficiency both within individual businesses and within the business culture in general.

2) External effects resulting from the accumulation of human capital. Employee productivity is directly related to the overall quality of a company's human capital. What is more, the accumulation of human capital improves the net learning capacity of the workforce, which in turn has a positive effect on the company's production capacity.

3) External effects related to public infrastructure. These effects can increase productivity levels at private companies by having a positive effect on the companies' human capital and company infrastructure, thus improving efficiency levels for all companies who benefit from them.

4) External effects derived from new ideas. R&D investments made by private companies and public institutions alike can have strongly positive external effects on the entire region's system of production. R&D activities increase the overall stock of knowledge within the economy, and increase the efficiency of all entities with which they come in contact. Innovation is a key factor in terms of both technological change and economic growth, precisely because businesses compete in the marketplace primarily either by creating new products or by improving old ones.

National economic and social development is built on the training received and the learning processes internalised by the local population. The most important contributions that universities can make to the well-being of local businesses and other entities are those that occur through research, the transfer of knowledge, and the training of future technicians and professionals.

Spanish universities now have a particularly important role to play, given the current challenge faced by Spanish society: that of a profound change in the nation's production model.

Universities can contribute to improvements in the technological and organisational levels of private companies in two different but complementary ways: through the creation of knowledge, both theoretical and applied, and through the transfer of knowledge. In the latter case, university research centres serve as communicative nodes that connect the university to high numbers of the innovative local companies that together constitute the region's production system.

Universities play an absolutely essential role in the area of R&D, by helping to increase the number and quality of our innovative businesses, and by contributing to the transfer and diffusion of knowledge.[129] The continued absorption of knowledge produced at university-based and public research institutes on the part of innovative private companies will help us ascend to the technological levels of the countries that are currently leading in related fields, which will in turn lead to increased production rates throughout our country.

The transfer and diffusion of knowledge have taken on an important role in terms of industrial development, particularly as regards small and medium-sized businesses (SMEs). Moreover, institutions dedicated to creating and transferring new technologies to production systems now have a wide range of means of doing so, including the International Campus of Excellence network, science parks, technology transfer offices, innovative business networks, research centres, technology agencies, et cetera.

On its own, university research no longer serves as any sort of guarantee of regional socio-economic development, but it plays an essential role in promoting business innovation and progress within its sphere of influence. When universities assert themselves, they can contribute strongly to social and economic progress, greatly increasing the potential for further cooperation with the private sector; they also help to create an atmosphere of innovation, which in turn leads to greater initiative on the part of local high-tech companies.

Box 31
University strategies for regional development

- Encourage the creation of cooperative networks involving both universities and businesses, so as to promote specialisation and an atmosphere of learning. Regions with high levels of cooperation and computerisation have economies that privilege the diffusion of knowledge, which in turn encourages and enables local businesses to be more competitive.

- Create a business climate that is favourable to renovation. Sustainable improvements in productivity levels require greater participation on the part of more highly qualified individuals, and increased access to knowledge transfer platforms built by universities.

- Make long-term commitments to relationships between universities, local government administrations, and local businesses. Come together with local business networks to design improved technology platforms.

- Form strategic regional and sectorial plans that include a strong leadership role for universities, and an equally strong commitment to building cooperative bonds among local institutions.

- Build an International Campus of Excellence (CEI) network imbued with a clear perspective that is at once global and local. While the main goal of such a network is for Spanish universities to regain their place of pre-eminence in Europe, an important secondary goal is to ensure the active leadership of our universities in the process of transforming our national business culture.

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[129] The Spanish economy has not yet quite reached the same level of technological sophistication as some of the neighbouring economies. Greater investment in R&D is an absolute necessity if we are to successfully incorporate and adapt the technology of other, more advanced countries.

ANALYSING THE CONTRIBUTIONS UNIVERSITIES MAKE TO SOCIO-ECONOMIC DEVELOPMENT IN THEIR COMMUNITIES

The process of modernising the Spanish university system, as envisioned by the European Strategy for Modernising the Universities of Europe and the European Strategy for Sustainable Development, will play a key role in the evolution of our production model towards an economic system based on the creation of knowledge that can be applied in our business culture. Public policies must be oriented so as to provide universities with the tools they need to guarantee that their teaching, research, and systems for the transfer of knowledge and technology will be of the highest quality, and that a sense of social responsibility will be a hallmark of university education.

In order to measure the socio-economic contributions that universities make to their communities, a list of criteria must first be drawn up. Among other indicators of the quality of such contributions, this list must include:

- the capacity to create jobs.

- the amount of teaching and R&D services the university can provide.

- the capacity to attract more students.

- the amount of resources required for the process of training new professors and researchers.

- the capacity to produce graduates - the degree of employability of those graduates

It is essential that each community become aware that investing in universities is a superb example of productive socio-economic spending. In order for this awareness to occur, a cultural shift is required, both in the business sector and in society at large, clarifying for everyone the fact that a shift in our economic model can only come about through modernised universities.

We must develop policies that strengthen the connection between the academic community and the production sector; we must create space for academic groups to reach the critical mass essential for high-level research, innovation, and values training to take place. This concern for obtaining research results that will be economically viable in the short-term must coexist, however, with the classical long-term university mission of further developing our understanding of the human species and our place in the world, and further contributing to sustainable improvements in all fields.

One of the main objectives of *Estrategia Universidad* 2015 (EU 2015) as regards the modernisation of Spanish universities is finding ways to measure the socio-economic effects of higher education in the short, middle, and long term. It has been proposed that all universities, and all devolved regional university systems, carry out research designed to demonstrate the socio-economic contributions they have made. At present, only a small number of universities have carried out impact studies along these lines; not even the short-term effects alone have been well quantified. Table 28 below gives information as to the few such studies that have been carried out, including the names of their authors, and the titles and publication dates of the reports that have been issued.

Ambit	Title	Author	Publication and Date of Release
All Spanish universities	*La Contribución de las universidades españolas al desarrollo*	CYD Foundation (2004)	*CYD Report 2004*
		CYD Foundation (2005)	*CYD Report 2005*
		CYD Foundation (2007)	*CYD Report 2007*
	"El impacto económico del sistema universitario público español. Un análisis para el período 1998-2004"	Duch, N., García, J. and Parellada, M.	FUNCAS Economic Data Notebooks 2008, Nº 203.
University of Lérida	"El impacto económico de la universidad sobre la producción, la renta y el empleo local"	Enciso, J.; Farré, M.P.; Sala, M.; Torres , T.	Revista Ministerio de Trabajo e Inmigración. 2000, Nº 21
	"Efectes econòmics de la Universitat en la ciutat"	Enciso, J.; Farré, M.; Sala M.; Torres, T.	Vilagrasa, J. (ed.) Ciutat i Universitat a Lleida. Universitat de Lleida i Ajuntament de Lleida 2001
	"L'impacte econòmic de la Universitat de Lleida"	Sala Rios, M.; J. P. Enciso Rodríguez; M. Farré Perdiguer; T. Torres Solé.	Coneixement i Societat 2003, Nº 2
Rovira i Virgili University	"El impacto económico de la Universidad Rovira i Virgili sobre el territorio"	Agustí Segarra, Ignaci Brunet, Albert Fonts, Maria Llop, Josep Maria Arauzo, Josep Carbó	Cossetània, Valls, 2002
	"La universidad como instrumento de dinamización socioeconómica del territorio"	Agustí Segarra	Societat i Coneixement, 2003
	"Capturing the economic impact of a public institution: the Rovira i Virgili University"	Llop, M.	*Journal of Applied Input Output Analysis*, 2004

University of Vic	"El impacto económico de la Universidad de Vic sobre el territorio"	Morral, N.	UAB. Research documents from the doctoral programme in Applied Economics. No. 03/2004
	"La Universidad de Vic y su impacto en el territorio"	Parellada, M. and Duch, N.	*Coneixement i Societat* 2005 Nº. 7
University of Girona	"Una aproximación al impulso económico de la Universidad de Girona sobre el entorno local"	Carreras, M. and Rigall, R.	*Coneixement i Societat* 2008 Nº 14
University of Alcalá	*"El impacto de la universidad de Alcalá sobre la economía local"* [130]	Garrido, R.	University of Alcalá 2006
Universidad del País Vasco	"La contribución socioeconómica de la Universidad del País Vasco"	Valencia Institute of Economic Research	2008
The public universities of Valencia	"La contribución socioeconómica de las Universidades públicas valencianas"	Valencia Institute of Economic Research	2009
Universidad de Granada	"Estudio del impacto económico de la Universidad de Granada en su entorno"	Luque Martínez T. Barrio García S. Manuel Aguayo Moral J	2009
Universidad de Navarra	"Impacto económico de una universidad en la economía local: aplicación al caso de la Universidad de Navarra"	San Martín, C.; Sanjurjo, E.	University of Navarra. Communiqué to the 6th Economic Congress of Navarra. 2010
Castilla-La Mancha University	"La contribución socioeconómica de la Universidad de Castilla-La Mancha"	Valencia Institute of Economic Research: Manuel Pastor J. Peraita C.	Presentation on 21/04/2010

Table 28. Universities who released studies backed up by research regarding the socio-economic contributions they have made to their communities

[130] A study of the impact of the university on the local economy as regards economic demand. University Institute for Social and Economic Analysis.

3. MODERNISING THE UNIVERSITY CAMPUS

Said modernisation must be based on a constant push toward excellence in terms of training and research, the internationalisation of the university system

3.1. INTERNATIONAL CAMPUS OF EXCELLENCE (CEI-2009/2012)

It is now obvious that the shift to a knowledge-based society demands a similar shift in European universities, one that brings new emphasis to the processes of teaching, research, and collaboration between academia and the business sector. The evidence strongly suggests that an effective system of higher education exerts a salutary influence on economic prosperity. Recent studies of successful national economies have shown that all have one thing in common: universities that embraced modernisation as part of their overall plan for growth and development.

Modernisation must be based on a **constant push toward excellence in terms of training and research, the internationalisation of the university system, its involvement in relevant social issues, improvements in systems designed to promote innovation, and the shift to a knowledge-based economic model.**

The political framework for the aforementioned modernisation consists principally of the following elements: the promulgation of LOMLOU (2007), the Sorbonne Declaration of 1998 and the Bologna Declaration of 1999 (both in regard to building the EHEA), and the Modified Lisbon Agenda (2005), which promotes the idea of a European future based on developing the "Triangle of Knowledge: Education, Research and Innovation."

Universities in Spain face the challenge of carrying out the mission established by the *European University Modernisation Agenda* (2006), and intend to do so using the model known as EU 2015. This strategy seeks to maintain the current high level of university autonomy while enabling these institutions to field ever more qualified faculty members, researchers, administrators and service suppliers. Likewise, it seeks to make our universities more fully international and more compet-

itive, to establish them as leaders in their fields, as results-oriented models for administrative efficiency and efficacy, all by the year 2015.

The International Campus of Excellence (CEI) initiative is a key factor in the university modernisation process. Its goal is to make Spanish universities more competitive on the global level, more prestigious and better known, and thereby to improve the quality of the entire Spanish university system. Likewise, it seeks to promote efficiency and efficacy in terms of both teaching and research through specialisation, concentrated efforts toward common objectives, and the development of strategic partnerships between institutions, research centres and private businesses.

The programme is another step in the process of improving the quality of our universities, which is the central goal of the policies promulgated by the governments of the Devolved Regions and of the nation as a whole. The CEI programme seeks not simply to rank our universities, but to help them to transform themselves into internationally accredited CEIs by the year 2015. Part of this transformation will involve partnerships with Public Research Bodies (OPIs), hospitals and private businesses, and there is in principle no limit to the number of universities that can achieve this status.

Among other goals, the programme is designed to develop a new public vision of the very nature of the university campus, one that incorporates research centres, technology parks, science parks, private businesses and other entities in the hope of creating new communities dedicated to education, research and innovation that will each seek to meet standards of international excellence in regard to their specific field. The best way to promote innovation is the creation of communities or "ecosystems" dedicated to teaching, research and innovation, in which the university plays a significant role, interacting with businesses and private research centres, among other entities, in the search of excellence.

3.2. International Campus of Excellence 2009: the Call for Proposals

The launch and execution of the CEI Programme requires that the national government, the Devolved Regions, the universities (particularly through the CU), and other economic and social entities all work closely together. The programme's preparatory phase began in 2008 on the university campuses themselves; the official announcement and public call for project proposals took place in July 2009, thanks to the carefully coordinated efforts of the Ministry of Education and the Ministry of Science and Technology, the latter of whom had designed a sub-programme intended to improve the quality and quantity of campus-based R&D+i.

The original call for project proposals took place in two stages: in the first, university projects regarding strategic on-campus talent aggregations were presented in summary form under the rubric "Strategic Plans for CEI Conversion." The call was well received by the university community, who were pleased to see the Government stepping so boldly forward as regards university modernisation and strategic campus planning. For proof of this, one need look no farther than the 84% participation rate in the case of public universities, and the strong participation of private universities as well.

A technical commission comprised of researchers, academics and recognized experts evaluated each proposal, and selected as many as the project selection framework allowed for at this stage: 15 public campus proposals, and 3 private university proposals. The technical commissions report also included various suggestions intended to help improve and complete the proposals, as well as suggestions that would, if enacted, heighten the advantages gained in terms of campus internationalisation and excellence. The groups whose proposals had been selected were then invited to present their complete Strategic Plans to the International Commission at a public ceremony, such that the entire community would have a chance to see the strategies being developed for the future. This ceremony took place on 25 November 2009, with the Min-

ister of Education, the Minister of Science and Innovation, and more than 700 other guests in attendance. That same day, the International Commission held a meeting to develop a proposal for ways to classify the different projects; this proposal would later be accepted by the SGU in its final resolution. Three categories were established: *International Campus of Excellence (CEI)*, *CEIs of Regional Interest in Europe,* and *Promising CEI Projects.*

Box 32
Characteristics of Regulations Established by the 2010 CEI Programme Ministerial Order

The main objective continues to be the selection of the best projects presented by Spanish universities who seek to convert their campuses into CEIs, said process to be partially financed by, and launched in conjunction with, the Devolved Regions. The selection will take place as part of the first stage of the process regulated by the Sub-programme of Excellence, which is one of the main axes of the CEI Programme. According to the Sub-programme of Excellence, the projects chosen will pass on to the second stage, where they will be presented to the International Commission, their creators having received all necessary assistance in terms of preparation. In the second stage, whose regulations are laid out in Chapter 2 of the Ministerial Order, following the issuance of an Inter-ministerial Commission report on all the projects presented, a number of those projects will receive CEI status, and will then be funded and launched.

As a complement to this basic foundation for the CEI programme, the Ministerial Order also establishes two sub-programmes: the Reinforcement Sub-programme and the Inter-ministerial Modernisation Sub-programme. In general terms, these sub-programmes seek to improve the funding prospects for all projects chosen in each of the two stages, with specific suggestions given regarding incomplete subsections of projects that are otherwise of particularly high quality. In more concrete terms, the Inter-ministerial Modernisation Sub-programme was organised by other government ministries who had signed onto a protocol designed by the Ministry of Education regarding the CEI programme. According to the protocol, these other ministries would finance the launch of certain aspects of the CEI conversion projects chosen to be presented in the second stage. This sub-programme was itself launched by the Ministry of Science and Innovation in 2009, but was discontinued in 2010 in favour of a more open funding structure.

Reinforcement Sub-programme Funding Modes

- Consolidation: funding comes directly from the Ministry of Education for the projects chosen by the Technical Commission.

- International Cross-border Collaboration: for particularly strong projects designed for universities located near international borders, funding will be split according to agreements reached between the two countries in question.

- Public-Private Collaboration: the Minister of Education chooses specific aspects of a given project to receive funding from private entities according to agreements previously reached with said entities. In general terms, and with occasional exceptions, this type of aid will be given specifically to fund elements of projects already chosen to be presented in the second stage.

The Ministerial Orders and the public calls for project proposals mentioned above can be found together in Appendix II.

The results of this initiative have been highly promising, and indicate that the national government's bid to rearrange its priorities and to modernise the universities of Spain may well lead to a significant rise in quality as regards Spanish higher education. The initiative will of course require a significant inflow of funding as the universities develop and implement their strategic plans. Financing levels for 2008 and 2009 held steady at approximately 354 million courtesy of Central Government (Central Government). The strategic plans that have been chosen will receive approximately 138.1 million from the Ministry of Education, which will be complemented by an estimated minimum of 425 million from other sources including competitive national and international funding bids, agreements with other businesses and institutions, the Devolved Regions, and each university's individual budget.

The programme was lauded internationally from the moment it was announced, both for its design and for the transparency of its administrative structure; it drew the interest of national governments, international organisms such as the Organisation for Economic Cooperation and Development (OECD) and international publications who described it as an excellent means of stimulating modernisation and internationalisation within the Spanish University System (SUE).

In spite of the strong results obtained in 2009, certain changes were deemed necessary to increase the initiative's potential for 2010. The Assessment Committee[131] thus requested suggestions and proposals from all of the relevant Devolved Region council members, from the rectors of all Spanish universities, and from the members of the Technical Commission that had evaluated the project proposals in 2009. The new Ministerial Order issued in 2010 establishes the regulations needed for subsidies and assistance pursuant to the CEI Programme's two sub-programmes, the Spanish University System, the CEI qualification process, and the programme's own ability to reach agreements with the Devolved Regions.

3.3. International Campus of Excellence 2010: the Call for Proposals

The 2010 call for proposals made use of many of the suggestions made by the universities, the Devolved Regions, and the Evaluation Commissions following the 2009 call for proposals. All of the suggestions received were analysed by an Assessment Committee formed specifically for this purpose, with representatives from the Devolved Regions, the universities and the Ministry of Science and Innovation. The Assessment Committee then drew up a series of modifications to be made to the regulations governing the international CEI programme.

The main objective of these new 2010 regulations continues to be the selection of the best of the projects presented by Spanish universities who wish to be granted CEI status. Likewise, once again the chosen projects will receive the financing necessary to be launched with the cooperation of the Devolved Regions.

In the first stage, the selections will be made by the Technical Commission, through a process regulated by the Excellence Sub-programme, which is considered to be the main axis of the Campus Programme. The projects chosen in accordance with this sub-programme will pass on to the second stage; their creators will receive all necessary assistance in terms of preparation, and the projects will then be presented to the International Commission.

In the second stage, following the release of the International Commission's report, a number of projects will be chosen to receive CEI status, and the funding levels needed for their launch will be determined.

Several aspects of the selection process have thus been improved for the 2010 call for projects, including the ways in which it addresses the following elements: - strategic talent aggregations as a means of achieving international excellence and rele-

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[131] In the Resolution of 22 December 2009, issued by the Secretary General for Universities, an assessment committee was formed to oversee the 2010 CEI Programme. It also established the objectives that the Programme should seek to reach.

vance; - current university policies intended to attract and stimulate talented professors and researchers; - the constitutions governing both international and inter-university Doctoral and Graduate Schools with joint research programmes; - the university system's transition and adjustment to a new, economically sustainable funding model; - improvements in university housing; - preparations for cross-border campus projects; and - university adaptation to the EHEA.

As regards strategic talent aggregations, the goal is to have them occur not only within each given university, but within other entities as well, including OPIs, hospitals, ICTS (key science facilities), Science and Technology parks, Technology Centres, private foundations and large businesses. To achieve cohesion within and among these entities, a coherent system of governance will be required, one that should not be based on systems of rotating presidents and large numbers of representatives from government organs, but rather one based on newly conceived formulas and structures. For example, a new entity could be created to take charge of the project. This might be a private foundation, or a consortium of some kind, one headed by a prestigious expert chosen via international competition, an expert with wide-ranging executive powers who can lend both agility and permanence to the project's development, so as to assure that all extant synergies created by the talent aggregations will be integrated into the project, and fully exploited in the name of a common goal.

Moreover, these aggregations will only reach the level of excellence they seek if their participants are carefully chosen according to strict criteria.

Among the recommendations taken on board, one of the most important was that of continuing to encourage inter-ministerial collaboration in regard to the CEI programme. The organisation of the talent aggregations was entrusted to a newly formed Inter-Ministerial Modernisation Sub-programme supported by other Ministry departments who had co-signed a protocol written by the Ministry of Education. According to the protocol, the other ministries would finance the launch of certain aspects of the CEI conversion projects. This sub-programme will continue to be supported by the Ministry of Science and Innovation, who will not be joined by the Ministry of Housing or the Ministry for Equality.

Box 33

Reinforcement Sub-programme established as part of the 2010 call for proposals, with funding for the launch of certain elements within selected CEI conversions projects

The Reinforcement Sub-programme has three main funding modes:

  i) Consolidation: funding comes directly from the Ministry of Education to finance the launch of certain elements of the projects chosen by the Technical Commission.

 ii) Public-Private Collaboration: the Minister of Education chooses specific aspects of a given project to receive funding from private entities according to agreements reached with said entities.

iii) Cross-Border International Cooperation Mode, whereby cross-border campus projects will be selected that display high potential and require initial funding for development. Projects thus selected shall come under a convention between the Spanish Government and a foreign government and be funded out of the Ministry of Education budget, external financing, or both.

The Public-Private Collaboration option allows for the participation of organisms and institutions whose presence will be beneficial both to themselves and to the universities involved. In 2010, such entities included the ONCE Foundation, as well as the European Foundation for Electronic Information and Administration Society.

The transition to a knowledge society calls for changes in the university system and new approaches to education, research, and cooperation with the social and business fabric. The evidence strongly suggests that an effective system of higher education exerts a salutary influence on economic prosperity. A detailed behavioural study of national economies considered to be successful on a global scale reveals one thing they all have in common: a close relationship between universities and a wide range of other institutions and entities that leads to a vast extension of growth patterns based on knowledge.

Box 34
European initiatives regarding university-based talent aggregations that are similar to the Spanish CEI programme

In 2006, France introduced an evolutionary process oriented toward university excellence called *"Pôles de Recherche et d'Enseignement Supéreur"* PRES-2006; the concrete result of this process is known as a **_knowledge map_** [Map PRES 2008]. Then in 2008, a programme called "*Operation Campus*" was introduced; it led to a significant reorganisation of the university system, at times including the fusion of two universities into one. On 6 July 2009, the French President named a Commission[132] responsible for the analysis of sustainable future economic strategies that would in turn determine which key future projects would receive funding. The conclusions were published in a document called "*Investir pour l'Avenir. Priorités stratégiques d'investissement et emprunt national*".[133] In this document, the nation's economic priorities were laid out along seven axes, one of which included greater support for Higher Education, Research and Innovation. This axis contained four strategy lines, two of which pertained to increasing support for higher education campuses and research excellence[134], with the goal of creating world-class innovative campuses[135], lauding publicly the results of R&D, and strengthening joint public-private research.

Germany, on the other hand, has its "Initiative for German University Excellence," supported by the German Federal Ministry of Science and Education together with the German Research Foundation (DFG) and the German Council of Science and Humanities (WR). This initiative seeks to support cutting-edge research, to create superb work conditions for young university-based scientists, to intensify inter-disciplinary and inter-institutional cooperation, to strengthen international R&D agreements, and to improve German universities in all senses.

This programme has three distinct strategies, each with its own funding line (1.9 billion for 2006-2011, and   2.7 billion for 2012-2017).[136] The strategies are outlined as follows:

a) *Graduate schools for young researchers and PhD candidates.* 40 research schools (departments of excellence) are to be developed, with   1 million per annum each +10% overhead funding.

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[132] Headed by ex-Prime Ministers Michael Rocard and Alain Juppé

[133] "*Projet de loi de finances rectificative pour 2010*", Sénat, nº 284, 10 February 2010. [www.senat.fr].

[134] It is important to note here the need for a national agency to administer the CEI programme and assist in funding the projects that are eventually selected. Universidad de Navarra Universidad de Navarra, Horizonte 2015

[135]   35 billion have been budgeted with the goal of creating 5 "technologically innovative campuses" that will include training facilities, both public and private R&D laboratories, and additional industrial entities, forming what are known as "innovative ecosystems".

[136] The second call for proposals will close on 1 September 2010.

b) *The creation of Clusters of Excellence that will connect universities, R&D institutes, and the production sectors of society. There will be a total of 37 clusters, with annual budgets of approximately   6.5 million per cluster, plus an additional 20% of overhead funding.*

c) The selection of 9 Top-level University Research programmes, with annual budgets of   12.5 million per university, plus an additional 20% of overhead funding.[137]

For the 2005 and 2006 competitions, candidatures included 253 Graduate Schools, 280 Clusters of Excellence and 47 Universities of Excellence. The shortlist stage left 84 Graduate Schools, 84 Clusters of Excellence and 20 Universities of Excellence in the running. Finally, in October 2006 and October 2007, nine universities were selected (together with 38 Graduate Schools and 32 Clusters of Excellence).

University modernisation is absolutely essential, but it must be built on a foundation consisting of the pursuit of excellence in teaching and research, the internationalisation of the university system, and its immersion in the society of its time. These are the elements that will allow universities to collaborate in the ongoing shift toward an economy based on knowledge and continuous innovation.

The fundamental objectives of strategic talent aggregations are, once again, excellence and internationalisation. To reach these objectives, we must heighten our participation in international R&D projects, coordinating efforts with other institutions within the European Union Programme Framework. It is also essential for us to strengthen the socio-economic impact of CEIs by reinforcing the relationships between the CEIs themselves, their cities and their regions.

3.4. GOVERNANCE FOR CAMPUS TALENT AGGREGATIONS

In EU 2015, one finds the same model of governance found in the CEI programme: one that works to integrate all its members into a seamless whole. In fact, the entire campus can be seen as an aggregation of entities each with its own planning structure but all seeking the same set of objectives. Some of these objectives affect only those directly involved in reaching them (the universities themselves as well as the research centres, science parks, and other entities that together form a given campus). These objectives in particular must be established in such as way as not to interfere with the governance of any given campus entity.

Moreover, the very act of bringing all these entities together on one campus must be undertaken with great transversal skill and care so as to avoid the administrative obstacles and organisational inertias that can often occur without anyone consciously seeking to create them. No given entity possesses the overall vision required for the group as a whole to function properly on a day-to-day basis, but such a vision can be provided from above, if the administration is capable of identifying processes that all campus entities have in common. To one side are the activities carried out by all campus entities as a group; in this case, the campus is understood primarily as a physical space, and the activities in question include urban infrastructure, creation or management of urbanisation services, and the maintenance required to keep said servic-

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[137] Universities of Excellence: CEI10/00028

es working properly. To the other side are activities related to directorial leadership, which include joint programmes designed to attract new talent or to internationalise a given entity, and programmes designed to facilitate the conversion to CEI status, both of which require different entities to share not only instruments but also governance aims and strategies if they are to succeed.

As was mentioned earlier, transversal activities like these can only be entrusted to an entity that is highly gifted in terms of personality and capacity, governed by its own charter, and possessed of proper legal status, including:

- **A consortium** designed to manage the raw materials needed to unite all of the entities on campus. It should be composed of representatives from each institution that possesses its own infrastructure on campus, so as to ensure the best possible directorial coordination in terms of the common areas and services on campus. Such coordination is essential, particularly for universities located within large cities, where both urban and regional management must be handled, and where the interests and jurisdictions of various different public administrative bodies can come into conflict.

- **A foundation** or foundation-like entity designed to address all of the transversal actions entailed by the Programme as defined by the CEI Constitution. Its mission is to refine, adapt and execute a shared strategy of CEI quality enhancement and internationalisation, beginning with the objectives established by its members in the Strategic Plan, and taking a proactive stance as regards the search for new initiatives with the potential to add value to existing institutional aggregations. The foundation's scope of action would thus include the definition and direction of joint programmes intended to attract international talent, to launch new strategic aggregations that focus on research and the transfer of knowledge, to manage all international communication and project extensions, and to handle all the other projects with similar characteristics that can spring up in the course of executing the CEI's Strategic Plan.

These entities should be run by a **governing board** whose chairperson has been selected via, for example, an international public candidate search, which would have the added benefit of further internationalising the CEI. Likewise, the CEI Directorate should have various Work Groups to carry out auto-evaluations, so as to discover potential problems of non-consensus or diversion of resources before they become truly problematic.

Graph 25 shows a possible schema of governance for International Campuses of Excellence. With a structure such as this, the university can take full advantage of the efficacy and efficiency of the talent aggregation, whose members may include OPIs, technology centres, hospitals, et cetera, without undermining the governing structure of any given one of these entities. The importance and complexity of the management board's work will be factors of the number and types of the entities that form the aggregation; the work will become still more complex if any of the entities belong to a supranational institution with its own governing board.
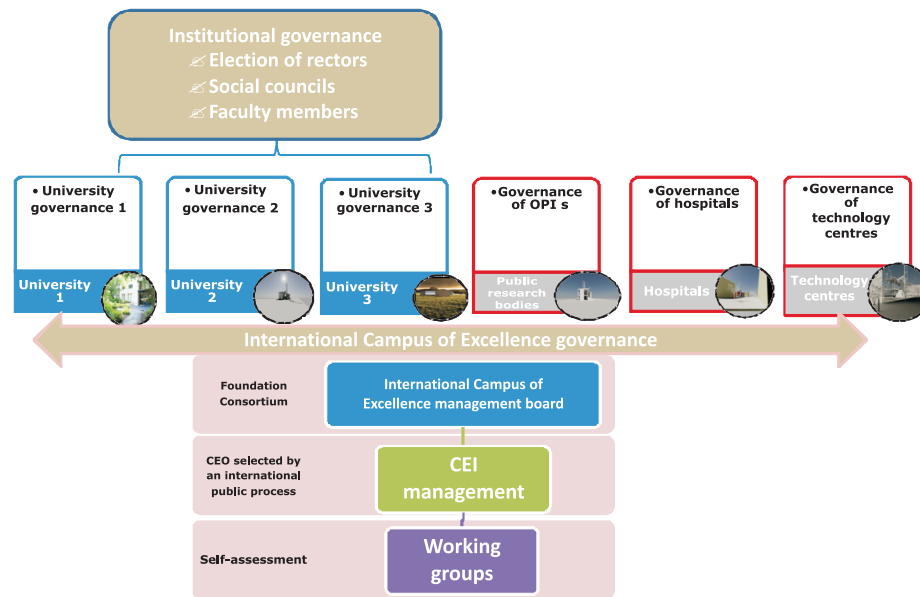
Graph 25. Below shows one possible CEI governance structure.

Box 35
Other characteristics of the regulations governing the 2010 CEI call for project proposals

- Universities are asked to identify areas of specialisation based on the individual strengths of the aggregation in question-areas where the campus can become a leading institution, either within Europe or internationally. They will also be asked to specify strengths inherent to the campus' current situation and status.

- Special attention will be paid to the aggregations in question, and to the criteria according to which the university has established their value.

- Special priority will be given to projects that are deemed likely to attract and fully utilise outside talent, as well as to projects that demonstrate the campus' awareness of its social responsibilities as an engine for socio-economic progress within the new model of sustainable economic growth.

- Projects that develop Doctoral Schools and international or inter-university Postgraduate programmes will be valued highly, as will projects that develop national and international alliances and networks of knowledge and innovation.

- Project creators will now be able to defend their projects to the Technical and International Evaluation Committees. Also, first-stage projects may now be projected over twice as long a period as was the case before, and the period of initial investment has been lengthened to five years.

AMBITS, AXES, LINES OF ACTION AND OBJECTIVES			
Ambit	**Strategic Axis**	**Lines of Action**	***EU 2015* Objectives**
Environment	UNIVERSITY - TERRITORY	UNIVERSITY CITY - TERRITORY	• Build a new knowledge architecture in Spain based on strengthening International Campuses of Excellence • Encourage closer involvement by local and regional authorities in International Campus of Excellence projects • Raise the efficiency of universities located within one and the same devolved region
	SOCIOECONOMIC CONTRIBUTION OF UNIVERSITIES	INDIVIDUAL ANALYSIS	• Encourage the production of socioeconomic contribution studies on all universities • Establish general indicators explaining the socioeconomic contribution of universities
		ANALYSIS OF THE SPANISH UNIVERSITY SYSTEM	• In 2015, publish a report on the socioeconomic contribution of the Spanish university system as a whole
	CAMPUS MODERNISATION	INTERNATIONAL CAMPUS OF EXCELLENCE	• Publish and decide the outcome of the third International Campus of Excellence annual selection process • Improve and consolidate policy on Cross-Border Campuses of Excellence • Support Centres of Excellence promoted by MICINN

CHAPTER VI

PARTICIPATING IN THE DEVELOPMENT OF *ESTRATEGIA UNIVERSIDAD 2015*

CHAPTER VI
PARTICIPATING IN THE DEVELOPMENT OF
ESTRATEGIA UNIVERSIDAD 2015

Conferencia General de Política Universitaria

Consejo de Universidades

Participación en el desarrollo EU 2015

Comisiones de trabajo

Buzones y foros

The success of *Estrategia Universidad 2015* (EU 2015) depends entirely upon its participants' willingness to contribute actively and work toward consensus. The modernisation of universities in Spain, including their adaptation to new economic models, will only be possible with the wholehearted participation of the Devolved Regions (*Comunidades Autónomas*) the universities themselves, and other entities in the System of Science and Technology, linked in coordination with the government of Spain. Said Modernisation will also require the cooperation of private companies and other intermediaries if it is to lead to the successful transfer of knowledge and technology from the academy to society at large.

EU 2015 requires that the financing system for public universities be redesigned, with the long-term goal of establishing multi-year budgetary resources, which will be used to increase funding for scholarships and other types of financial aid, improve facilities for teaching and research, et cetera. All these topics need to be addressed continuously by the State Government Administration (Central Government) and the Devolved Regions, with the added participation of all other interested parties. To facilitate this, a *9-member commission of international experts* will be named to evaluate projects designed to create strategic aggregations on Spanish university campuses.

1. Work Commissions

The roles of all the involved institutions and entities have been organised in accordance with **work commissions** that will address each of the main aspects of the European Strategy's courses of action as discussed in Section 2. Several of these commissions are well advanced in their work, as is the case with the Finance, Transfer and Appraisal, CEI, EHEA, Humanities, Continuing Education and Tracking Commissions.

The Commission for the promotion of and research in the Social Sciences, Law, and the Humanities

This commission, which is often referred to simply as the Humanities Commission, was created with the goal of analysing the current situation in higher education as regards the Social Sciences, Law, and the Humanities, both in terms of how they are taught and in terms of how they have been affected by the establishment of new study plans which have been adapted to meet the requirements of the EHEA. Another of the objectives of this commission is to study how individual evaluations can be improved in the areas handled by the two evaluating agencies, ANECA and CNEAI. The commission also hopes to analyse obstacles currently causing trouble in research support systems, and to study specific means of transferring knowledge to society in these same areas.

On 31 March 2009, the Assessment Commission gathered to promote teaching and research in the Social Sciences, Law and the Humanities. It is among the most important commissions in terms of adapting university teaching to the EHEA. It is led by the Minister of Education, Ángel Gabilondo, and its coordinator, Professor Gregorio Peces Barba, and is made up of 19 experts drawn from many different academic fields, each of the experts well-known and highly experienced in analysing public policy.

The make-up of this commission is a factor of the need to include well-known experts in all specialities within the Social Sciences, Law, Arts, and Humanities. Economics, archaeology, philosophy, history, literature, sociology, geography, and law are all represented so as to create a space for dialogue and debate as regards all aspects of these fields.

The Commission on the European Higher Education Area

This commission traces its origins back to the group of higher education experts that made up the Directorate General of University Policy (also known as the Bologna Follow-Up Group.) It was formed on 16 September 2008, and is made up of students, representatives of the Ministry of Education, the Conference of Rectors of Spanish Universities (CRUE), unions and university experts.

Its goal is to keep the university community and society in general informed as to the Ministry's activities, and also as to all progress made regarding the Bologna Process. It also serves as the means by which concerns and suggestions are gleaned from the different parties involved.

The Commission on Continuing education in the University Context

The Ministry of Education's commitment to develop national regulations in regard to continuing education took concrete form on 1 April 2009, when the Commission on Continuing Education was formed. It is made up of 11 members, three of whom represent the Ministry of Education; the other eight are external assessors.

THE COMMISSION ON THE SOCIAL RESPONSIBILITIES OF UNIVERSITIES

EU 2015 promotes the incorporation of the "transversal application" of social responsibility into each of the university's missions and capabilities, and sees social responsibility as the key to the relationship between the university and its community.

Likewise, EU 2015 envisions the university's impulse toward social responsibility as a fundamental part of the university's commitment to its society, both as regards the present moment and as regards future generations. It is, therefore, a central aspect of the university's drive toward quality and excellence.

In 2010, a commission of renowned university experts was convened, with its members serving as representatives of the State Committee on the Social Responsibilities of Businesses.

A sense of social responsibility within the university, and the contribution to social responsibility made by businesses and other institutions and entities, should be understood as part of the commitment these entities have made to their local community, their national community, and the international community alike.

This commission will analyse the social responsibility experience gained thus far by Spanish and other European universities, and will address the strategic role played by social responsibility in the development of the European Strategy's scope, strategic axes and courses of action.

THE HUMAN RIGHTS COMMISSION

Through the work groups of the Council of Universities and of the General Policy Conference, the Ministry of Education will coordinate development and follow-up on measures 118 and 119 of the Human Rights Plan. These measures affect universities directly, touching on university studies and on the appraisals of guidelines meant to guarantee the even-handed application of the aforementioned principles in many areas, including the design of study plans leading to official diplomas needed to become a Master in Primary Education, or to work as a teacher in one of the corps established by the Education Act 2006 (Ley Orgánica 2/2006, de 3 de mayo, de Educación, LOE). These groups were formed in the joint sessions of May 2010 to facilitate the launch of the second stage (2010-2014) of the Plan **of Action of the UN World Programme for Human Rights Education** which by law[138] must be incorporated as university policy.

THE TRANSFER AND APPRAISAL COMMISSION

This commission was created on 26 June 2008, with the main objective of facilitating the process of knowledge transfer between the public and private sectors by incorporating it as part of the university's central mission, and thus producing added value in the course of the day-to-day life of the university. It is led by the Secretary General for Universities, and has 27 members, all of whom are experts in one or another of the sectors involved in the transfer of knowledge.

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[138] These processes must all conform to the contents of Royal Decree 1393/2007 of 29 October, in which it is clearly stated that all training and teaching must be undertaken with all due respect for human rights (Article 3.5.b).

THE FINANCE COMMISSION

On 15 July 2008, the Council of Universities proposed the formation of a joint commission, composed of the General Conference on University Policy and the Council of Universities, to deal with all aspects of university financing. This commission is made up of 15 people: 5 university rectors, 5 representatives of the Devolved Regions, and 5 representatives of the Ministry of Education.

THE EVALUATION AGENCY COMMISSION

The main objectives of this commission are tracking and follow-up as regards the process by which the **foundation** known as the National Quality Evaluation and Accreditation Agency (ANECA) will be transformed into an **agency**[139] of the same name, as required by LOMLOU.

THE UNIVERSITY COMMUNICATIONS COMMISSION

This commission was formed on 10 July 2009 with the goal of promoting dialogue between the university and society at large, thus informing the community of the universities' daily work, and drawing the community into the process of encouraging and supporting higher education and research. The idea was to get the universities' communications offices more involved in spreading the word about university activities and projects both nationally and internationally, in emphasizing the importance of communicating scientific knowledge to others, in positioning the university as a major economic force within its community, and in letting the community know about EU 2015 itself.

The commission has designed several specific communications activities, using both conventional media and newer means such as Internet forums and social networks. It also plans to create spaces for the communication of the policies that are of greatest interest to students, including the scholarship programs and other financial aid programs that are part of EU 2015, as well as study aids and academic progress rates, among others.

Moreover, the commission is planning additional activities such as contests that will further involve students in EU 2015 and help to spread the word about the CEI programme. These might include, for example, a YouTube contest in which students create videos showing how they would improve their campus, or an exhibition of art and architecture reflecting students' conceptions of the "ideal campus."

This commission is composed of the Secretary General for Universities[140], the Director General for Training and University Orientation, the Rector responsible for communications from the Conference of University Rectors of Spain (CRUE), as well as other members of the Communications Department of CRUE (REDGACRUE), the Director of the Communications Unit of the Ministry of Education, the communications advisor to the Secretary General for Universities, and the Secretaries General for Student Issues, Scholarships and Student Aid, Transportation, and University Coordination.

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[139] At the moment of writing, this commission is inactive, as the process of transforming ANECA into an agency has been put on pause due to budgetary difficulties.

[140] The Secretary General of Universities leads the commission, and has the power to delegate to the Director General for Training and University Orientation.

Commission on the Campus of International Excellence (CEI) Programme

This commission was established in 2009 to launch and track progress on the 2009 Campus of International Excellence Programme. Given the administrative complexity of the programme, it was decided to divide the CEI commission into three technical commissions:

a) *The Technical Commission for the Evaluation of requests for assistance from the Sub-programme for the Development and Solidification of the Strategic CEI Viability and Conversion Plan.*
b) *The Technical Commission for the Evaluation of requests for assistance from the R&D+i and Knowledge Transfer Sub-programme.*
c) *The International Commission,* which in 2009 was made up of 9 internationally renowned experts, 4 of them chosen by the General Conference on University Policy.

In 2009, the first two work commissions were made up of experts drawn from all the different fields involved in the *"Strategic CEI Conversion Plan."*

Estrategia Universidad 2015 Monitoring Committee

From the moment is was approved by the Council of Ministers at the end of 2008, EU 2015 has been in a constant state of progress and evolution, as activity after activity was carried out, and as the improvements suggested by the many agencies whose members form the commissions listed above were incorporated. With the goal of following up on all the progress made, on 12 November 2009, the Commission for Tracking and Follow-Up was formed. It has 30 members, including the Secretary General for Universities, Directors General, Sub-directors General, Cabinet Ministers, and both internal and external assessors.

2. Electronic Mailboxes and Internet Forums

To complement the work of the many experts brought in to staff the commissions listed above, several new tools have been created to facilitate citizen participation in the design and development of EU 2015 since 2008 till 2010.

Electronic Mailboxes

The government's commitment to making the EHEA convergence process both public and transparent was made manifest with the development of a series of information networks[141] that encourage the participation of the university community, as is shown in Figure 18. These networks provide information on every aspect of EU 2015, as well as the activities of the Ministry of Education as regards university policy and quality control, competitiveness, the pursuit of excellence, and the internationalisation of the university system. One also has the opportunity to ask questions about the Bologna Process in the section called "Question and Answer." When the report was issued, electronic mailboxes[142] were set up to help gauge the overall level of interest of the student body, and to learn what kinds of concerns the students had about the university system.

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[141] http://www.queesbolonia.es; http://www.educacion.es/boloniaensecundaria; http://www.educacion.es/universidad2015
[142] boloniaensecundaria@educacion.es; EU2015@educacion.es; EEES@educacion.es; queesbolonia@educacion.es
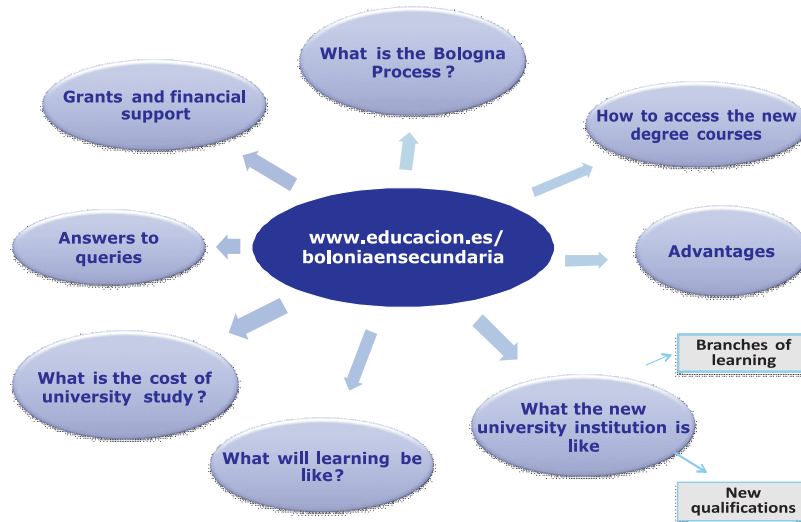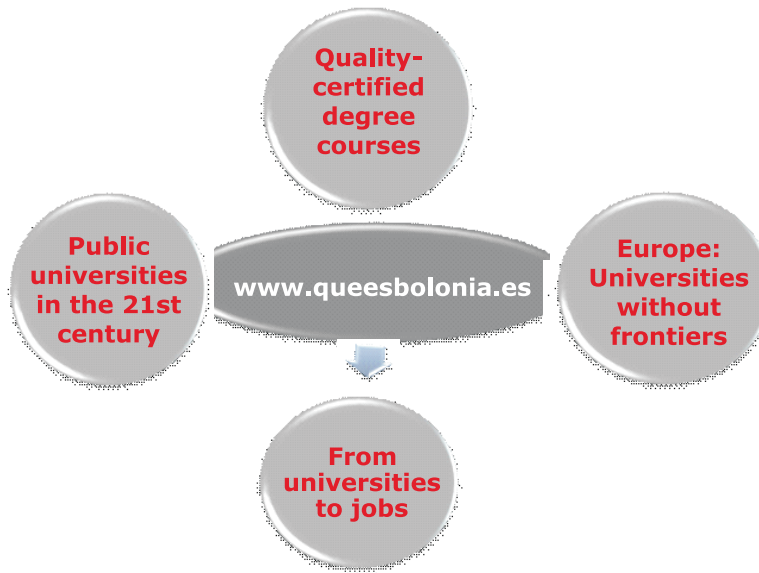
Graph 26. Content of EHEA website query mailboxes

INTERNET FORUMS

The Internet forums created as part of the websites mentioned above allow for public discussion of the different aspects of EU 2015, including its design, its procedures, and all of the documents involved.

The discussions are moderated by a team of professionals who take note of the most pertinent questions, and pass them on for further debate and discussion within the relevant technical commissions. Access to these forums is free and open to the public; they can be reached via the online profile pages of the universities themselves, and through the individual profile pages of professors, students, administrative personnel, and service personnel. As of the release of the EU 2015 report, there were three such forums in activity: the Bologna Process in Secondary Education, Bologna EHEA, and EU 2015.

CHAPTER VII
*E*STRATEGIA *U*NIVERSIDAD 2015 ASSESSMENT AND MONITORING SYSTEM: INDICATORS AND INTERNATIONAL MONITORING

CHAPTER VII
ESTRATEGIA UNIVERSIDAD 2015 ASSESSMENT AND MONITORING SYSTEM: INDICATORS AND INTERNATIONAL MONITORING

The actions presented in the foregoing chapters (diagnosis of the baseline situation of the Spanish university system, specifications and design of strategic vectors, actions towards modernisation of the Spanish university system) must be coupled with the framing of a range of measures by which *Estrategia Universidad 2015* may, on an ongoing basis, be monitored and assessed. It is accordingly necessary to have in place a set of indicators allowing for the detection and analysis of the progress made and any divergences from the strategy's planning exercise.

Any need to adopt further actions towards our predetermined goals can be identified only by the measurement and evaluation of the steps taken so far.

1. ESTRATEGIA UNIVERSIDAD 2015 ASSESSMENT AND MONITORING SYSTEM

The *Estrategia Universidad 2015* monitoring and assessment system (SEEU 2015), an instrument created to monitor the strategy as a whole, analyses the strategy end-to-end, from its initial design through to the final impact of the measures taken, and encompassing the performance of actions and the outcomes achieved.

The system also caters to emerging social demand for government transparency and accountability, with an emphasis on measuring public authorities' performance.

Each measure shall have attached a set of specific indicators so as to track the progress of its financing instrument, the extent of its implementation and any auxiliary policies. The set of basic indicators[143] within the financing instrument will allow for measuring the progress of the Spanish university system as a whole; they appear in diagram form in Graph 19.

GOVERNANCE

In organisational terms, SEEU 2015 is a multilevel system presided over by the Secretary General for Universities, having a first-level *Estrategia Universidad 2015* monitoring committee (COSEU) formed by representatives of all stakeholders relating to the university system (universities, students, trade unions, businesses, etc).

So as to ensure that assessment is transparent, independent and of sufficiently high quality, there will also be created an International Advisory Group (GAIN) of five international experts concerned with the assessment of public policy on university education and with assessment criteria and evaluation quality. The members of both COSEU and of GAIN will be nominated by the CGPU and appointed by the Ministry of Education.

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[142] Submitted to the Joint Funding Committee on 13 April 2010.

COSEU shall undertake combined assessment of the various actions forming the subject matter of *Estrategia Universidad 2015* and will produce an annual report, setting out its conclusions, recommendations and a battery of new measures. On a biannual basis, furthermore (i.e., in 2011, 2013 and 2015) the CU and CGPU will be presented with appropriate reports for discussion and final adoption; the reports will also be laid before the education committees of the lower and upper houses of Spanish national parliament [*Congreso* and *Senado*] and the Council of Ministers for the purposes of adoption of appropriate measures.

COMMITTEES

The various ambits and strategic vectors into which the *Estrategia Universidad 2015* is structured will form the subject matter of a specific Monitoring and Assessment Committee, which will produce an annual report on the progress made in each line of action and in work towards the framing of new measures.

These reports will be submitted to COSEU, which will consider them as a whole and then produce a comprehensive monitoring and assessment report for *Estrategia Universidad 2015*. Each specific committee will comprise five reputable experts appointed by CGPU for a three-year term. Since universities operate on the basis of the academic year rather than the calendar year, monitoring reports must be completed by June, so that recommended measures can be implemented in the following academic year.

Monitoring and assessment committees		
Education	People	European Higher Education Area
Research	Funding	Assessment (individual and collective)
Transfer and value creation	3 Internationalization	International Campus of Excellence

Table 29. *Estrategia Universidad 2015* monitoring and assessment committees

Any new measures adopted must be provided for accordingly in the budget for the following fiscal year. Mechanisms must be put in place to reconcile the needs of the new academic year with the fiscal timetable.

2. INDICATORS

The reports produced by each committee must adhere to the parameters stipulated by the Sub-Directorate General of University Analysis, Studies and Prospects, which unit will be in charge of framing the methodology and producing report templates.

Each committee must at all events first identify the set of indicators underlying the monitoring and assessment of actions. Selected indicators must relate directly to the actions being measured, and must consider all phases of execution, via management, performance and impact indicators.

Academic variables

- **Number of students (by gender) in bachelor's/master's and doctorate**
- **Number of foreigners in bachelor's/master's and doctorate**
- **Number of graduates, by gender, in bachelor's/master's and doctorate**
- **Annual number of theses defended/defended by a foreign student/attracting the European mension**
- **% grants physical universities bachelor's/master's/mobility/studies/Erasmus/Seneca**
- **Rate of performance/success/assessment/system dropout/course switching/graduation**
- **Replacement rate**
- **% academic staff by gender**
- **% contract lecturer or researcher by gender**
- **% administrative staff by gender**

Sociological variables

- **Employment rate among graduates**
- **Unemployment rate among graduates**
- **% graduates**
- **% women graduates**

Efficiency, effectiveness and management

- **% universities having public strategic plans**

- **% Devolved Regions operating programme-contracts**

- **% universities operating internal quality assurance**

- **% universities equipped with integrated information systems**

- **% universities applying analytical accounting**

- **Funding per capita differences across Devolved Regions**

Research and development indicators

- **International Campuses of Excellence**
- **University research and development spending as a percentage of GDP**
- **Share of world academic output**
- **% publications under international partnerships**
- **% return on Spanish participation in PM**
- **Funds attracted under NP for projects**
- **FPI / JC / TQ at universities**
- **Patents sought from EPO (per million population)**
- **Spin-offs generated by universities**
- **Volume of contracts, projects and agreements with enterprises (M€)**
- **% innovative enterprises**
- **% enterprises cooperating with U-OPI / total innovative enterprises**

Graph 27. EU 2015 general monitoring indicators

The Secretariat General for Universities, in a coordinated effort with the Devolved Regions and universities themselves, is developing an integrated information system comprising various modules: students, human resources, economic indicators, research and development, and career entry. This tool will provide the Spanish university system with a set of robust, representative and comparable indicators constructed in accordance with a uniform methodology created by consensus across the Spanish university system. As an open, accessible and flexible information system, it will generate most of the indicators referenced in this chapter. Any indicators not immediately available from the integrated information system will be constructed using reliable variables preferably drawn from official sources and capable of comparison over time and across borders, as applicable.

The various committees must define each indicator and identify the annual targets for each over the entire timeframe of effect of EU 2015.

Indicators are then submitted for discussion and adoption to CGPU; management-related indicators are included in the Central Government budget, and targets are set for the respective budgetary period/academic year.

3. INTEGRATED SYSTEM OF UNIVERSITY INFORMATION

Given the importance for effective policy-making of the reporting and processing of data relating to the different variables underlying econometric studies of the state of the Spanish university system, EU 2015 has set in motion an integrated system of University information.

Box 36
Advantages of the new integrated system of university information within EU 2015

➤ Creation of a comprehensive database designed for analysis purposes encompassing academic, human resources, economic, career entry and research and development information for the entire national territory

➤ Creation of a tool allowing for the availability and monitoring of data and indicators in the academic, human resources, economic, career entry and research and development areas

➤ Automated information exchange with universities and Devolved Regions, thus supporting the request, generation and processing of predefined reports

➤ Availability of administrative tools allowing for the setting of parameters for input data validation alerts, with options to flag and modify file delivery timeframes, alert templates and contact persons

➤ Availability of a tool performing a standard calculation of a set of university indicators capable of comparison across all institutions in each reporting area

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The system will collect data from the various sources, process it by a standard procedure and finally produce a set of indicators supporting comparability of the various institutions within the Spanish university system.
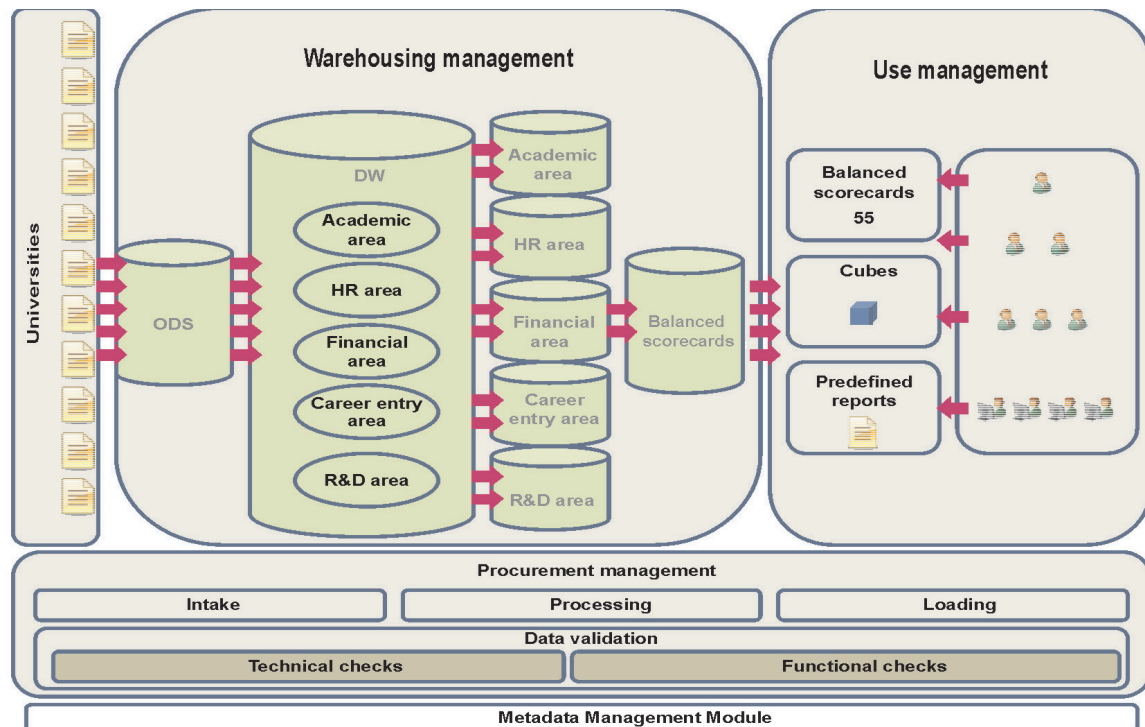
Graph 28. Main modules of the integrated system of university information, identifying the highest level of each component

The system comprises:

– **ODS:** A repository of analytic information in itemised and historic form, comprising a set of tables that compiles information drawn from source systems

– **Data warehouse (DW)**: A centralised relational information system that is to contain all the data on the academic, human resources, economic, career entry and research and development areas and support fast, flexible information searches. The source for the data warehouse will be ODS.

– **Data mart (DM)**: A data warehouse subset concerning a specific reporting area

– **Balanced scorecards**: A management system designed to display predefined reports and strategic indicators

The new system created within EU 2015 comprises the following modules:

a) Procurement Management Module

b) Warehouse Management Module

c) Processing Management Module

d) Metadata Management Module
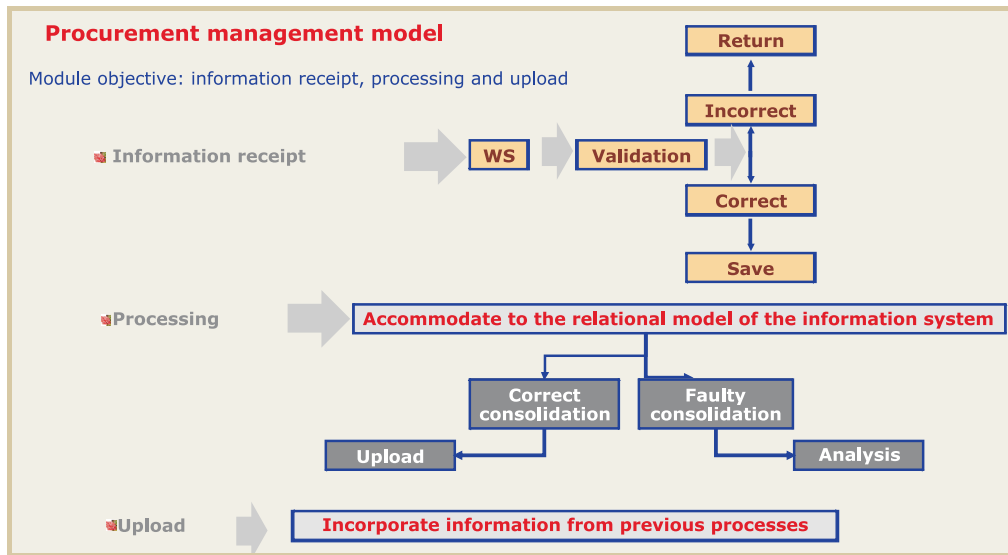
Graph 29. Processes within the Procurement Management Module of the integrated system of university information

The main purpose of the Procurement Management Module is to receive (or extract), convert and download data from university sources to the destination storage point, while assuring data quality, by means of the processes shown in Graph 29: schema of the extraction, conversion and downloading of files sourced from universities.
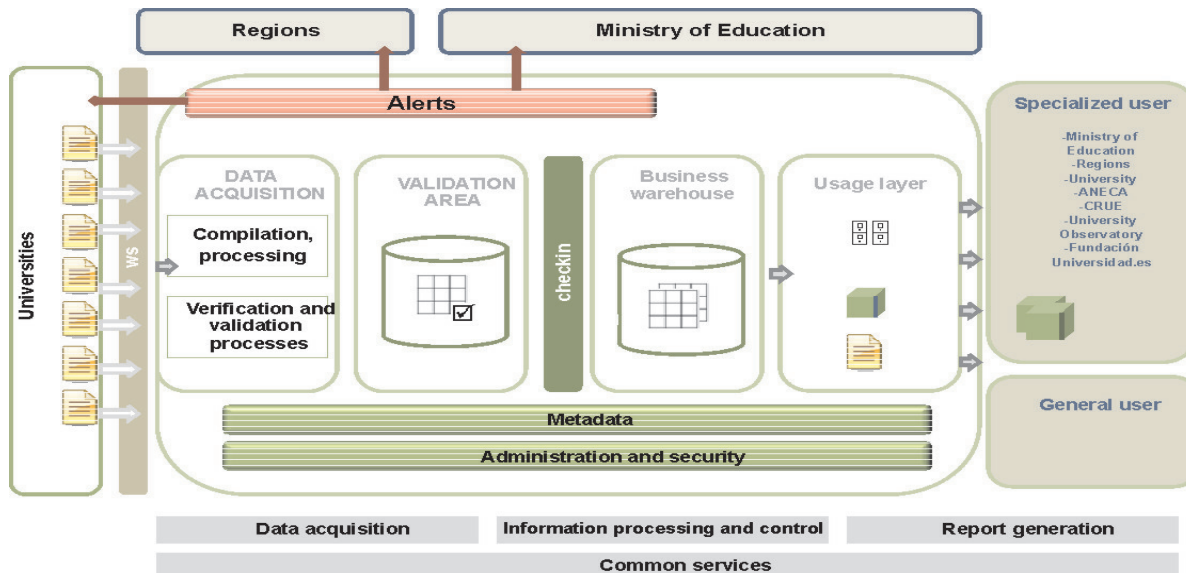
Graph 30. Schema of the Procurement Management Module, from universities to users

The Processing Management Module will enable users to access reports via a centralised, non-distributed processing tool and to obtain an inventory of reports which classifies and categorises each item by description, purpose and source. The functioning of this module is summarised in Graph 31.

Balanced scorecard
Environment providing high-performance, high-usability visual functionalities and showing key education indicators in support of decision-making

Analysis
Enables:
• Non-technical end-users to construct custom searches in a flexible way
• Conduct multidimensional analysis, from aggregated levels of detail to itemized levels

Reporting
Searches based on report templates with a low level of user modification

Graph 31. Operating schema

Use management

Senior institutional officials
➤ Scorecards providing selective and general indicators in support of overall planning of the Spanish university system

Media officers
➤ Specialized, specific information and indicators enabling analysis of the Spanish university system

General public
➤ Preset reports and indicators providing general information

Graph 32. Schema of the Processing Module

The Metadata Management Module provides control over the content and operation of the system. Quality indicators associated with individual data can raise users' confidence in the data shown. Metadata can be divided into three clearly distinct types: technical, operational and functional.

Box 37
Features of the Metadata Management Module

In a business intelligence system, metadata (data about data) is a core feature that gives users control over the system's content and operation. Quality indicators associated with individual data can raise users' confidence in the data shown.

In metadata divides into three types:

- Technical: Technical metadata discloses the data structure of source systems and of the analytical system itself, such as field size, table structure, file format, etc.

- Operational: Operational metadata allows for the monitoring and control of data downloading to the system and generation of reports by tracking running times, correct or incorrect process performance, completion, load flow tracking (traceability) and, in general, all the information needed for data control and support.

- Functional: Functional metadata forms a link between the technical information stored on the system and the business interpretation available to the user. Functional metadata provides information about the business concepts defined and processed in the system. Any concept used in the information system must be stored in functional language so that the information user has an accurate grasp of the definitions he or she is working with.

4. INTERNATIONAL CAMPUS OF EXCELLENCE PROGRAMME MONITORING

The International Campus of Excellence programme ran its first request for proposals on 26 November 2009, and laid out close to   150 million in budgetary credits for universities to implement their strategic modernisation plans.

The key indicators for quantitative assessment of actions taken within the International Campus of Excellence programme will be selected from a battery divided into the following groups: *teaching improvement; academic improvement; knowledge and technology transfer; campus transformation towards the implementation of an integrated social model; and adaptation to the European Higher Education Area.*

Since these are all indicators specified in the prospectuses supporting applications submitted to the 2009 International Campus of Excellence programme, and directly relate to the actions attracting subsidies, they will reveal the extent of any causal relationship between the approved projects and the results obtained (leaving aside the rest of variables that may come into play).

A standard template will be produced with reference to the targets specified for each project for the purpose of collecting data on the actual outcomes achieved, which will be entered in a database to enable the detection of any shortfalls, their possible causes, etc.

5. INTERNATIONAL CAMPUS OF EXCELLENCE PROGRAMME IMPACT ASSESSMENT

To assess the economic and social impact of the International Campus of Excellence programme – and given that the projects to be evaluated are relatively few and that assessment will be concurrent with project execution – an input/output analysis will be undertaken to quantify the wealth generated in a country or region by the furtherance of an economic activity over a given timeframe. Wealth will be measured chiefly by the macroeconomic aggregate figures for GDP, employment and public revenues.

Work will be structured into the following phases:

1. Analysis of the various budget items for each project, defining the various expenditure items, the framework of application and their form of aggregation.

2. Characterisation of expenditures by economic sector. The economic sectors on the input/output tables to which the expenditures analysed previously are to be applied will be identified, account being taken of the fact that economic sectors vary from year to year and from region to region.

3. Application of multipliers. After an expenditure has been classified by industrial sector, it is assigned the corresponding multiplier.

4. Impact assessment in the form of macroeconomic aggregate figures determined as a function of contribution to gross value added and of the proportion of GDP accounted for by value added tax, personal income tax and corporate income tax.

Methodology for International Campus of Excellence impact assessment	
Microlevel	**Macrolevel**
– Invoicing in respect of new products – New jobs – Number of patents – Number of new projects	➢ GDP increase ➢ Employment (new and continuing jobs) ➢ Tax revenues

Table 30. Methodology of micro and macro impact assessment got International Campuses of Excellence

Analysis and monitoring of the various indicators, coupled with assessment of their associated activities, will serve as a tool to define and frame proposals for further actions and funding mechanisms and as the basis for the ad hoc supply of any information required for public authorities' decision-making in the arena of universities.

REFERENCES

REFERENCES

Alfred Marshall *Principles of Economics* 1890

European Students' Union (ESU). http://www.esib.org/

European University Association (EUA) http://www.eua.be

Aubyn, M.; Pina, A.; Garcia, F. and Pais, J. (2009) *Study on the efficiency and effectiveness of public spending on tertiary educa-tion.* http://ec.europa.eu/economy_finance/publications/publication16267_

Bologna Declaration of 19 June 1999 The European Higher Education Area

Bologna Follow-up Group (BFUG)

European Charter for Researchers European Commission EUR 21620, 2005.

Charta Magna Universitatum Bologna, 1988, http://www.magna-charta.org

"Towards a European Research Area" Commission of the European Communities COM (2000). January 2000

Council Directive 2009/50/EC of 25 May 2009 on the conditions of entry and residence of third-country nationals for the purposes of highly qualified employment. Official Journal of the European Union 18 June 2009

Comisión de Ciencia e Innovación y la Comisión de Educación, del Senado y del Congreso de Diputados

Communication of the Commission of the European Communities 2006 COM (2006) 208 http://europa.eu/legislation_sum-maries/education_training_youth/lifelong_learning/c11089_es.htm

Prague Communiqué Prague Ministerial Conference, May 2001

Berlin Ministerial Conference, September 2003

Bergen Ministerial Conference, May 2005

London Ministerial Conference, May 2007

Leuven Communiqué Leuven / Louvain- la- Neuve Ministerial Conference, April 2009

Conclusions of the Presidency. Lisbon European Council, March 2000

EU Council of 2002 set the Barcelona objective

Lisbon European Council, 2000

Council of European Ministers, London, May 2007, *Towards the European Higher Education Area: responding to challenges in a globalised world*

Spanish Constitution [*Constitución Española*], Article 149.1.15

Constructing Paths to Staff Mobility in the EHEA: from Individual to Institutional Responsibility. Conor Cradden (2007). «Making Bologna a Reality-Mobility of Staff and Students» and Higher Education TO 2030, Vol. 2: Globalisation. ISBN: 9789264056602. OECD, Publication: 20/11/2009.

Cordis http://cordis.europa.eu

Datos Básicos del Sistema Universitario Español Datos y cifras Ministerio de Educación Universidad http://www.educacion.es/educacion/universidades/estadisticas-informes/datos-cifras.

Bologna Declaration Bologna Ministerial Conference, June 1999

Díaz Benito, V.M: *Plan Director del Comunicación. Propuesta de actividad 2009-2010.*

Doctoral Programmes for the European Knowledge Society" promoted by the European University Association (EUA) http://www.eua.be/eua/jsp/en/upload/Doctoral_Programmes_Project_Report.1129278878120.pdf

Estrategia Universidad 2015 http://www.educacion.es

Europe 2020 A European strategy for smart, sustainable and inclusive growth. Brussels, 3 March 2010 COM (2010) 2020.

EUA DOC-CAREERS 2009, "*Collaborative Doctoral Education: University-Industry Partnerships for Enhancing Knowledge Exchange.*"

EUA, Glasgow, April 2005. «*Doctoral Programmes in Europe,*» Nice, December 2006. «*Third Cycle Degrees: Competences and Researcher Careers,*" Helsinki, September 2008.

EUA Meeting in Zagreb, 2009.

EUR 23322 Report of the ERA Expert Group on "Strengthening research institutions with a focus on university-based research". 2008.

High-level Group, Lisbon strategy, http://europa.eu.int/comm/lisbon_strategy

Heiglo Project higher education institutions respond to the challenges CERI OECD www.utwente.nl/cheps/documenten/heigloupdate.doc

Henry Etzkowitz "The Triple Helix of University-Industry–Government". Implications for Policy and Evaluation Working paper 2002·11 Science Policy Institute.

Higher Education to 2030, Volume 2: Globalisation OECD ISBN: 9789264056602 Publication: 20/11/2009. EU 2020 Strategy, European Commission 24.11.09

Humboldt, W. von. Über die innere und aeussere Organisation der hoeheren wissenschaftlichen Anstalten in Berlin (1810).

INFORME SOBRE EL PLAN DE ACCIÓN 2010-2011 EN MATERIA EDUCATIVA Consejo de Ministros [Spanish cabinet] 25 June 2010

International Association of Universities

Janez Potocnik "The Knowledge Triangle: Shaping the Future of Europe," Swedish Presidency of the European Union, Gothenburg, Sweden, 31 August to 2 September 2009

League of European Research Universities. Universities and Innovation: the Challenge for Europe (2006).

Science, Technology and Innovation Bill [*Ley de la Ciencia, la Tecnología y la Innovación (LCTI)*]

Universities Act 2001 [*Ley Orgánica 6/2001*].

L'Observatoire national de la Vie Etudiante (OVE); *France, created 1989 by the Ministère de l'Éducation Nationale* http://www.ove-national.education.fr

Knowledge Economists´Policy Brief. Universities must contribute to enhancing Europe´s innovative performance. 2007

Miguel Palacios, Tíndaro del Val and Carlos Casanueva, Universidad Politécnica de Madrid

Amends the Universities Act 2001

Newman, J.H. The idea of the University. Notre Dame University Press. 1852

OECD Observer. 5/7/02 "brain-drain"

OECD 2005 Oslo Manual

Ortega y Gasset. "The Mission of the University." *From a speech given at the Universidad Central de Madrid. Revista de Occidente, Vol. 4, 1930, p. 327. 327*

R. E. Freeman "*Strategic Management: A Stakeholder Approach*", (Pitman, 1984)

Registro de Universidades, Centros y Títulos (RUCT)

Communiqué of the Leuven Ministerial Conference, "The Bologna Process 2020: The EHEA in the new decade"

Council of Europe Treaty Revision, Feira, 2000.

SGU *"Documento de mejora y seguimiento de las Políticas de Financiación de las Universidades para promover la excelencia académica e incrementar el impacto socioeconómico del Sistema Universitario Español (SUE)"* Consejo de Universidades and Conferencia General de Política Universitaria, 26 April 2010 http://www.educacion.es/dctm/ministerio/educacion/universidades

Tony Becher and Paul R. Trowler Academic Tribes and Territories The Society for Research into Higher Education & Open University Press LB2331.74.G7 B43 2001

Tony Becher and Paul R. Trowler *Academic Tribes and Territories Intellectual enquiry and the culture of disciplines* Second Edition (2001) The Society for Research into Higher Education & Open University Press

Van der Wende, M. (2001). Internationalisation Policies: About New Trends and Contrasting Paradigms, Higher Education Policy, 14, 3, pp. 249-259.

http://www.educacion.es/horizontales/ministerio/organismos/cneai/2009-info-v5.pdf

http://www.aneca.es/media/477092/publi_memoria2009.pdf.

http://www.aneca.es/media/479146/plan_actuacion_2010.pdf

http://www.queesbolonia.es;

http://www.educacion.es/boloniaensecundaria

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APPENDIX I

Science, Technology and Innovation Bill[144]

A) Structure of the Bill

The text of the Bill comprises four numbered titles and a preliminary title.

The **Preliminary Title** provides as follows:

- The purpose of the Bill is to establish a framework for the support and general coordination of scientific and technical research in aid of sustainable economic development and social welfare through the generation, dissemination and transfer of knowledge and innovation.
- The Bill introduces a new legal framework embracing all relevant aspects underpinning scientific and technological research and innovation.
- Spain's science and technology system comprises the system under the aegis of Central Government and the systems controlled by the Devolved Regions, including coordination, funding and execution actors.

Title I specifies the Central Government's constitutional power of general coordination, while giving due consideration to the key role of the Devolved Regions in the execution of research policy. Coordination encompasses:

- a newly created Spanish Science and Technology Strategy, a multi-annual reference frame for the achievement of targets shared by all territorial authorities;
- the Science and Technology Policy Council [*Consejo de Política Científica y Tecnológica*], formed by senior representatives of Central Government and the Devolved Regions;
- the Science, Technology and Innovation Advisory Board [*Consejo Asesor de Ciencia, Tecnología e Innovación*], which, with a membership drawn from economic and social stakeholders, advises the Council; and, finally,
- the Spanish Research Ethics Committee [*Comité Español de Ética de la Investigación*], a consultative organ concerned with research ethics.

Title II concerns human resources dedicated to research, and creates a scheme for the professional development of research staff. One of its key novelties is that it prescribes rules for mobility between public sector entities and the private sector, the creation of employment contracts specific to research professionals, and performance assessment for career development purposes in Central Government public research bodies.

Title III relates to the fostering of scientific and technological research, innovation, and value creation, knowledge transfer, and scientific and technological culture. First, this Title governs the instruments and measures supporting research set

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[144] At the time of writing, the Bill had been laid before Parliament for the purpose of motions for amendment.

out in the open-ended list of measures to be adopted by funding entities, while providing for the possibility of cooperation agreements. Measures are put in place to govern the legal instruments giving effect to value creation release and knowledge transfer, which are to be governed by private law. The final chapter of the Title concerns the internationalisation of the system and cooperation for development, with an emphasis on the key role of research in this arena.

Title IV makes provision for the support and coordination of research in Central Government. By analogy to the model governing the Spanish science and technology system, and in consonance with that model, the Bill creates a coordination organ, the Delegated Commission of the Government for Science, Technology and Innovation Policy [*Comisión Delegada del Gobierno para Política Científica, Tecnológica e Innovación*], and a multi-annual planning instrument, the Central Government Science and Technology Research Plan. Elsewhere, the elements and instruments called upon to drive the shift in economic model are to be planned as part of the Central Government Innovation Strategy.

Title IV makes provision for two Central Government funding entities, the newly created State Research Agency and the Industrial Technology Development Centre, concerned with encouraging innovation. Finally, this Title defines, lists and specifies the main functions of public research bodies under the aegis of Central Government.

The Bill further contains a large number of additional provisions ranging over a wide miscellany of subjects, as well as transitional provisions, a repealing provision, and final provisions, which amend a considerable number of earlier statutes.

B) Impact on university staff

Universities are one of the key pillars of the Spanish science, technology and innovation system, in so far as they carry out two-thirds of all research undertaken in Spain. The Science, Technology and Innovation Bill recognises universities' preponderant role and endows them with a more comprehensive legal framework than that introduced by the Universities Act 2007 (LOMLOU) and the Nonprofit Entities Taxation and Arts Patronage Act 2002 [*Ley 49/2002*] with a view to achieving objectives relating to the second and third missions of the university.

The steps forward under the Bill as to university staff include significant provisions regarding professional career development. However, research staff employed by public universities are also governed by the Universities Act 2001 [*Ley Orgánica 6/2001*] and its implementing regulations, by university charters, by Devolved Regional legislation within the scope of their powers, by the Public Employees Act 2007 [*Ley 7/2007*], and by the Royal Decree enacting the university teaching and research staff charter.

The Bill makes the following provisions:

- a researcher may be seconded on a temporary basis to another executive public entity;
- a researcher joining another public or private entity may take unpaid leave;
- authorization may be given for education and training at reputable centres of higher learning; a researcher may work part-time at a commercial company formed or partly owned by his or her employer body;
- a permanent employee under contract (as opposed to a civil servant) of a public university may earn accreditation as an incumbent university lecturer, provided that a favourable report is issued on his or her teaching or research performance.

APPENDIX II

APPENDIX II

Existing legislation relating to EU 2015

ENACTMENT	DATE	CONTENT
L.O. 6/2001 de Universidades (LOU)	21/12/01 (BOE 24/12/2001)	Spanish university system. Academic and research freedom, management autonomy, and administration of own resources
RD 55/205	21/01/05 (BOE 25/01/2005)	Establishing the structure of university teaching and making provision for official bachelor-level university studies
RD 56/2005	21/01/05 (BOE 21/01/2005)	Making provision for official postgraduate university studies (in force up to 31 October 2007)
RD 63/2006	27/01/2006 (BOE 03/02/2006)	Enacting the charter of research staff in training
Orden ECI/332/2007	12/04/07 (BOE 19/02/2007)	Establishing the requirement for the verification of official university qualifications and for the practice of the medical profession
L.O.4/2007, (Modificación la LO 6/2001, de Universidades)	12/04/07 (BOE 13/07/2007)	Amendment of the Universities Act 2001. Principles of a European Common Area. Reform of the structure and organisation of teaching on the basis of three cycles: bachelor, master and doctoral
RD 900/2007	6/07/07 (BOE 08/07/2007)	Spanish Framework of Higher Education Qualifications (MECES). 29 October 2009 saw the formal creation of the committee commended with defining the framework. After the submission of preliminary papers, MECES is expected shortly to be introduced. It must fulfil the twofold purpose of informing society at large and students in particular as regards learning requirements, and employers as to future employees' skills. Furthermore, the framework must encourage mobility and international recognition of qualifications and training.
RD 1312/2007	5/10/07 (BOE 06/10/2007)	Establishing national accreditation for entry into university teaching faculty

ENACTMENT	DATE	CONTENT
RD 1313/2007	5/10/07 (BOE 08/10/2007)	Making provision for the rules on competitive entry into university teaching faculty.
RD 1393/2007	29/10/07	Establishing the rules on official university teaching. This Royal Decree is to be implemented by the regular drafting and enactment of Resolutions of the Council of Ministers declaring new qualifications to be officially endorsed. Guidelines for the design of bachelor and master qualifications, respectively; where a qualification affords entry to the practice of a regulated profession in Spain, the Government shall set the requirements to be satisfied by the relevant curricula, which must also conform to any applicable European law. After consultation with stakeholders, the following statutory instruments have been issued so far
RESOLUCION	17/12/2007 SEUI	Establishing the conditions to be satisfied by curricula leading to qualifications affording entry to the practice of the regulated profession of infant school teacher
RESOLUCION	17/12/2007 SEUI	Publishing the Resolution of the Council of Ministers of 14 December 2007, establishing the conditions to be satisfied by curricula leading to qualifications affording entry to the practice of the regulated profession of primary school teacher
RESOLUCION	17/12/2007 SEUI	Publishing the Resolution of the Council of Ministers of 14 December 2007, establishing the conditions to be satisfied by curricula leading to qualifications affording entry to the practice of the regulated profession of compulsory and post-compulsory secondary school teacher, vocational training teacher and language teacher
RESOLUCION	17/12/2007 SEUI	Publishing the Resolution of the Council of Ministers of 14 December 2007, establishing the conditions to be satisfied by curricula leading to qualifications affording entry to the practice of the regulated profession of architect.

ENACTMENT	DATE	CONTENT
RESOLUCION	17/12/2007 SEUI	Publishing the Resolution of the Council of Ministers of 14 December 2007, establishing the conditions to be satisfied by curricula leading to qualifications affording entry to the practice of the regulated profession of quantity surveyor.
RESOLUCION	17/12/2007 SEUI	Publishing the Resolution of the Council of Ministers of 14 December 2007, establishing the conditions to be satisfied by curricula leading to qualifications affording entry to the practice of the regulated profession of physician.
RESOLUCION	17/12/2007 SEUI	Publishing the Resolution of the Council of Ministers of 14 December 2007, establishing the conditions to be satisfied by curricula leading to qualifications affording entry to the practice of the regulated profession of veterinary surgeon.
Orden ECI/3854/2007	27/12/07 (BOE 29/12/2007)	Establishing the requirements for the verification of official university qualifications affording entry to the practice of the profession of primary school teacher
Orden ECI/3858/2007	27/12/07 (BOE 29/12/2007)	Establishing the requirements for the verification of official university qualifications affording entry to the practice of the profession of compulsory, post-compulsory, vocational training and language teacher
Orden ECI/3856/2007	27/12/07 (BOE 29/12/2007)	Establishing the requirement for the verification of official university qualifications affording entry to the practice of the profession of architect.
Orden ECI/3855/2007	27/12/07 (BOE 29/12/2007)	Establishing the requirement for the verification of official university qualifications affording entry to the practice of the profession of quantity surveyor.
RD 1509/2008	12/09/08 (BOE 25/09/2008)	Establishing the register of Universities, Centres and Qualifications (*Registro de Universidades, Centros y Títulos*, «RUCT»).
RD 1892/2008	14/11/08 (BOE 24/11/2008)	Making provision for the conditions of access to official bachelor-level university courses and procedures for admission to Spanish public universities.
Orden ECI/333/2007	13/02/07 (BOE 19/02/2007)	Establishing the requirement for the verification of official university qualifications affording entry to the practice of the profession of veterinary surgeon.

ENACTMENT	DATE	CONTENT
Resolución	14/02/08 SEUI	Publishing the Resolution of the Council of Ministers of 8 February 2008, establishing the conditions to be satisfied by curricula leading to qualifications affording entry to the practice of the regulated profession of dentist.
Orden CIN/2136/2008	03/07/08 (BOE 19/07/2008)	Establishing the requirement for the verification of official university qualifications affording entry to the practice of the regulated profession of dentist.
Resolución	14/02/08 SEUI	Establishing the conditions to be satisfied by curricula leading to qualifications affording entry to the practice of the regulated profession of nursing.
Orden CIN/2134/2008	03/07/08 (BOE 19/07/2008)	Establishing the requirement for the verification of official university qualifications affording entry to the practice of the profession of nursing.
Resolución	14/02/08 SEUI	Publishing the Resolution of the Council of Ministers of 8 February 2008, establishing the conditions to be satisfied by curricula leading to qualifications affording entry to the practice of the regulated profession of pharmacist.
Orden CIN/2137/2008	03/07/08 (BOE 19/07/2008)	Establishing the requirement for the verification of official university qualifications affording entry to the practice of the profession of pharmacist.
Resolución	14/02/08 SEUI	Publishing the Resolution of the Council of Ministers of 8 February 2008, establishing the conditions to be satisfied by curricula leading to qualifications affording entry to the practice of the regulated profession of physiotherapist.
Orden CIN/2135/2008	03/07/08 (BOE 19/07/2008)	Establishing the requirement for the verification of official university qualifications affording entry to the practice of the profession of physiotherapist.
Resolución	05/02/09 SEU	Publishing the Resolution of the Council of Ministers, establishing the conditions to be satisfied by curricula leading to qualifications affording entry to the practice of the regulated profession of podiatrist.

ENACTMENT	DATE	CONTENT
Resolución	05/02/09 SEU	Publishing the Resolution of the Council of Ministers, establishing the conditions to be satisfied by curricula leading to qualifications affording entry to the practice of the regulated profession of optician/optometrist.
Resolución	05/02/09 SEU	Publishing the Resolution of the Council of Ministers, establishing the conditions to be satisfied by curricula leading to qualifications affording entry to the practice of the regulated profession of dietician/nutritionist.
Resolución	05/02/09 SEU	Publishing the Resolution of the Council of Ministers, establishing the conditions to be satisfied by curricula leading to qualifications affording entry to the practice of the regulated profession of occupational therapist.
Resolución	05/02/09 SEU	Publishing the Resolution of the Council of Ministers of 8 February 2008, establishing the conditions to be satisfied by curricula leading to qualifications affording entry to the practice of the regulated profession of speech therapist.
Resolución	15/01/09 SEU	Publishing the Resolution of the Council of Ministers, establishing the conditions to be satisfied by curricula leading to qualifications affording entry to the practice of the regulated profession of engineer.
Orden CIN/309/2009	09/02/09 (BOE 18/02/2009)	Establishing the requirement for the verification of official university qualifications affording entry to the practice of the profession of civil engineer.
Orden CIN/310/2009	09/02/09 (BOE 18/02/2009)	Establishing the requirement for the verification of official university qualifications affording entry to the practice of the profession of mining engineer.
Orden CIN/311/2009	09/02/09 (BOE 18/02/2009)	Establishing the requirement for the verification of official university qualifications affording entry to the practice of the profession of industrial engineer.
Orden CIN/312/2009	09/02/09 (BOE 18/02/2009)	Establishing the requirement for the verification of official university qualifications affording entry to the practice of the profession of aeronautical engineer.

ENACTMENT	DATE	CONTENT
Orden CIN/325/2009	09/02/09 (BOE 18/02/2009)	Establishing the requirement for the verification of official university qualifications affording entry to the practice of the profession of agricultural engineer.
Orden CIN/326/2009	09/02/09 (BOE 18/02/2009)	Establishing the requirement for the verification of official university qualifications affording entry to the practice of the profession of forest engineer
Orden CIN/354/2009	09/02/09 (BOE 18/02/2009)	Establishing the requirement for the verification of official university qualifications affording entry to the practice of the profession of naval architect.
Orden CIN/355/2009	09/02/09 (BOE 18/02/2009)	Establishing the requirement for the verification of official university qualifications affording entry to the practice of the profession of telecommunications engineer.
Resolución	15/01/2009 SEU	Publishing the Resolution of the Council of Ministers, establishing the conditions to be satisfied by curricula leading to qualifications affording entry to the practice of the various regulated professions of quantity surveying.
Orden CIN/306/2009	09/02/09 (BOE 18/02/2009)	Establishing the requirement for the verification of official university qualifications affording entry to the practice of the profession of public works quantity surveyor.
Orden CIN/308/2009	09/02/09 (BOE 18/02/2009)	Establishing the requirement for the verification of official university qualifications affording entry to the practice of the profession of aeronautical technical engineer.
Orden CIN/323/2009	09/02/09 (BOE 18/02/2009)	Establishing the requirement for the verification of official university qualifications affording entry to the practice of the profession of agricultural technical engineer.
Orden CIN/324/2009	09/02/09 (BOE 18/02/2009)	Establishing the requirement for the verification of official university qualifications affording entry to the practice of the profession of forest technical engineer.
Orden CIN/350/2009	09/02/09 (BOE 18/02/2009)	Establishing the requirement for the verification of official university qualifications affording entry to the practice of the profession of naval technical engineer.
Orden CIN/351/2009	09/02/09 (BOE 18/02/2009)	Establishing the requirement for the verification of official university qualifications affording entry to the practice of the profession of industrial technical engineer.

ENACTMENT	DATE	CONTENT
Orden CIN/352/2009	09/02/09 (BOE 18/02/2009)	Establishing the requirement for the verification of official university qualifications affording entry to the practice of the profession of telecommunications technical engineer.
Orden CIN/353/2009	09/02/09 (BOE 18/02/2009)	Establishing the requirement for the verification of official university qualifications affording entry to the practice of the profession of topographical technical engineer.
Orden EDU/1434/2009	29/05/09 (BOE 04/06/2009)	Updating the annexes of Royal Decree 1892/2008 making provision for the conditions for access to official bachelor-level university courses and the procedures for admission to Spanish public universities.
Reglamento	02/06/2009	Internal rules and regulations of the General Conference for University Policy.
Real Decreto 1677/2009	13/11/09 (BOE 04/12/2009)	Enacting the rules and regulations of the Universities Council**.
Orden EDU/268/2010	11/02/10 (BOE 13/02/2010)	Updating the annexes of Royal Decree 1892/2008 making provision for the conditions for access to official bachelor-level university courses and the procedures for admission to Spanish public universities.
Real Decreto 558/2010	07/05/10 (BOE 08/05/2010)	Royal Decree 558/2010, amending Royal Decree 1892/2008, making provision for the conditions for access to official bachelor-level university courses and the procedures for admission to Spanish public universities.
Real Decreto 861/2010	02/07/10 (BOE 03/07/2010)	Royal Decree 861/2010, amending Royal Decree 1393/2007, making provision for official university courses.
	CM 07//05/2010 Congreso 19/052010	Science, Technology and Innovation Bill

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* From October 2010 to the time of printing this paper, the following enactments have been published:
  • Royal Decree 1791/2010 enacting the University Student Charter
  • Royal Decree 99/2011 governing officially recognized doctoral courses

APPENDIX III

APPENDIX III

2010-2020 ACTION PLAN FOR THE IMPLEMENTATION OF UNIVERSITY FUNDING POLICY

The Action Plan sets out a range of measures for each of the vectors into which the financing instrument is structured.

STUDY GRANTS AND AID AND REGULATED TUITION FEES

1. **Creation of the University Observatory on Grants, Aid and Academic Performance**
   - The Observatory will operate two working committees:
   - Grants, Aid and Academic Performance Committee
   - Effectiveness, Efficiency and Accountability Committee

2. **Gradual implementation of the «grant portability» model**. All Spanish students undertaking university study in any country of the European Higher Education Area will be covered by the general system of grants of the Kingdom of Spain.

3. **In the context of mobility, the policy supporting university accommodation must be assessed**
   This initiative will be conducted in coordination with subsidised stays at university halls of residence operated by the Devolved Regions.

4. **The effects of insularity on grants and aid will be analysed**

HUMAN RESOURCES

1. **Development of teaching and research staff horizontal career**
   A joint committee will be formed involving the Devolved Regions, universities and the Ministry of Education and ANECA and CNEAI experts, with the following objectives:
   - Implementation of the proposal for horizontal career development: career path sections, assessment, recognition of merit, timeframes, modes of access, etc.
   - Analysis of teaching and research staff assessment by career path section and design of a single, coordinated model for assessment of teaching and research staff across universities, Devolved Regions and Central Government. As far as practicable, a standardised model of assessment and accreditation should be sought so as to streamline, facilitate and resolve the complex situation now prevailing. A streamlined and coordinated assessment system will be presented.

Monitoring indicators: ➢ The committee will be created within one and a half months from enactment of the Teaching and Research Staff Charter.

➢ The committee will produce its final report within four months from its creation

➢ The final document will be submitted for discussion and written appraisal to the University Sector Panel *(Mesa Sectorial de Universidades),* the Universities Council and the General Conference for University Policy

2. **Appraisal of the present situation and planning of the following aspects relating to academic staff teaching careers**:

- Analysis of faculty accreditation processes
- Evaluation of potential recruitment pools of accredited staff
- Study of demographic development and university staff rejuvenation plans. Retirement and early retirement incentive plans.

Monitoring indicators:

➢ Within three months from adoption of the document a standard data collection form will be available

➢ The SGU will compile the information and issue its overall report by November 2010.

3. **Incentives to academic staff mobility**

- Academic mobility with reference to resource efficiency and teaching planning in relation to course offerings. Academic staff must be planned with reference to course offerings so as to ascertain teaching and research capabilities and needs. Incentives to mobility will be developed in congruence with the fit between supply and demand.

Monitoring indicators:

➢ Percentage of academic staff by disciplinary area moving to another university in the course of an academic year

- Academic mobility associated with internationalisation. Policies will be set in train to support cooperation agreements with other countries so as to encourage academic staff mobility

Monitoring indicators:

➢ Percentage of academic staff in each university leaving Spain in the course of the academic year to undertake (mainly) teaching duties

➢ Foreign academic staff as a percentage of domestic staff residing in Spain during the academic year to undertake (mainly) teaching duties

➢ Number of weeks spent by Spanish academic staff overseas

➢ Number of weeks spent by foreign academic staff in Spain

- Temporary domestic and international mobility of academics across universities and public research bodies, public and private research and development centres, and spin-off enterprises in the framework of the Science, Technology and Innovation Bill

Monitoring indicators:

➢ Percentage of academic staff and researchers in each university completing some form of mobility with universities, public research bodies, and research and development centres overseas for the purpose of research and development duties

> ➤ Percentage of foreign academic staff and researchers with respect to Spanish staff completing some form of mobility with a Spanish university for the purpose of research and development duties in the course of the calendar year
> ➤ *Percentage of publications resulting from international co-authorship*
> ➤ Percentage of academic staff and researchers taking part in mobility actions and involved in knowledge-based enterprises

4. **Development of doctoral studies, doctoral schools and pre-doctoral research careers.**
Once the Royal Decree on doctoral studies has been enacted, proposals will be put forth for its regulatory implementation and support will be given to the creation of doctoral schools. The foundations shall be laid for the specifications of "doctorates of excellence".

5. **Overall effort across academic and administrative and service staff to be redistributed in accordance with teaching and research needs**. Improvement of the administrative/academic staff ratio
- Incentives to university recruitment of higher vocational training experts at all functional levels
- Support for cooperation agreements with vocational training institutes so that vocational trainees can undertake practice periods at universities

ADAPTATION OF UNIVERSITY INFRASTRUCTURE TO THE EUROPEAN HIGHER EDUCATION AREA AND THE EUROPEAN RESEARCH AREA. INTERNATIONAL CAMPUS OF EXCELLENCE

1. Multi-annual investment plans. A study will be conducted of Spanish universities' investment needs in the period 2010-2020. Multi-annual investment plans will be analysed so as to identify the budget items that the Devolved Regions allocate to implementing such investments and needs for the period 2010-2020. Funding mechanisms will be sought so as to avoid an excessive freeze on necessary investments by reason of the Austerity Plan.

2. Campus. The International Campus of Excellence programme will be further supported and improved so as to promote university campuses in Spain capable of competing at the global level and of becoming international benchmarks. Multi-annual funding needs will be appraised with a view to the attainment of International Campus of Excellence programme objectives.

RESEARCH, TECHNOLOGICAL DEVELOPMENT AND ACTIVITIES IN SUPPORT OF INNOVATION

Royal Decree 1670/2009, published in *BOE* [the Spanish Central Government Gazette] on 17 November 2009 creates a committee for coordination between the Ministry of Science and Innovation and the Ministry of Education. The committee first met – and was first constituted – 6 April 2010. Under article 1.2 of the Royal Decree, the purpose of the committee is to «adopt the measures required to coordinate such actions as arise from the exercise of the powers of the Ministries of Science And Innovation and of Education in connection with the university ambit in any matters impinging on research, development and innovation.» It accordingly falls to this committee to consider and assess the aspects of technological research and development covered in this section and described below.

1. **Sufficient coverage of overheads**

   - A new analytical accounting committee, chaired by the Central Government Controller (*Intervención General de la Administración del Estado*, "IGAE"), is now working on adapting a cost model for Spanish universities. The final report will become available in July 2010. The cost model is expected to be fully implemented at all universities by 2013.
   - Work will be done in conjunction with the Ministry of Science and Innovation to stipulate criteria determining the real cost of each research project attracting subsidies in the framework of the National Research and Development Plan [*Plan Nacional de I+D+i*], towards the objective that overheads cover the total indirect cost of each project by 2020.

2. **Incentives to universities to boost their research units of excellence or their disciplinary areas most active in research and development**

   The Ministry of Education, via its University Statistics and Information Committee and in partnership with the Ministry of Science and Innovation, will create a map of university research departments and teams, providing data on their activities. Mechanisms will be sought to support access to international competitive processes for the award of subsidies.

   Monitoring indicators:
   - ➢ Number of publications with respect to number of researchers
   - ➢ Percentage of publications resulting from international cooperation
   - ➢ *Funds attracted from the National Plan in relation to the number of publications*

3. **Implementation of the programme to increase innovative activity and technological productivity** Two clearly distinct options are being considered:

   - The creation of a new «transfer and innovation research bonus [*sexenio*]». To further consider and specify this measure, a committee has been created within CNEAI, encompassing all disciplinary areas, for the purpose of producing a report on the future implementation of proposed improvements and their consequences for the Spanish university system.
   - The creation of a new category of incentives combining an economic incentive with an outward mark of distinction – as is the practice in some of our neighbouring countries – to reward outstanding researchers (in addition to the highly selective national research prizes [*Premios Nacionales de Investigación*]). The concrete form to be taken by this accolade is being considered by a specific working group, which will put forward an initial proposal to be appraised in a wider forum.[145]

Efficiency and effectiveness in the management of Spanish universities. Accountability and transparency

1. **An integrated information system should be created that is accessible to and involves all system stakeholders**. To this end, the University Information Statistics and Information Committee has been set up, in order to develop an IT application supporting the technical implementation of the project.

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[145] In particular, so as to widen the scope of the accolade to researchers beyond the university sphere; the model is now being discussed with other actors, such as the Ministry of Science and Innovation.

2. **Support for accountability.** An analytical accounting committee has been created with the task of developing an analytical accounting model suitable for universities. The final report will become available in July 2010. The cost model is expected to be fully implemented at all universities by 2013. A study will be conducted so as to foster the conditions for consensus across the entire Spanish university system so that in the course of academic year 2012-2013 all students can be aware of the real cost of each bachelor, master and doctoral degree.
   - Universities will be encouraged to introduce management excellence systems.
   - Every two years, the Secretariat General for Universities will produce a report on the Spanish university system and lay it before the Universities Council, the General Conference for University Policy and the *Cortes*, the Spanish national parliament. The report will include the annual report produced by the two committees of the University Observatory.

3. **Analysis and assessment of measures in aid of graduate jobseeking**
   - The operation of universities' career offices will be assessed. A network of career information services will be set in motion to advise students and conduct individual tracking of graduates, while improving the functioning of existing career offices.
   - Work placements with domestic and international businesses will be supported. Curricula will recognise credits earned in the course of work placements at domestic and international businesses.
   - Support will be given to academic staff mobility to technology centres and businesses. Business employees and technology centre staff will be provided with university fellowships.
   - Lifelong training will be reinforced.
     – Training will be adapted to the needs of regional businesses and special learning courses will be designed accordingly.
     – The range and structure of degree courses will be adapted so as to provide graduates with a robust foundation for lifelong learning.
   - Communication and relations with the environment will be nurtured. Institutional information and university out-reach will be made more accessible to the non-university setting. A joint programme will be set in motion to raise the visibility of universities as institutions that cooperate towards the development of the host community.
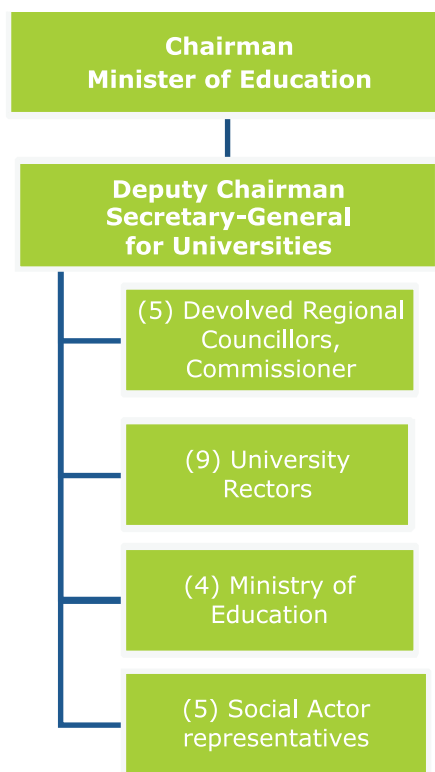
Graph 33. Organizational chart of the Commission for the Analysis and Evaluation of Austerity Measures in the Spanish University System

APPENDIX IV

ESTRATEGIA UNIVERSIDAD 2015

Objetivos para la modernizacióm de las Universidades

APPENDIX IV

OBJECTIVES FOR UNIVERSITY MODERNISATION

Estrategia Universidad 2015 is an array of strategic vectors for the improvement and modernization of Spain's universities, with a focus on three overarching horizontal objectives: the social dimension of higher education, quality and excellence, and internationalization.

The social dimension the framework of the European Higher Education Area requires that grants and financial support be brought up to date to reinforce equality of opportunity, foster learning and academic performance, and facilitate domestic and international mobility.

Excellence is to be sought in all academic missions (teaching, research and knowledge transfer) and environment-related roles (sustainable campuses, healthy campuses, educational campuses and accessible campuses).

Spain's universities are to become more genuinely internationalized beyond the progress already achieved in the research field. Improvements will be made in the international offering of qualifications and talent attraction policies in the key segment of international students looking for their best options; Spanish students will be encouraged to undertake long-term study (at least one academic year) at foreign institutions; the quantity of short-term mobility will be maintained, and its quality enhanced.

Table 31 schematises the objectives of *EU 2015*.

Improvements	EU 2015 Objectives for modernising universities
Quality and Excellence	• Increase the number of researcher trainers, and provide universities with the infrastructure, resources and means necessary to carry out high-quality research. • Promote specialisation in university research through incentives and competitive mechanisms designed to further develop the individual strengths of each university. • Strengthen the Spanish universities that are currently doing the most significant research in Europe in any given field, promoting their participation in world-class programmes and networks.
Economic Impact and Social Relevance	• Promote structured collaborations and closer relationships between universities and businesses, particularly in terms of the development and establishment of strategies for the transfer of knowledge and technology, thus increasing the contribution that universities make in terms of innovation. • Promote collaborations between universities and local and regional authorities where such arrangements can help with the definition and establishment of regional knowledge-based development strategies. • Promote more thorough social interaction, and a stronger university commitment to its involvement with civic organisations searching for solutions to social problems, particularly those that require scientific knowledge.
Human Resources and Strategic Management	• Improve strategic research management via incentives and the spread of best practices in terms of governance, research, and strategic and multi-disciplinary agenda definition for research and evaluation. • Make progress toward sustainable financing for competitive research through the standardisation of total cost models, including both direct and indirect costs, which will help universities to recover the full cost of the research they undertake. • Develop human resource strategies specifically for researchers, creating career paths and work conditions that will attract, motivate and retain the finest researchers from Europe and the rest of the world.

Table 31. Objectives and improvements proposed in EU 2015

The Bologna Process is based on a quality-control system designed to be used by all European universities. It represents one of the key elements of the EHEA, and will allow all educational institutions to offer a wider and more dynamic range of courses without lowering the academic and professional standards required by society.

Table 30 shows the various courses of action that have been proposed in the name of quality control.

Proposed Courses of Action in EU 2015 for the years 2010 –2015
➢ Establish Internet Forums and Groups of Experts to handle specific topics pursuant to university modernisation, with representatives of the universities, research centres, associations and busi nesses. They will conduct analyses to identify best practices and propose recommendations at various levels as regards how best to implement the modernisation agenda for university research. A group of experts will be convened for each of EU2015's strategi c axes and objectives as laid out in the previous point, including the University-Business Forum.
➢ Launch and consolidate the research studies that will allow us to better understand the characteristics and perspectives of university research in Spain, as well as the impact of the measures and instruments currently in use. Among other projects that are currently being designed, there is one intended to update data bases, another to create an observatory that will measure the impact and progress of other projects, and predictive studies focused on universities currently undertaking research.

➢ Direct action on the part of universities and their associations to incorporate and implement useful evidence, recommendations and best practices gathered from the expert groups, internet forums and research studies conducted at both the national and the European levels. These direct actions will be made known through public notifications on the part of the National Plan and of EU 2015; they will promote the work of the university system as regards specific aspects of the modernisation agenda, such as:
    a. activities related to training, awareness, and the spread of information (including workshops, seminars, personnel exchanges, etc.) carried out by universities and their associations (including CRUE, Social Councils, and regional organisations)
    b. work activities related to specific aspects of the modernisation agenda, carried out in coordination with university networks
    c. promotion of university participation in new European financing mechanisms including EIT, ERC, JTI, RSFF, FEDER, and CIP.

Table 32. Proposed Courses of Action in EU 2015 for the years 2010-2015

University modernisation is the central goal of EU 2015, particularly in terms of research, innovation, and social interaction. Its objectives are based on the following strategic axes: the pursuit of excellence and improved quality in terms of university research and education; heightening the economic impact and social relevance of university research; and improving the management of human resources and strategic planning as regards university research.

To meet these objectives, the universities, their associations (including CRUE and the Social Councils), the Devolved Regions, and leading social and economic actors have worked together to develop a Plan of Action. Full consensus was sought wherever possible, and the courses of action proposed for the years 2010-2015 were developed through a dynamic agenda that was constantly updated in response to the progress that had been made to that point. These courses of action are laid out in Table 19. The coordination and management of EU 2015 took place at the ministerial level, in collaboration with the Devolved Regions and the relevant social and economic actors.

EU 2015 Plan of Action for the years 2010-2011

In June 2010, the Minister of Education met with the Council of Ministers to present the 2010-2020 Plan of Action which was to serve as a planning instrument that would lay out the educational policies for that time period based on 12 fundamental objectives set down in concrete terms. These objectives deal with specific, ambitious programs involving regional cooperation between and among the Devolved Regions.

The Plan of Action identifies one objective in particular in regard to the university system: *"University modernisation and internationalisation as regards training, research, the transfer of knowledge, and social responsibility."*

Armed with the Plan, and with the Ministry of Education's own Plan of Action entitled "*University modernisation and internationalisation,"* the Secretary General for Universities produced its *2010-2011 Plan of Action of EU 2015 for the Modernisation of the Spanish University System.*

The 2010 Plan of Action for academic year 2010-2011 for the implementation of EU 2015 includes a rationalisation process to be applied to the Ministry of Education's various policies pursuant to the university context, so as to adapt these policies to the objectives established for each of the aforementioned strategic axes.

The central mission of this Plan of Action is to concretise EU 2015 through a series of highly visible measures taken in the interest of university modernisation, including public announcements, agreements, and the issuance of regulations. A timeline will be released, as will an economic outline, so that each area of interest and each course of action can be understood in the context of a specific Ministry of Education initiative helmed by the Secretary General for Universities.

Thus, the Plan of Action's main objective is to update EU 2015 and to incorporate the specific activities undertaken each year so as to make known the role of government in university policy. This in turn will convert the Plan of Action into a roadmap that leads to fuller and more efficient participation on the part of the university system's many constituent parts.

The Plan of Action gathers together the objectives and a given number of measures pursuant to each of EU 2015's strategic axes. The measures incorporated into the Plan of Action will be structured according to the kind of activities, financing and management they entail, as well as according to the degree of Autonomous Community participation they require.

Likewise, the Plan lays out guidelines for a series of activities (including public calls for assistance, regulatory and statutory developments, and public prices, as well as horizontal actions including the Scholarship Observatory, the Information, Tracking, and Evaluation systems, and the Communications Plan) and management instruments (including management organs, financing, timetables and service recipients).

APPENDIX V

Acronyms

(Not all acronyms appear in the English-language version of the paper)

Administración General del Estado (AGE)

Agencia Española de Cooperación Internacional para el Desarrollo (AECID)

Agenda Europea de Modernización de las Universidades (AEMU)

Agencia Nacional de Evaluación de la Calidad y Acreditación (ANECA)

Agència per a la Qualitat del Sistema Universitari de Catalunya (AQU)

Asociación Europea de Agencias de Evaluación de la Calidad (ENQA)

Asociación de la Universidad Europea (EUA)

Axencia para a Calidade do Sistema Universitario de Galicia (ACSUG)

Bologna Experts Team (BET)

Bologna Follow-up Group (BFUG).

Campus de Excelencia Internacional (CEI)

Centro para el Desarrollo Tecnológico Industrial (CDTI)

Ciencias y Tecnología (C&T)

Comisión Interministerial de Ciencia y Tecnología (CICYT)

Comisión de Seguimiento de la Estrategia Universidad 2015 (COSEU)

Comisión Nacional Evaluadora de la Actividad Investigadora (CNEAI)

Comunidades Autónomas (CCAA),

Conferencia Estatal de Defensores Universitarios (CEDU)

Conferencia General de Política Universitaria (CGPU)

Conferencia de Rectores de las Universidades Españolas (CRUE)

Consejo de Estudiantes Universitario del Estado (CEUE)

Consejo de Universidades (CU)

Currículo Vitae (CV)

Conferencia de Rectores de las Universidades Españolas CRUE

Dirección General de Formación y Orientación Universitaria (DGFOU)

General de Política Universitaria (DGPU)

Dirección General de Relaciones Internacionales (DGRRII)

Empresas de Base Tecnológica (EBT) Espacio Europeo de Educación Superior (EEES)

Entidades locales (EELL)

Espacio Europeo de Investigación (EEI)

Estatuto del Estudiante Universitario (EEU)

European Credit Transfer System (ECTS)

European Institute of Innovation and Technology (EIT)

European Research Area (ERA)

European University Association (EUA)

Grupo Asesor Internacional (GAIN)

International Association of Universities (IAU)

Ley de la Ciencia, la Tecnología y la Innovación (LCTI)

Ley de Reforma Universitaria (LRU)

La Ley Orgánica 6/2001, de Universidades (LOU)

Ley Orgánica 4/2007de Universidades (LOMLOU) que se modifica la LOU

Liga Europea de Universidades de Investigación (LERU)

Marco Europeo de Cualificaciones de la Educación Superior (MECES)

Ministerio de Ciencia e Innovación (MICINN)

Orden Ministerial (OM)

Oficinas de Transferencia de Resultados de la Investigación (OTRI)

Oficinas de Gestión de la Propiedad Intelectual (OGPI)

Personal Docente e Investigador (PDI);

Pequeñas y medianas empresas (PYMES)

Personal de Administración y Servicios (PAS)

Presupuestos Generales del Estado (PGE)

Programa Marco de Investigación y Desarrollo (PMID)

Real Decreto (RD)

Red de Gabinetes de Comunicación de la CRUE (REDGACRUE)

Red Universitaria de Asuntos Estudiantiles (RUNAE)

Registro de Universidades, Centros y Títulos (RUCT)

Registro Europeo de Agencias (EQAR)

Responsabilidad Social Universitaria (RSU)

Secretaría General de Universidades (SGU)

Secretaría de Estado de Cooperación Internacional (MAEC)

Sistema de Seguimiento y Evaluación de la Estrategia Universidad 2015, (SEU 2.15)

Sistemas de Garantía Interna de Calidad (SGIC)

Sistema Universitario Español (SUE)

Suplemento Europeo al Título (SET)

Tecnologías de la Información y de la Comunicación (TIC)

Unión Europea (UE)

Unidad Técnica del Observatorio Universitario (UTOU)

UNIVERSITIES:

Universidad de Barcelona (UB)

Universidad Autónoma de Madrid (UAM)

Universidad Complutense de Madrid (UCM)

Universidad de Valencia (UV)

Universidad Autónoma de Barcelona (UAB)

Universidad Politécnica de Valencia (UPV)

Universidad de Granada (UGR)

Universidad Pompeu Fabra (UPF)

Universidad de Santiago de Compostela (USC)

Universidad de Sevilla (US)

Universidad de Zaragoza (UNIZAR)

APPENDIX VI

APPENDIX VI

TEXT BOXES, FIGURES AND TABLES