campus MONCLOA

la energía de la diversidad

Effectively connecting talent and resources:

CEI Moncloa R&D Action Plan

EXECUTIVE SUMMARY

INNOCAMPUS Programme

Call for Grants 2010

MONCLOA CAMPUS

CAMPUS OF INTERNATIONAL EXCELLENCE

Partner Universities

Complutense University and Technical University

Madrid

8 September 2010

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INTRODUCTION

The resolution of the General Secretary for Universities (6 November 2009) granted "Campus of International Excellence " (CEI) status to the **Moncloa Campus: The Power of Diversity,** a project promoted and coordinated by the Complutense University of Madrid (UCM) and the Technical University of Madrid (UPM).

A copy of the approved project (referred to below as **CEI Moncloa Strategic Plan**, is attached and can also be consulted on http://www.ceicampusmoncloa.com/. The **metaobjective** of this Plan is the transformation of the Moncloa Campus, based on sustainability and social responsibility, into an **internationally recognised Campus for research, innovation and scientific and technological management** through clusters of teaching and research bodies located on the Moncloa Campus, within the *Ciudad Universitaria de Moncloa*, based on a framework agreement between the partner universities and other associated institutions. The Plan includes four **strategic core concepts:** ***Creating, Sharing, Connecting and Growth*** which define its **strategic aims** along with its **specific or operational objectives.** To achieve these, a series of general, transversal and sectorial actions have been designed.

Excellence in research and innovation forms the nucleus of the Moncloa Campus of International Excellence. For this reason, and conscious of the need for specialisation to achieve excellence in R&D, the Moncloa Campus has defined **five thematic clusters** where it aspires to be a scientific reference point in talent recruitment and training:

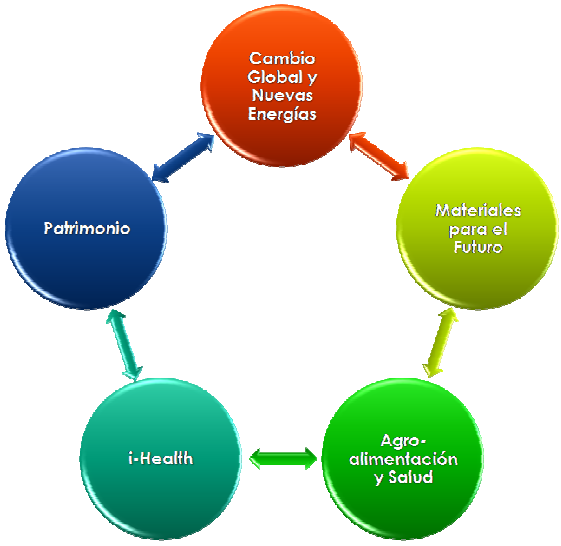
a) *Global Change and New Energies.*

b) *Materials for the Future.*

c) *Agri-Food and Health.*

d) *Innovative Medicine (i-Health).*

e) *Heritage*.



In each of these clusters, the powerful fusion of individual strengths on the Campus provides uniquely innovative and interdisciplinary configurations, highly competitive at a European level, to drive a decisive step forward in knowledge transfer.

The importance of ongoing sustainable development in the CEI Moncloa Strategic Plan in those aspects most closely related to R&D, has led to the drawing up of a Master Plan covering scientific research, technological development and innovation (R&D) for the Campus, of which this **CEI Moncloa R&D Action Plan "Effectively connecting resources with talent"** is an outline. It establishes priorities for the different actions planned, depending on their need, urgency, scientific relevance, appropriateness for the development of each cluster, number of beneficiaries, transfer capacity to industry and to society, and the limitations of the available resources within the CEI. The result of this Plan is the application in this Call for the specified **infrastructure** actions.

1. ACTION OBJECTIVES.

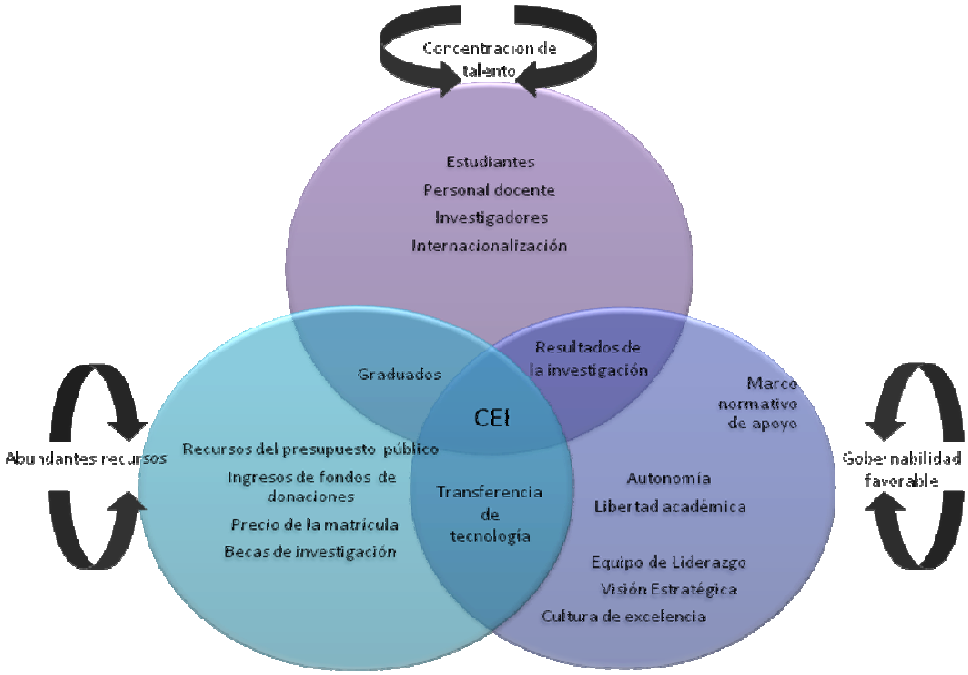
The action is presented within the framework of the **CEI Moncloa R&D Master Plan.** It should therefore be considered as a part of the Moncloa CEI R&D Master Plan as a whole with this, in turn, seen within the Moncloa CEI Strategic Plan. For this Call for Research Grants within the Ministry of Science and Innovation INNOCAMPUS Programme, a series of specific actions in the Action Plan has been selected, eligible for funding within the terms of the Call, leaving aside other actions which, although they may be equally important, do not fall within the terms of the above Programme Call. This means that the grant applications selected here are coordinated with the proposals for additional funding through the Ministry of Education CEI 2010 Call, and that the distribution of the funding requested corresponds to the action type and/or to internal policy decisions of the applicant Universities.

The **CEI Moncloa R&D Action Plan "Effectively connecting resources with talent "** defines three specific action themes:

- **Talent theme**. Acting on all fronts (cultivating, attracting, retaining) in the process of concentrating talent to reach a critical mass of exceptional students and internationally recognised teachers.
- **Resources theme**. Providing the Moncloa Campus with the scientific-technological infrastructures needed to drive a qualitative leap forward in quality, internationalization and in transfer and innovation provision.
- **Services theme.** Improving scientific management and support for innovation, generating a culture of excellence and internationalization.

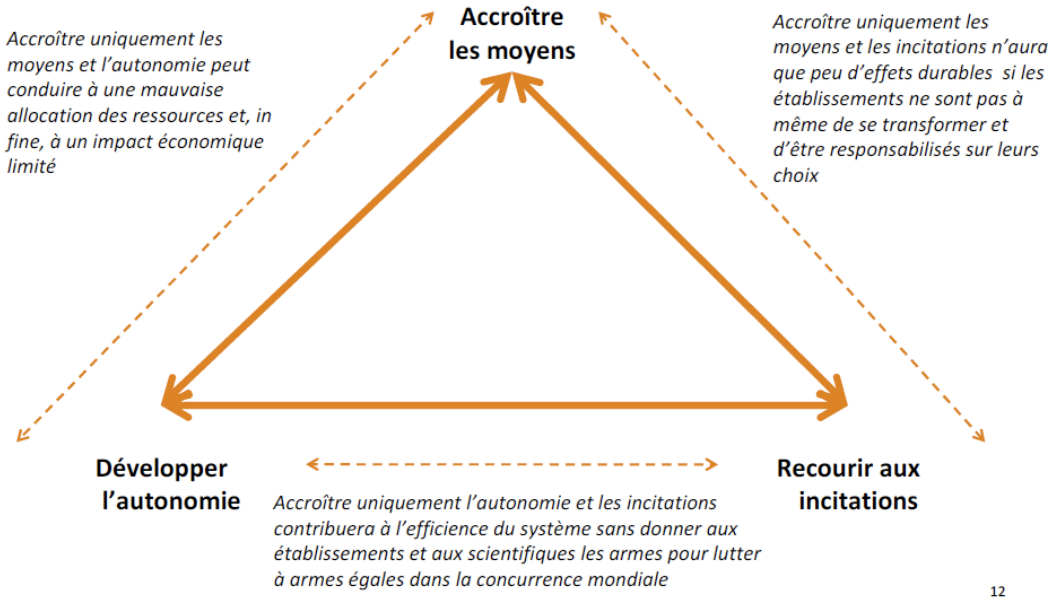
These three axes are highlighted in the most important studies of university excellence and how to achieve it. The report by the World Bank *The challenge of establishing world class universities* (Salmi 2009) attributes international excellence to three complementary groups of factors: a) a high concentration of talent in teachers and students, b) abundant resources offering a fertile learning environment and enabling advanced research, c) favourable governance encouraging strategic vision,

innovation and flexibility, enabling institutions to take decisions and administer resources without bureaucratic obstacles.



Characteristics of a Campus of International Excellence (World Bank, 2009)

The recent report on university excellence coordinated by Philippe Aghion at the request of the French government (*L'excellence universitaire: leçons des expériences internationales,* January 2010), defines the following actions in the pursuit of excellence:



In accordance with these studies, the CEI Moncloa has set up its own system of ad hoc governance for development, as described in the CEI Moncloa Strategic Plan, envisaging actions on each of the strategic areas mentioned above with the aim of achieving the strategic objectives set:

- **Knowledge generation,** especially in the selected thematic areas, increasing the publication and impact of scientific articles.
- **Transfer,** with a qualitative leap in university-industry-society collaboration.
- **Open innovation,** driving interconnectivity between the Moncloa Campus partner universities and other participating institutions and companies.

These objectives are interlinked with the transversal Campus objectives for the realization of the CEI Moncloa mission:

- **Internationalization.** Increasing the internationalization of the Campus in R&D.
- **Connectivity.** Facilitating **real connectivity** between the different institutions on the Moncloa Campus and encourage new connections in the future.

The Action Plan envisages specific actions focusing on the concentration of talent, such as A3[1] (International Postgraduate School), A4 (International Doctoral School) and A9 (PICATA: International Talent Recruitment Plan), with the first edition launched this September. These specific actions are in addition to their own actions which each CEI partner university is developing in the usual way: annual Calls for trainee research staff (PIFs), Calls for PhD research contracts (Programme I-3), Call for FINNOVA I and II scholarships in collaboration with the Community of Madrid, Calls for distinguished visiting scholars, etc.

However, the INNOCAMPUS 2010 Call excludes personnel funding, so that the grants applied for here refer to actions in the resources theme. Within the Action Plan seven specific actions have been selected with grants totalling **5.777.000 euros** applied for in this Call. These actions have been selected on the basis of their need, urgency, scientific relevance, transferability to society and industry, aptness for cluster development, possible repercussion on various clusters and number of beneficiaries, so that receiving them will multiply their effect in different research areas and ensure the returns which make the process sustainable.

The actions selected are listed below and described later in more detail:

i. **Action E8: Remote Sensing and Monitoring Laboratory.** *Cluster involved*: Global Change and New Energies

[1] All the actions are identified with the code used in the *Plan Estratégico EI-Moncloa* to locate them more easily.

ii. **Action E9: Moncloa Climate Change Impact Laboratory (MCCL)**: *Cluster involved*: Global Change and New Energies

iii. **Action E10: Moncloa Natural Hazards Network** *Cluster involved:* Global Change and New Energies

iv. **Action F1: Installation of the ICTS National Centre for Advanced Microscopy**. *Cluster involved:* Materials for the future.

v. **Action F4: Creation of the Mechanical Testing Laboratory for Structural Elements.** *Cluster involved:* Materials for the future.

vi. **Action H4: Creation of the Advanced Platform for Biomedical Imaging.** *Cluster involved:* Innovative Medicine (i-Health).

vii. **Action P4: Implementation of the Laboratory for Palaeoenvironmental Dating and Determination within the Heritage Sciences area.** *Cluster involved*: Heritage.

viii. **Action A22: Joint Office for the asseeement of research results (OCVRI)**. Transversal action affecting to all clusters.

Finally, the Action Plan also envisages acting on the services theme, implementing management tools for these proposed infrastructures and others already existing and obtaining quality assurance certificates for the structures and service provision, but it has been considered more appropriate to postpone this until a later date when the infrastructures are fully set up and working.

2. DESCRIPTION OF THE ACTIONS AND THEIR AREA FRAMEWORK.

Within the R&D framework, the Moncloa Campus is organized into 5 thematic clusters, which in turn are structured in various work areas. In this Call the focus is on setting up specific actions within the clusters, selected according to criteria of opportunity and maximum benefit within the parameters of the Call. The Table below shows the structure of the thematic actions in the Strategic Plan and how far they are developed. The work areas and specific actions for which funding is requested in this Call are shown in RED; the actions which have already been initiated as a result of other Calls and which will be funded by the MEC 2010 Call are shown in BLUE. The actions which will be carried out at a future date are shown in BLACK.

Cluster	Work areas	Actions
Global Change and New Energies	Cluster transversal Actions: ▪ **E1** ***Construction of EBM (Bioclimatic Multipurpose Building)*** ▪ **E2** ***Creation of UPM-UCM CIMAM (Moncloa Campus Centre for Environmental Research)*** ▪ **E3** ***Creation of the Incubator for Environmental Companies***	
	Sustainable Technologies & New Energies	**E4, E5, E6, E7**

	Observation of System Earth	E8, E9, E10, E11
	Biodiversity Study and Conservation	E12, E13
Materials for the Future	Transversal Actions: F1 *CMA (Advanced Microscopy Center)*	
	Functional materials	F2, F3
	Structural materials	F4
	Biomaterials	F5
AgriFod and Health	Transversal Action: G1 *Moncloa AgriFood Corridor*	
	Animal and Plant Production	G2
	Animal Health and Food Safety	G3
	Food Hygiene and Technology	G4
i-Health	Innovative medicine (i-Health)	H1, H2, H3
	Medical imaging (i-Maging)	H4, H5, H6
	Personalized Health (p-Health)	H7
Heritage	Transversal Action: P1 *Programming and management of the Moncloa Campus Museum(MUCAM)*	
	Cultural, Historic and Artistic Heritage	P2, P3, P4
	Natural Heritage	
	Architectural, Archaeological, Palaeontological Heritage	

All the actions for which funding is requested are for the acquisition of scientific equipment. More specifically, the intention here is to improve the Campus infrastructures, advancing towards the strategic objectives (knowledge generation, transfer and open innovation), boosting the visibility of the Campus in an international environment (transversal Objective: Internationalization) in the thematic cluster areas and promoting collaboration between the different participating institutions on the campus (transversal objective: connectivity). A detailed description of each action can be found as an annex to the documentation attached.

2.1. ACTIONS IN THE GLOBAL CHANGE CLUSTER.

The three actions applied for are part of the System Earth Observation work area, where the end aim is to understand the active processes which control Earth's systems, and to develop evolving models to improve forecasting methods, mitigate the impact of natural disasters and climate change and improve early warning systems.

This proposal is within the context of major European and international initiatives including IGOS (Integrated Global Observatory Strategy for monitoring our environment from Earth and Space), GEOSS (Global Earth Observation System of Systems), CEOS (Committee on Earth Observation Satellites), GEM: Global Earthquake Model, ESA GlobVolcano, etc.

Actions requested

- *E8. **Creation of the Remote Sensing and Monitoring Laboratory.*** To create devices to monitor the earth's surface, integrating space and earth based data.

Grant applied for: 300,000 Euros

- ***E9. Creation of the Climate Change and Impact Laboratory.*** Focusing on the description, analysis and modelling of climate systems and the impact of climate change on the biosphere, ecosystems and agrosystems.

  Grant applied for: 1,246,000 Euros

- ***E10. Setting up the Moncloa Natural Hazards Network.*** To develop new and innovative technologies for the study of processes causing natural disasters.

  Grant applied for: 480,000 Euros

2.2 FUTURE ACTIONS FOR THE MATERIALS FOR THE FUTURE CLUSTER.

Funding is requested for two actions: one which is for the cluster as a whole (the creation of the National Centre of Advanced Microscopy, an ICTS (Singular Scientific-Technical Infrastructures) co-financed by the MICINN, the CM and the UCM, which will be the only centre in the world of its kind), and an action in the area of structural materials aimed at the evaluation of structural building systems and elements and, therefore, structural and experimental analysis from the standpoint of the safety of structures and their systems and elements.

Actions Requested

- ***F1. Setup and completion of the Centre for Advanced Electron Microscopy (CMA).***

  Installation of the two new ultra high resolution TEM and STEM electron microscopes which have a resolution of less than 1 Å (0.05 Å in TEM). This would be the only installation of its kind in Europe.

  Funding requested: 1,500,000 Euros

- ***F4.* Creation of a Building for Mechanical Trials of Construction Elements.**

  It will be located in the Technical Civil Engineering College and is intended for experimental analysis of structures and the characterization and evaluation of construction systems and materials in the Centre for Research in Security and Durability of Materials (CISDEM, joint UPM-CSIC centre).

  Funding requested: 541,000 Euros

2.3 ACTIONS IN THE I-HEALTH CLUSTER

The proposal includes actions in the area of medical imaging for the study of the most prevalent illnesses in our society, using morphological and anatomical imaging techniques (structural, functional and molecular) for the areas of diagnostics, prognostics and research.

Actions Requested

- ***H4 Creation of a Platform for Advanced Biomedical Imaging.*** Comprised of: 1) **Preclinical biomedical imaging platform,** 2) **Clinical information platform, and** 3) **Advanced Biomedical Imaging Analysis (LA^{2}IB).**

  Funding requested: 950,000 Euros

2.4 ACTIONS FOR THE HERITAGE CLUSTER.

An action in the Heritage Laboratory Network (REDLABPAT) is proposed for the creation of a reference centre for archaeological dating which would be the only one of its kind at the national level. The first step would be to add thermoluminescence techniques to those that already exist on Campus. In future calls ASM and Ar-Ar dating techniques would be included.

Actions Requested

- ***P4 Establishment of the Dating Laboratory in the field of Heritage Sciences (techniques: OSL, TL, radiocarbon, MA, Dendrology, paleomagnetism).***

  Funding requested: 680,000 Euros

The Technical Report submitted specifies the tasks and responsibilities of the participating institutions on the Campus for each action, as well as the major milestones.

3. PROJECT JUSTIFICATION

As has been already indicated, the requested actions are part of the set of sectoral initiatives in each cluster which can be found in the CEI Moncloa Strategic Plan which was created as part of the process of becoming an International Campus of Excellence. We therefore want to move forward by focusing on the area of R&D within what we have called the R&D Action Plan for the Campus. The detailed justification, opportunity, strengths, international impact, etc. of the CEI-Moncloa project can be found in the Strategic Plan as well as in the Technical Report and the Campus indicators report. We will only

mention here some of the elements which are more directly related to R&D to illustrate why the campus is in an excellent position to take on the selected actions and why they provide an opportunity to make a qualitative leap in international excellence in science and innovation.

With this project the Complutense University and the Technical University want to reaffirm their commitment to the challenge of transforming the Moncloa Campus into an international reference centre and their belief in the roll that Universities play in the modernization of our economic system and its **transformation into a knowledge-based economy**.

3.1. The Moncloa Campus brings together the largest number of researchers in the country. This makes a complementary and interdisciplinary focus possible, which are the basis of the Campus' strength.

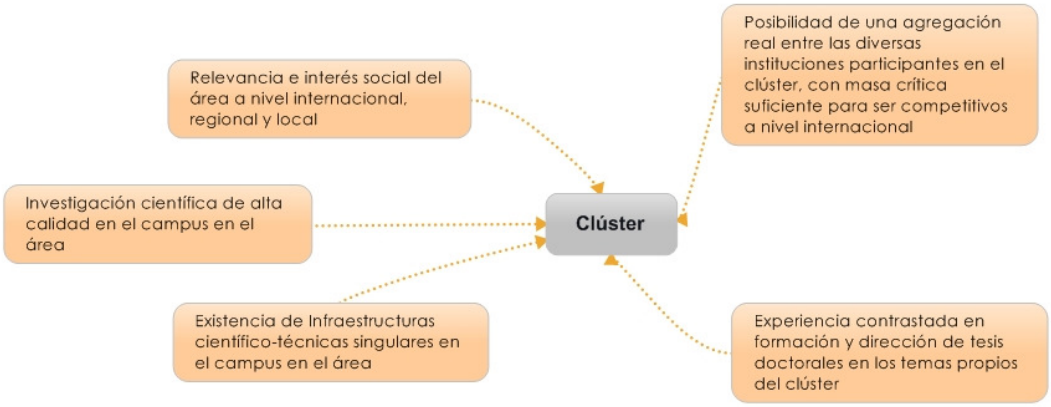
1. The number of scientific publications by campus researchers is approximately 10% of the total national production. According to data from Web of Knowledge 2007, the CEI Moncloa is first in the ranking for Spanish campuses in number of publications (4281 publications of a total of 40,177 in Spain) in the chosen clusters.
2. Funding received by both universities for research projects in the period 2005-2009 exceeds 753 million euros. The following Table provides a breakdown (in thousands of euros):

Source (2005-2009)	**UCM**	**UPM**	**TOTAL**
National and Regional Programs	134,843	229,760	**364,603**
International Projects (EU, ESA)	15,674	41,289	**56,963**
Contracts (art. 83, foundations, technical services)	72,524	258,790	**331,314**
Total (in thousands of euros)	**223,041**	**529,839**	**752,880**

3. Specifically, they have raised over 331 million euros in contracts with firms and external organisms. This can give an idea of the Campus' knowledge transfer capacity. At the same time, both universities combined have approximately one hundred University-Industry Professorships, and in the last 10 years they have created more than 70 technology-based companies.
4. The UCM is a founding partner, together with the Universidad Autónoma de Madrid, of the Madrid Science Park. The Park's company incubator is currently home to 80 firms and there are over 100 partner companies.
5. UPM has created its own Scientific and Technological Park with buildings in the South Campus (Vallecas), Montegancedo (Pozuelo de Alarcón), Techno-Getafe (Getafe) and Valdelacasa (Alcobendas, currently under construction). This is where the Singular Scientific-Technical Infrastructures are located.

6. The institutions and research groups on campus participate in ambitious international research projects, such as the ITER project, the HIPER project, Gran Telescopio de Canarias (Canary Islands Telescope), the WSO-UV Telescope project, which will replace the Hubble in 2013, and in world class archaeological excavations such as Atapuerca, Pompei, Numancia or Olduvai Gorge (Tanzania).
7. The campus hosts numerous Singular Scientific-Technical Infrastructures such as:
   - The TJ-II nuclear fusion reactor located in the CIEMAT, which participates in the European Fusion Project.
   - The laboratories of the Solar Energy Institute (IES).
   - The Spanish microtechnology ICTS at the Institute of Optoelectronics and Microtechnology (ISOM).
   - The central node of the ICTS in the Advanced Microscopy Centre.
   - A node of the National Centre for Biomedical Imaging.
   - The PET Technology Centre (which makes the campus the only one in Spain with two cyclotrons for research and production of radiopharmaceuticals).
   - The Animal Health Surveillance Centre, VISAVET. Its lab with P-3 security is a European Reference Laboratory for certain animal pathologies.
   - In the future, it will host the headquarters of the new ICTS National Center for Fusion Technologies (Technofusion), shared by the CIEMAT, the UPM and the UCIII.
8. It has over 10,000 doctoral students and (counting both universities) 1,000 doctoral theses are defended each year, with 10% receiving a European mention.
9. The campus has more than 40 student residences and other accommodation facilities that will be used to promote the internationalization of the Campus to receive foreign students and teachers.
10. The Campus offers a wide variety of joint Scientific and Technical Services (the Research Support Center, CAIs) that provide services to research groups that require them both on campus and off.

3.2. Apart from the general situation mentioned in the previous section, additional work has been done to define those thematic areas or clusters that will provide the greatest results when combined. In particular, the selection of the clusters that make up the CEI and where the actions we propose will be realized have been chosen because they stand out with respect to the five parameters in the figure below:



This means that each cluster presents a series of particular strengths in terms of partnerships, infrastructures, scientific production, etc. When we focus on these areas both universities easily exceed the general indicators. It is precisely these individual strengths that guarantee the viability of the project and they will bring about a qualitative jump in international R&D excellence for the Campus.

3.3. As we stated previously, concentration of talent is one of the key elements when making the leap to excellence. The Moncloa Campus currently has the greatest concentration of talent in the country. The coordinating universities realize regular activities aimed at attracting and keeping talent. These actions include:

a) University level annual calls for research trainees (PIFs) by the UPM and the UCM.

b) Participation by the UCM and UPM in national calls for PIFs.

c) The Finnova II call in collaboration with the Community of Madrid.

d) Participation in the Ramón y Cajal (RYC) and Juan de la Cierva (JdlC) national programs for researchers organized by the MICINN.

e) Calls for hiring research doctors at the UCM and the UPM (Program I-3) for fourth-year RyC researchers and other researchers who meet the requirements of the I-3 program.

f) Call for senior researchers for the UPM's own Isaac Peral program co-financed with the private sector.

The performance indicators of these calls can be found in the indicator report and the technical report. These actions are supplemented with others designed to attract and maintain the best resources to guarantee the availability of talent as well as the efficient management of research and infrastructures. In addition, the CEI Moncloa Strategic Plan includes talent recruitment activities (A9: PICATA) that will begin this September.

3.4. The international visibility of the Moncloa Campus means it has a prominent position in the context of the Spanish university system. The Campus aims to play a strong role in international leadership. Ever since the first rankings were published the UCM has always been one of the top three Spanish

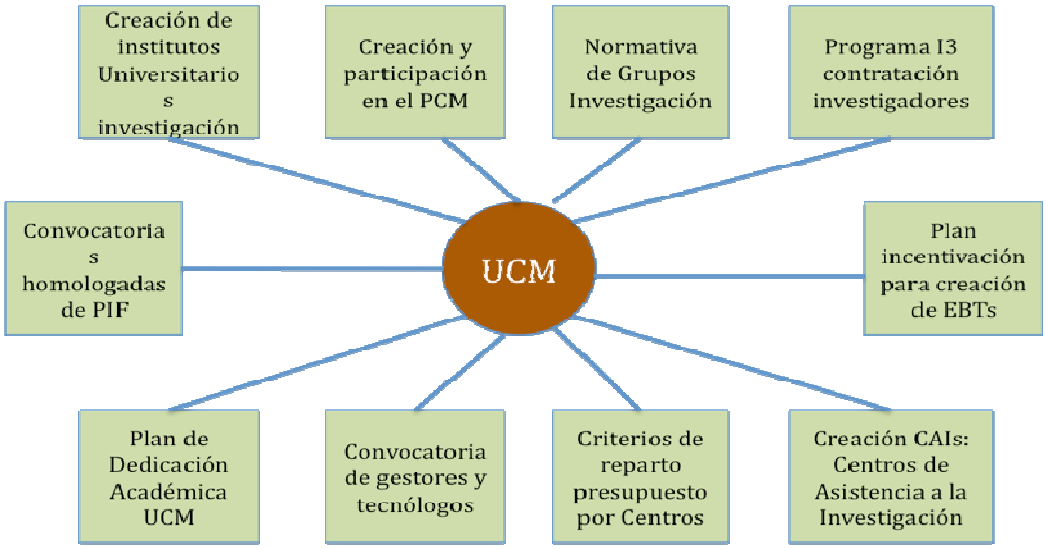
Universities. On 15 August the Shanghai Jiao Tong University published the results of the Academic Ranking of World Universities for 2010 and the UCM is one of the four Spanish universities between positions 201-300. Similar results were obtained in the Times Higher Education ranking. In Web of World Universities ranking, http://www.webometrics.info, the Complutense University and the Technical University of Madrid are first and second respectively.

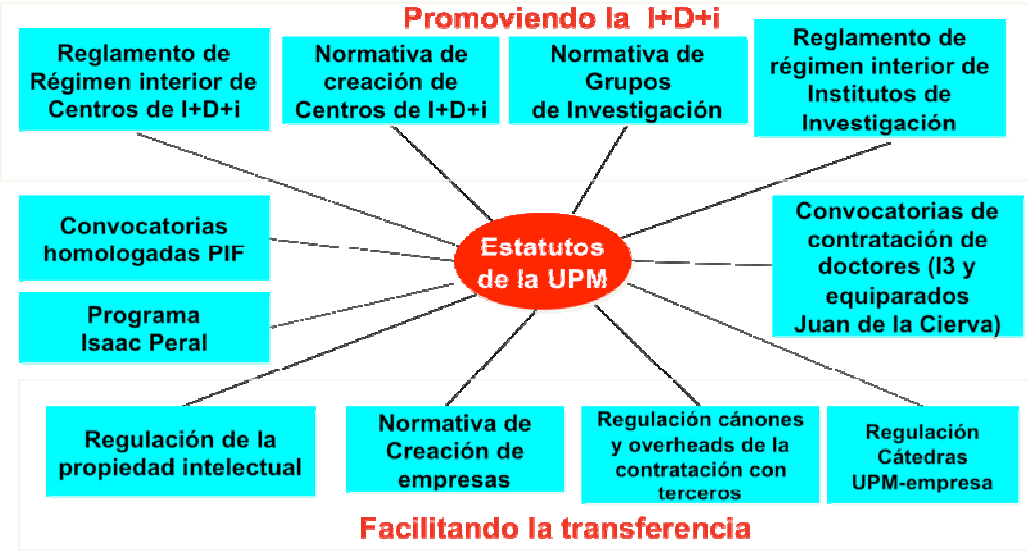
International visibility can also be measured by research results: international scientific publications, international patents, funds raised in European projects, etc. In this regard, the UPM is the Spanish university that has raised the most European funding. Unfortunately there are other sets of indicators for international visibility: participation in internal committees, editorial boards, etc. but verifiable data is not available. Finally, the Campus participates in a number of important international research initiatives and has some facilities, mentioned previously in 4.1, that are unique on the international level and which confer it a leadership role.

3.5. Both the UCM and UPM have been adopting various measures aimed at stimulating research and innovation which demonstrate their strong commitment to these areas. These decisions have been made taking into account the idiosyncrasies of each university (more focused on technological innovation in the case of the UPM and on basic research and transfer in the UCM). Furthermore, the institutional commitment by both universities to R&D can be seen in the remarkable increase in the percentage of their annual budgets which are allocated to the vice-chancellors of research.
The regulations adopted can be classified into three main groups:

1) Regulations concerning the promotion of R&D activities.
2) Regulations aimed at facilitating the transfer of results.
3) Regulations related to enhancing human resources in the area of researchers.

The following figures illustrate the internal regulations developed in recent years, and approved by the respective Boards of Governors.





Establishment of regulations of UCM and UPM

3.6. The capacity for innovation and knowledge transfer by both institutions can be measured by checking the indicators that measure the funds raised under Article 83, the number of patents and registered proprietary technologies. In addition, both universities have created specific innovation and transfer policies which can be found in the Technical Report and which include, specifically, the creation of Science Parks, as noted in 4.1. Even though the Madrid Science Park, co-founded by the UCM, and the UPM Technology Park are both located outside the Moncloa Campus due to lack of space, they have close research relationships with groups on the Campus. For its part, the CEI-Moncloa Strategic Plan contemplates interaction between the OTRIs of the two universities to create a joint office for the assessment of research results and the installation on campus of business incubators in the area of the environment and the chemical industry.

3.7. Equity is an objective that cuts across the different areas of the CEI Moncloa Strategic Plan. One of its manifestations is gender equity. The UCM is working conscientiously to maintain parity in its decision-making bodies and in the selection committees for filling open positions. The outcome, as a result of the awareness campaign for certified teachers, is that the percentage of women professors in the UCM has increased significantly over the past four years and is currently 20.43% above the average at the national level. The percentage of women full professors has also continued to increase and is currently 45.10%.

4. ECONOMIC REPORT

The budget of marginal costs of the actions selected for funding by the INNOCAMPUS Programme is **5,777,000 euros** carried out over the years 2010 and 2011. The following table presents the overall budget broken down by concepts and annualities for the funding application under the 2010 call of the INNOCAMPUS Programme.

Table 1. Total budget

Concept	**Year 2010** (2010 funding requirement)	**Year 2011** (multi-year projects)	**Subtotals**
Costs of acquiring new scientific or technical equipment needed for the project	825,000.00	4,476,000.00	**5,301,000.00**
Expenditure on buildings and infrastructure for R&D+i needed for the project	166,000.00	190,000.00	**356,000.00**
Outsourcing from the project only, essential for the same	0.00	0.00	**0.00**
Other additional expenses directly resulting from the action such as the costs involved in the development and maintenance of patents resulting from the technological developments of the project	30,000.00	90,000.00	**120,000.00**
Budget Total	**1,021,000.00**	**4,756,000.00**	**5,777,000.00**

Table below is a breakdown of the actions by year. The detail of each action (concept funded and year) can be found in the files contained in the annex to this R&D+i Action Plan.

Table 2. Budget by actions and year

Actions	**Year 2010** (2010 funding requirement)	**Year 2011** (multi-year projects)	**Subtotals**
E8: Remote Sensing and Monitoring Laboratory	250,000.00	50,000.00	**300,000.00**
E9: Climate Change and Impact Laboratory (MCCL)	346,000.00	900,000.00	**1,246,000.00**
E10: Natural Hazards Network	0.00	480,000.00	**480,000.00**
F1: Installation of the ICTS "National Centre for Advanced Microscopy"	0.00	1,500,000.00	**1,500,000.00**
F4: Creation a warehouse for mechanical tests of constructive elements.	0.00	541,000.00	**541,000.00**
H4: Creation of an Advanced Biomedical Imaging Platform	405,000.00	545,000.00	**950,000.00**
P4: Implementation of the Heritage Dating and paleoenvironment Laboratory	0.00	680,000.00	**680,000.00**
Other additional general expenses: patents	20,000.00	60,000.00	**80,000.00**
Total Budget	**1,021,000.00**	**4,756,000.00**	**5,777,000.00**

Since the Moncloa ERC R&D+i Action Plan is a cooperation project, in addition to the total budget of the action, the following tables list the budget of each of the beneficiaries, showing the total, amounts and concepts.

Table 3. Breakdown of the total budget by University and year

Concept	**Year 2010** (2010 funding requirement)	**Year 2011** (multi-year projects)	**Subtotals**
UCM	**801,000.00**	**4,135,000.00**	**4,936,000.00**
UPM	**220,000.00**	**621,000.00**	**841,000.00**
Total	**1,021,000.00**	**4,756,000.00**	**5,777,000.00**

Table 4. Budget of the Universidad Complutense de Madrid by concepts

Concept	**Year 2010** (2010 funding requirement)	**Year 2011** (multi-year projects)	**Subtotals**

Concept	**Year 2010** (2010 funding requirement)	**Year 2011** (multi-year projects)	**Subtotals**
Costs of acquiring new scientific or technical equipment needed for the project	615,000.00	3,885,000.00	**4,500,000.00**
Expenditure on buildings and infrastructure for R&D+i needed for the project	166,000.00	190,000.00	**356,000.00**
Outsourcing from the project only, essential for the same	0.00	0.00	**0.00**
Other additional expenses directly resulting from the action such as the costs involved in the development and maintenance of patents resulting from the technological developments of the project	20,000.00	60,000.00	**80,000.00**
Budget Total	**801,000.00**	**4,135,000.00**	**4,936,000.00**

Table 5. Budget of the Universidad Politécnica de Madrid by concepts

Concept	**Year 2010** (2010 funding requirement)	**Year 2011** (multi-year projects)	**Subtotals**
Costs of acquiring new scientific or technical equipment needed for the project	210,000.00	591,000.00	**801,000.00**
Expenditure on buildings and infrastructure for R&D+i needed for the project	0.00	0.00	**0.00**
Outsourcing from the project only, essential for the same	0.00	0.00	**0.00**
Other additional expenses directly resulting from the action such as the costs involved in the development and maintenance of patents resulting from the technological developments of the project	10,000.00	30,000.00	**40,000.00**
Budget Total	**220,000.00**	**621,000.00**	**841,000.00**

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