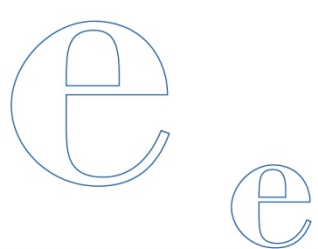
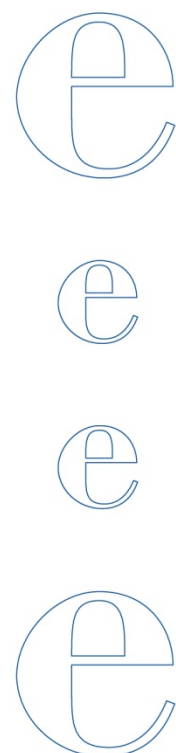




# Campus Carlos III

Una apuesta por  
la excelencia internacional



Universidad  
Carlos III de Madrid  
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# Summary

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The aim of the “Campus Carlos III” Strategic Plan presented by “Campus Carlos III” is to develop a **sustainable, metropolitan campus** in the Autonomous Region of Madrid for the purpose of research, knowledge transfer and teaching of the highest international standard and to **strive to position the University among the best in Europe** in the areas of **Social Sciences** (Economics, Business, Statistics, Law and Sociology), **Engineering** (Material Sciences, Computing, Industrial, Telecommunications, Biomedicine and Aerospace), **Basic Sciences** (Maths and Physics) and **Humanities** (Philosophy, Language, History, Documentation and Communication).

The “Campus Carlos III” can be seen as an axis of knowledge situated in the heart of the Autonomous Region of Madrid. The central hubs are the Getafe and Leganés campuses but also included are the Science Park, the Getafe University Hospital and leading cutting-edge firms, such as EADS-CASA. With the new railway infrastructure, the campus is less than twenty minutes away from the Puerta del Sol in the center of Madrid. The mission of the “Campus Carlos III” is to become the driving force behind the transformation of the Autonomous Region of Madrid into the propellant of the knowledge society.

Our **starting point** is the University Carlos III of Madrid’s standard of excellence and internationalization, which guarantees the feasibility of this proposal and is reflected in the following thirty indicators:

## a) Teaching

- i) The first Spanish public university to convert all its undergraduate study programs to the European Higher Education Area (EHEA). The average entrance grade of incoming students in the year 2009/10 was 7.33.
- ii) The first Spanish public university to introduce dual degree programs. In the year 2009/10 we are offering six undergraduate dual degrees and three degrees with a minor adapted to the EHEA.

- iii) A steadily increasing, high percentage of students from other autonomous regions: 23.3% in 2006/07, 27.1% in 2008/09 and 29.6% in 2009/10.
- iv) Universidad Carlos III de Madrid has been a pioneer in the introduction of bilingual (English/Spanish) degrees in public universities. Launched in 1994/95, the University currently offers 11 bilingual degrees and 2 totally in English. The two new degrees in Biomedical Engineering and Aerospace Engineering will be offered in English as of 2010/11.
- v) The increasing number of students taking part in the European Union's Erasmus program. In 2007/08 361 students went abroad and in 2007/2008 447. In 2007/08, the University welcomed 410 students and in 2008/09 423. This represents over 5% of the University's students participating in the Erasmus program.
- vi) The University has signed agreements to offer joint degrees in conjunction with four universities and schools in other countries (Ecole National Supérieur d'Arts et Métiers, Helsinki University of Technology, Paris X and the American University). We are also at an advanced stage of negotiations with another four centers.
- vii) Participation in three Masters degrees from the EU Erasmus Mundus program, together with ten universities from different countries. In 2009 we were nominated one of the five Spanish universities selected to teach a new Masters and we are one of the two Spanish universities leading the program.
- viii) International Masters: almost 20% of the University's Masters degrees are taught in English and 35.5% of Masters students are from outside Spain.
- ix) The University offers three Masters degrees with eight non-Spanish universities or business schools and two Spanish ones. We also offer two of our own accredited Masters degrees together with nine universities from other countries.
- x) The University offers undergraduate and postgraduate studies on and off campus. Blended learning Masters are taught through the University Postgraduate Institution (IUP) and collaborating institutions include the Universidad de Alicante, Universidad Autónoma de Barcelona, Universidad Carlos III de Madrid and the Santillana publishing house.

## b) Research

xi) According to the 2008 Knowledge and Development report (*Informe CyD*), Universidad Carlos III de Madrid is one of the Spanish universities with the highest number of tenured faculty members with six-year research periods (*sexenios*) and with the lowest percentage of faculty members without six-year research periods. According to other studies, Universidad Carlos III de Madrid is the second Spanish university with the highest percentage of tenured faculty members with six-year research periods.<sup>1</sup>.

On average, for the period 2002-2006, Universidad Carlos III de Madrid also held second place among Spanish universities with regards to the six-year period research indicators per tenured faculty member<sup>1</sup>.

xii) During 2002-2006, Universidad Carlos III de Madrid held second place for the number of international impact publications (Web of Science) per tenured staff (0.833) among Spanish universities<sup>1</sup>.

xiii) Universidad Carlos III de Madrid is the top Spanish university in the *S index*, which measures the relative success in the assessment of faculty members at each university<sup>2</sup>.

xiv) Universidad Carlos III de Madrid ranks second among Spanish universities for the number of Research Projects in the *VI European Union Framework Program* obtained by each hundred tenured faculty members (2,309)<sup>1</sup>.

xv) Universidad Carlos III de Madrid is the second Spanish University in terms of the number of Research Projects in the *National R+D+I Plan* obtained by each 100 tenured faculty members (10,46)<sup>1</sup>.

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<sup>1</sup> Minutes of the V Forum on Quality Assessment of Higher Education and Research. San Sebastián, 2009.

<http://www.ugr.es/~aepc/Vforo/LIBROVFORO.pdf>

<sup>2</sup> Report on the results of the CNEAI assessment: The situation in 2009.

<http://ciencia.micinn.fecyt.es/ciencia/cneai/files/info2009v5.pdf>



- xvi) Universidad Carlos III de Madrid ranks first among public universities for research competitiveness and second for research efforts according to the COTEC Report on Technology and Innovation in Spain in the year 2006.
- xvii) Universidad Carlos III de Madrid ranks second among Spanish universities for the percentage of doctorate research programs with a high quality appraisal (84.2% of programs).<sup>3</sup>
- xviii) Universidad Carlos III de Madrid has experienced a continual increase in external research funding (63% in the last year). Currently, this funding represents 20.2% of the total University budget.
- xix) The University's research staff are highly international. Over 13% hold non-Spanish nationality.
- xx) Universidad Carlos III de Madrid is the Spanish institution with the highest number of PhDs obtaining a José Castillejo fellowship for the 2009/10 academic year.

### **c) Knowledge transfer**

- xxi) In the year 2008, the University signed 591 contracts with companies (1.25 contracts per tenured faculty member).
- xxii) The University has 24 company-endowed Chairs, all of them long term.
- xxiii) The total amount of research funding raised by the university for research in 2008 stood at 35 million Euros (74,000€ per tenured faculty member) representing 20.2% of the University budget, of which 38% corresponds to national competitive public funding, 26% to private funding, 20% to EU public competitive funding and 16% to others.
- xxiv) Universidad Carlos III Science Park heads the science area of the Leganés Technology Park, which is sponsored by the Autonomous Region of Madrid,

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<sup>3</sup> Informe sobre el estado de la evaluación externa de la calidad en las universidades españolas. ANECA, 2008 (Report on the state of external quality evaluations in Spanish universities, ANECA)

[http://www.aneca.es/media/339105/informe\\_calidadenunis08\\_090623.pdf](http://www.aneca.es/media/339105/informe_calidadenunis08_090623.pdf)

Leganés City Council and “Campus Carlos III”; 29% of University researchers collaborate in transfer activities in the Science Park.

Intellectual and industrial property rights (IPR) and their transfer to the manufacturing sector increased by 67% in 2008 over the previous year.

In the last few years, 34 spin-offs have been created, most of them by university students and teaching staff. The University has a strategic business start-up program in its technology-based business incubator.

Three combined transfer and research centres have been set up with public institutions and enterprises, with the corresponding agreements signed with each.

## d) Campus Life

- xxv) Intensive use of new technologies. University activity unfolds in a high-tech environment with ample resources and services: WiFi throughout the whole campus; four libraries currently being transformed into Resource Centers for Learning and Research; over 1,000 open-access computer terminals in computer rooms, 80 special engineering laboratories and 5 TV and radio studios. The University has a program of grants for the purchase of student laptops and a quarter of the Masters degrees provide laptops for all the students.
- xxvi) A wide range of cultural, sporting and volunteering activities, with first class facilities for cultural and sporting events. We also have partnerships with institutions, such as the Teatro Real (Royal Theatre) Círculo de Bellas Artes (Fine Arts Center) and the Teatro Liceo de Barcelona (Barcelona Liceo Theatre).
- xxvii) Promoting equal opportunities, the University is a pioneer in implementing measures to eliminate obstacles which hinder the professional development of women. Corrective measures have been taken to support teaching and research activity for staff on maternity leave and with childcare responsibilities.
- xxviii) Accessibility programs to eliminate obstacles, in force since 2000, including agreements with ONCE and IMSERSO. The Special Needs Students Integration Program (PIED) was set up in 1996 and made Universidad Carlos III a pioneer among Spanish universities.

- xxix) Sustainability and Energy Conservation Plan which allows savings per user in electricity, water, gas and conventional paper consumption, as well as increasing the amount of recycled paper used and reducing CO<sub>2</sub> emissions.
- xxx) Management transparency: since 2006, the external audit of the University annual accounts is totally transparent, with no restrictions or exceptions. The University strives to provide clear information regarding results and publishes a renowned annual report with detailed management information.

## Basic plans of action

These achievements are the results of the University's four **basic plans of action**, which make up the "Campus Carlos III" *Strategic Feasibility Plan* and *International Campus of Excellence Conversion* project:

### 1) Attracting and recruiting talent, based on the following programs:

- Chairs of Excellence Program co-financed with the Bank of Santander, offering stays of 6 to 12 months to prestigious foreign researchers from the world's top universities. Sixteen professors joined us in 2008/09 and the same number in 2009/10. Researchers come from the USA, Canada, Great Britain, France etc.
- Universidad Carlos III de Madrid offers forty annual postdoctoral two-year placements through a competitive selection process. Candidates competing for these places must have obtained their doctorates in other universities and cannot have had any contractual relation with Universidad Carlos III de Madrid for two years previously.
- Annual program of twenty-four postdoctoral placements as part of the *Alianza 4 Universidades* (4 Universities Alliance) whose participants are the Madrid Autónoma University, the Barcelona Autónoma University, Universidad Carlos III de Madrid and the Pompeu Fabra University.
- Annual sabbatical program, equivalent to 2% of tenured academic staff to allow them to undertake research in prestigious research centers outside Spain.
- Our own program of mobility fellowships for young PhDs and pre-doctoral researchers.

- Over a third of students doing a Masters or Doctorate receive financial aid from the University.

Annual competitive prizes for excellence are awarded by the Board of Trustees with the support of the Bank of Santander to young researchers, alumni, students with the best academic records and administration and services staff.

- Financial incentives program for academic staff according to objective indicators based on publications, research (six-year periods, competitive projects and supervision of theses) and teaching quality, including feedback from student questionnaires, use of ICT, etc. A total of 316 professors received these incentives in 2007 and 587 did so in 2009.
- A program to promote equal opportunities, which includes measures such as a 50% reduction in teaching hours for two years during maternity and a reduction of two years per child for calculating competitive productivity indicators.
- A program to attract the best students into the undergraduate degree programs, with the average entrance grade reaching 7.33 in 2009/10.
- A plan to attract Spanish students from outside the Autonomous Region of Madrid, with the figure standing at 29.6% in 2009/10.

## 2) **Internationalization**, through the following actions:

- Establish agreements with foreign universities to offer joint undergraduate degrees
- Sign agreements with prestigious foreign universities to offer joint Postgraduate studies
- A plan aimed at increasing the number of ERASMUS students, both those coming to our University and those going to European universities.
- Student recruitment plan in Asia, especially China.



- Increase in the number of undergraduate and Masters Programs taught in English.
- Competing for and obtaining the EUROCIENCIA award from the Ministry of Science and Innovation (MICINN) on two consecutive occasions. In 2009 we achieved one of the highest grants awarded in order to increase our presence in EU programs, committees and advisory bodies.
- Since its creation, the University has been renowned for its active participation and leadership in international forums, both the EU Framework Programme and other European (ESA, Euratom, etc.) and global programs (IMS).

**3) Interdisciplinarity**, fostered through the following actions:

- Promoting dual degrees, both at undergraduate and postgraduate level.
- Compulsory subjects in Humanities and Basic General Training for all students enrolled in any degree.
- Fostering of interdisciplinary postgraduate studies.
- Interdisciplinary research institutes, which promote the participation of academic staff from different fields.
- The Science Park promotes the development of multidisciplinary centres which favor integrated approaches from different perspectives.
- In collaboration with the CSIC (Spanish National Research Council), the University has set up a joint multidisciplinary research center for the study of global climate change, integrating areas such as engineering, law, economics and other social sciences.

**4) Innovation and quality**, through the following plans of action:

- Annual programs to support Innovation and Internationalization schemes by academic staff, convened by the Office of the Vice-Chancellor for Undergraduate Studies.

- *Internal Quality Guarantee System (SGIC)*, which defines how to use the administrative structures, regulations, criteria and processes for the quality enhancement of degrees, planning and development and learning results. It also defines how the different interest groups are involved in the design, development, evaluation and dissemination of teaching activities.
- The University is a pioneer in quality methodologies, directed by the Quality Committee, active since 1994, which supervises and promotes quality enhancement in all areas of the University.
- Annual management improvement plans. Improvement Groups in operation since 1994 and EFQM assessment in Administration departments since 1996.
- Annual planning of improvement projects and launching of new services.
- A University project underway for the diagnosis and creation of an Integral Accessibility Plan.
- The University has developed an Orientation and Social program for students which aims to: help them solve psychological and psycho-pedagogic problems; foster self-awareness and personal development; facilitate the academic and social integration of the whole student community; promote healthy lifestyles and social values; support social activity inside and outside the University, fostering associations and volunteer work.

Apart from these four areas of work, another plan of cross curricular action for the construction of the “Campus Carlos III” is the “**4 Universities Alliance**” set up by the Universidad Autónoma de Barcelona, the Universidad Autónoma de Madrid, Universidad Carlos III de Madrid and Universidad Pompeu Fabra. Founded in 2007 in order to collaborate in the continuing quality enhancement of academic activities and progress towards excellence, the Alliance has already set in motion several projects:

- An annual program consisting of 24 postdoctoral placements in any of the three universities not including the one of origin.
- The creation of the 4U Office in Brussels, in partnership with the CSIC, which promotes the international consolidation of the four institutions and the launching of services to foster the participation of researchers in the *VII Framework Program*.
- International joint promotion of the four universities.

- A proposal for new undergraduate studies offered in conjunction by the four Alliance universities. Studies will be undertaken in the four universities (two years in Barcelona and two in Madrid).

## Strategic Areas

The **strategic areas of action** for the development of the International Excellence “Campus Carlos III” are the areas of research and teaching in the following seven fields:

- Law in the Knowledge Society: Fundamental Law, International Law, Environmental and Global Law.
- Economics and Business in the Global Knowledge Society.
- Humanities in the Twentieth Century and their relation with Technology and Communications.
- Biomedical Engineering.
- Mathematical Methods and Statistics applied to new problems in Social Sciences and Engineering.
- Industrial and Aerospace Technologies.
- Information and Communication Technologies.

The **innovative nature of the project** is evident in all the institutions which, together with Universidad Carlos III de Madrid, make up the “Campus Carlos III” project:

- Spanish National Research Council (CSIC), CIEMAT, ADIF, INTA.
- Leganés Science and Technology Park
- Getafe University Hospital, Toledo National Paraplegics, Leganés Hospital de Leganés.
- EADS- CASA Joint Center
- Telefónica I+D, ACS-Dragados, Nokia, Siemens, Indra, etc.
- 4 Universities Alliance (Universidad Autónoma de Barcelona, Universidad Autónoma de Madrid, Universidad Carlos III de Madrid and Universidad Pompeu Fabra)
- Getafe City Council
- Leganés City Council
- Autonomous Region of Madrid
- Ministry of Housing

- Ministry of Culture
- Ministry of Health and Social Policy - Royal Board on Disability
- IMDEA Networks, IMDEA Materials e IMDEA Mathematics.

## Objectives

The **main objectives** of the “Campus Carlos III” proposal are as follows:

- i) **Promote postgraduate studies**, increase the number from the current figure of 12% of students to 16% throughout the validity of this Strategic Plan. A fundamental step towards achieving this objective is the creation of a Center for Postgraduate Studies.
- ii) **Increase the number of residential places on the “Campus Carlos III”**, doubling current capacity in the Getafe hub of the “Campus Carlos III”.
- iii) **Increase the capacity of knowledge transfer**, developing the second phase of the Leganés Science Park.
- iv) **Increase the research capacity of the whole university**. The seven Strategic areas defined in the “Campus Carlos III” will encourage interdisciplinary research activity of all the university’s departments.
- v) **Promote the creation of a sustainable interurban Campus as the driving force of the** surrounding area in the Autonomous Region of Madrid, linking up the Campus hubs and expanding energy-saving and sustainability programs.
- vi) **Complete the adaptation of the “Campus Carlos III” to the standards of the European Higher Education Area**. The methodological implications of a new teaching approach require the conversion of all the classrooms and different areas to facilitate the transmission of knowledge.

## Specific actions

The achievement of these objectives within the scheduled period will take place through the following **specific actions**, which should not only be carried out **with urgency** within the period of the *Strategic Plan of the Campus of Excellence* but are also essential for its development:

- i) **Construction of a new building to house the Center for Postgraduate studies.**
- ii) **Construction of a new Student Residence Hall.**

- iii) **Development of the second phase of the Science Park.**
- iv) **Recruitment of top international academic staff and the creation of new infrastructures.**
- v) **Adaptation of the Campus to sustainable development and accessibility.**
- vi) **Modification of the Campus infrastructures to adapt them to the model of the European Higher Education Area.**

An estimate of the **resources** required to carry out these specific actions are detailed in appendix III of this report.

Obtaining the title of “International Campus of Excellence” for the “Campus Carlos III”, proposal, together with the development and completion of these projects will energize the urban area and surrounding manufacturing areas and represent a major boost in the incorporation of the Autonomous Region of Madrid and of Spain itself into the knowledge society.

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#### IV. R+D+i Actions

1. Strategic research programs
2. Strategic aggregates
3. Scientific levels of excellence
4. Capacity for the recruitment and training of researchers and technologists
5. International leadership
6. Commitment to the University and Campus strategy

#### V. Knowledge Transfer Actions

1. University-Business Sector Relations
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3. Park activities in the university area
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# I. Global proposal

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## Subprogram of Development and Details of the Strategic Feasibility Plan and Conversion to a Campus of International Excellence

### 1. Introduction

The aim of the “Campus Carlos III” Strategic Plan presented by Universidad Carlos III de Madrid is to develop a **sustainable, metropolitan campus model situated in the Autonomous Region of Madrid** to carry out research, knowledge transfer and teaching of the highest international standard and to **strive to position the university among the best in Europe** in the areas of **Social Sciences** (Economics, Business, Statistics, Law and Sociology), **Engineering** (Material Sciences, Computer systems, Industrial, Telecommunications, Biomedicine and Aerospace), **Basic Sciences** (Maths and Physics) and **Humanities** (Philosophy, Language, History, Documentation and Communication).

The “Campus Carlos III” can be seen as an axis of knowledge situated in the heart of the province of Madrid. The central hubs are the Getafe and Leganés campuses but also included are the Science Park, the Getafe University Hospital and leading cutting-edge firms, such as EADS-CASA. With the new railway infrastructure, the campus is less than twenty minutes away from the Puerta del Sol in the center of Madrid. The mission of the “Campus Carlos III” is to become a driving force for the transformation of the Autonomous Region of Madrid into the propellant of the knowledge society.

#### 1.1. Current situation

In its twenty years of existence, the Universidad Carlos III de Madrid has striven for excellence through internationalization. Among its founding objectives, defined in the first Strategic Plan was the creation of urban campuses to encourage the economic development of the surrounding areas of the initial campuses, Getafe and



Leganés. Throughout this period, the University has recruited a young, highly-qualified academic staff and followed several initiatives which have made it a pioneer among Spanish public universities. Our search for excellence in research, knowledge transfer and teaching is carried out in a significantly internationalized arena. Below, we describe the landmarks achieved by the University during these years, which define the **starting point** from which this proposal was formulated.

## *Teaching*

One of the distinctive characteristics of the Universidad Carlos III is its capacity for teaching innovation: methodology, the incorporation of new technologies, the introduction of quality assessment processes through surveys, teaching in English and the introduction of dual degrees. Another fundamental feature is our pioneering strategic action regarding teaching, such as the adaptation of all our undergraduate studies to the European Higher Education Area from the academic year 2009/10.

The most significant features which define the current teaching situation at the University are as follows:

- The first Spanish public university to adapt all its undergraduate study programs to the European Higher Education Area. The average entrance grade for students commencing their studies in 2009/10 is 7.33.
- The first public university to introduce dual degrees, now offering six dual degrees and three degrees with minors adapted to the EHEA in the academic year 2009/10.
- A steadily increasing, high percentage of students from other autonomous regions: 23.3% in 2006/07, 27.1% in 2008/09 and 29.6% in 2009/10.
- Universidad Carlos III de Madrid has been a pioneer in the introduction of bilingual (English/Spanish) degrees in public universities. Launched in 1994/95, the university currently offers 11 bilingual degrees and 2 totally in English. The two new degrees in Biomedical Engineering and Aerospace Engineering will be offered in English from 2010/11.
- The number of students taking part in the European Union's Erasmus program continues to grow. In 2007/08 361 students went abroad and in 2007/2008 447. In 2007/08, the University welcomed 410 students and in

2008/09 423. This represents over 5% of the University's students participating in the Erasmus program.

- The University has signed agreements to offer joint degrees in conjunction with four universities and schools in other countries (Ecole National Supérieur d'Arts et Métiers, Helsinki University of Technology, Paris X and the American University). We are also at an advanced stage of negotiations with another four centers.
- The University offers undergraduate and postgraduate studies on and off campus. Blended learning Masters are taught through the University Postgraduate Institution (IUP) and collaborating institutions include Universidad de Alicante, Universidad Autónoma de Barcelona, Universidad Carlos III de Madrid and the Santillana publishing company.
- Universidad Carlos III de Madrid participates in three Masters from the EU Erasmus Mundus program, together with ten universities from different countries. In 2009 we were nominated one of the five Spanish universities selected to teach a new Masters and we are one of the two Spanish universities leading the program.
- At present 20% of the University's master's programs are taught in English.
- The University offers three master's degrees with eight non-Spanish universities or business schools and two Spanish ones. We also offer two of our own accredited master's degrees together with nine universities from other countries.
- 35.5% of Master's students come from other countries.

## **Research**

The search for excellence in research has been one of the distinctive features of the Universidad Carlos III since its foundation. The 26 departments, 24 institutes and 118 research groups carry out intensive research work through meetings and seminars attended by experts from the finest universities in the world, international conferences or participation in conferences in the leading research countries. All this activity is crystallized in results such as international publications, Spanish and European research projects, supervision of doctoral theses. The following points define the position of "Campus Carlos III" in terms of research:

- **Excellent teaching staff:** Universidad Carlos III de Madrid is the Spanish university with the highest percentage of tenured staff with six-year research periods. <sup>4</sup>
- **Impact publications:** in 2008, Universidad Carlos III held second place in international impact publications (Web of Science) per tenured staff member (0.833) among Spanish universities <sup>4</sup>.
- **Teacher assessment:** Universidad Carlos III de Madrid is the top Spanish university in the S index, which measures the relative success in the assessment process of academic staff at each university. <sup>5</sup>
- **High participation in European projects:** Universidad Carlos III de Madrid holds second place among Spanish universities for the number of Research Projects in the *VI European Union Framework Program* obtained per one hundred tenured faculty members (2,309) <sup>4</sup>.
- **High participation in the National Plan:** Universidad Carlos III de Madrid is the second Spanish University in terms of the number of Research Projects in the *National R+D+I Plan* obtained per 100 tenured faculty members (10.46) <sup>4</sup>.
- **Competitive-edge in research:** Universidad Carlos III holds first place among public universities for research competitiveness and second place for research efforts according to the COTEC Report on Technology and Innovation in Spain in the year 2006.
- **Quality Doctorate Programs:** Universidad Carlos III de Madrid holds second place among Spanish universities for the percentage of doctoral research programs with a high quality appraisal (84.2% of programs) <sup>6</sup>.

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<sup>4</sup> Actas del V Foro sobre la Evaluación de la Calidad de la Educación Superior y de la Investigación (Minutes from the V Forum on Quality Evaluation in Higher Education and Research). San Sebastián, 2009.

<http://www.ugr.es/~aepc/Vforo/LIBROVFORO.pdf>

<sup>5</sup> Informe sobre los resultados de las evaluaciones de la CNEAI: La situación en 2009 (Report on CNEAI evaluation results: Situation in 2009).

<http://ciencia.micinn.fecyt.es/ciencia/cneai/files/info2009v5.pdf>



- **Funding capacity:** Universidad Carlos III de Madrid has seen a continual increase in external research funding (63% increase last year). Currently, this funding represents 20.2% of the total University budget.
- **International academic staff:** over 13% of the academic staff are of non-Spanish nationality.
- **Attracting talent:** Universidad Carlos III de Madrid is the Spanish institution with the highest number of PhDs obtaining a José Castillejo fellowship for the 2009/10 academic year.

### *Knowledge transfer*

The University's third mission consists of the transfer of knowledge generated by society. Universidad Carlos III is extremely active in this area, as the following data shows:

- In the year 2008, the University signed 591 contracts with companies (1.25 contracts per tenured staff member).
- The University has 24 company-endowed Chairs, together with 25 spin-offs created in the last few years and three joint transfer centers and over 30 patents.
- The total amount of research funding raised by the university for research in 2008 stood at 35 million Euros (51,214€ per tenured faculty member) representing 20.2% of the University budget, of which 38% corresponds to national competitive public funding, 26% to private funding, 20% to EU public competitive funding and 16% to other types of funding.
- Universidad Carlos III Science Park heads the science area of the Leganés Technology Park, which is sponsored by Madrid Regional government, Leganés City Council and "Campus Carlos III".

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<sup>6</sup> Informe sobre el estado de la evaluación externa de la calidad en las universidades españolas. ANECA, 2008 (Report on the state of external quality evaluations in Spanish universities).

[http://www.aneca.es/media/339105/informe\\_calidadenunis08\\_090623.pdf](http://www.aneca.es/media/339105/informe_calidadenunis08_090623.pdf)

## *Campus Life*

Apart from the time devoted to teaching and research, university life takes place on the campus in many different ways throughout the academic year: cultural, sports, solidarity activities, among others. Daily life at the University unfolds in a high-tech environment. The following data are significant in depicting campus life:

- WiFi throughout the whole campus.
- Four libraries currently being transformed into Resource Centers for Learning and Research.
- Over 1,000 computer terminals in computer rooms, with 80 special engineering laboratories, 5 TV and radio studios and financial aid for the purchase of laptops.
- A quarter of master's degree programs provide laptops to their students.
- Students have a wide array of cultural, sporting and volunteer events to choose from with top facilities for cultural and sporting activities and partnerships with institutions such as the Teatro Real (Royal Theatre) Círculo de Bellas Artes (Fine Arts Center) and the Teatro Liceo de Barcelona (Barcelona Liceo Theatre).

In addition, the University has introduced various equal opportunities schemes and Campus life quality enhancement programs:

- A program to promote equal opportunities, which includes measures such as a 50% reduction in teaching hours for two years during maternity and a reduction of two years per child for calculating competitive productivity indicators.
- Since 2000 the University has carried out a program designed to improve access and eliminate obstacles.
- The recently introduced energy conservation plan is allowing savings per user in electricity, water, gas and conventional paper consumption, as well as increasing the amount of recycled paper used and reducing CO<sub>2</sub> emissions.
- Since 2006, the external audit of the University annual accounts is totally transparent, with no restrictions or exceptions. The University strives to

provide clear information regarding the results and publishes a recognized annual report with detailed management information.

## 1.2. Plans of action

These achievements which are the starting point are the result of the University's four **basic plans of action**, which make up the *Strategic Feasibility Plan and the International Campus of Excellence Conversion project* :

1. **Attracting and recruiting talent**
2. **Internationalizacion**
3. **Interdisciplinarity**
4. **Innovation and quality**

Below we describe in detail the four plans of action.

### 1.2.1. Attracting and recruiting talent

Talent attracts talent and naturally generates quality and innovation. For this reason, Universidad Carlos III has several specific programs in this plan directed at all groups within the university community, not only focused on initial recruitment but also to encourage long-term service. The most significant steps aimed at attracting and retaining teaching staff are the following:

- *Chairs of Excellence Program* co-financed with the Bank of Santander, offering stays of 6 to 12 months to prestigious international researchers from the world's top universities. Sixteen professors joined us in 2008/09 and the same number in 2009/10. Researchers come from the USA, Canada, Great Britain, France etc.
- Universidad Carlos III de Madrid offers annually forty postdoctoral two-year placements through a competitive process. Candidates competing for these places must have obtained their doctorates in other universities and cannot have had any contractual relation with the Universidad Carlos III de Madrid for two years previously.

- Annual program of twenty-four postdoctoral placements as part of the *Alianza 4 Universidades* (4 Universities Alliance) whose participants are Universidad Autónoma de Madrid, Universidad Autónoma de Barcelona, Universidad Carlos III de Madrid and Universidad Pompeu Fabra.
- Annual sabbatical program, equivalent to 2% of tenured academic staff to allow them to undertake research in prestigious research centres outside Spain.
- Our own program of mobility fellowships for young PhDs and pre-doctoral researchers.
- Over a third of students doing a Master's or Doctorate receive funding from the University.
- Annual competitive prizes for excellence are awarded by the Board of Trustees with the support of the Banco de Santander to young researchers, alumni, students with the best academic records and administration and services staff.
- Financial incentives program for professors according to objective indicators based on publications, research (six-year periods, competitive projects and supervision of theses) and quality of teaching, including feedback from student questionnaires, use of ICT, etc. 316 professors received these incentives in 2007 and 587 obtained them in 2009.

As for attracting undergraduates, the following programs are significant:

- A program designed to attract the best students to the newly implanted undergraduate programs, with the average entrance grade reaching 7.33 in 2009/10.
- A plan designed to attract Spanish students from outside the Autonomous Region of Madrid, with the figure standing at 29.6% in 2009/10.

These programs allow us to expand and consolidate the excellent quality of the University and the international promotion of the "Campus Carlos III".

### 1.2.2. Internationalization

For “Campus Carlos III” the concept of *internationalization* means not only *mobility*, but also that daily activity at the University takes place within an international environment. In addition to the programs to foment stays in the University and in other top universities in the areas of teaching, research and management, the day to day activity of our University provides for continual growth in all the indicators, projects and programs related to a university of European and international renown. Among the activities that fall directly within this are:

- The establishment of agreements to offer joint undergraduate degrees with Spanish and international universities. In particular, the establishment of joint Bachelor’s degrees within the *4Universities Alliance*.
- The signing of agreements to offer joint graduate degrees with top Spanish and international universities.
- A plan to increase the number of ERASMUS students. A total of 361 of our students studied in other European countries during the 2007/2008 course, with the number increasing to 447 during the 2008/2009 academic year. In addition, 410 students from various international universities studied in our University during the 2007/2008 course, with 423 doing so during 2008/2009, including Hispanic Studies students from the United States. The estimate for the 2009/2010 academic year is that 510 international students will come to Carlos III and 652 of our students will study abroad.
- A program to attract students from Asia, especially from China.
- The creation of the International Reception Office for professors and the International Recruitment Office (OCAI) for students, under the Office of the Vice-Chancellor for International Relations.
- The University has an international housing program for students and professors in the three Residence Halls on the Getafe, Leganés and Colmenarejo campuses. In addition, it helps with housing through the ALOJA programs and has an agreement with the State Rental Agency (SPA) to provide housing for visiting students and faculty.
- Various university departments organize seminars which are held at the University, creating a dynamic and international atmosphere with the on-campus presence of professors from a wide array of countries.
- A Program which foment stays by Universidad Carlos III professors at prestigious universities as part of their postdoctoral training.



- The University's Language Center offers classes in Spanish, English, Chinese, German, French and Japanese.
- Universidad Carlos III de Madrid functions as an official Language Examination Center in Spain (*DELE, TOEFL and Cambridge First, Advanced and Proficiency*); moreover, the University has applied to become the headquarters of the Confucius Institute for the teaching of Chinese.
- The University foment the international accreditation of its degrees: for example, it is the first Spanish public university to obtain accreditation by the AMBA for its MBA program.
- The University belongs to numerous international university associations (EUA, CINDA, etc.) and student associations (BEST, ESN, ANUDI).
- The University consistently participates in international undergraduate and postgraduate fairs.
- Universidad Carlos III de Madrid has collaborated since its beginnings with the EUROCIENCIA initiative, which is included in the INGENIO 2010 initiative. Universidad Carlos III presented its proposals in the **two calls** published in EUROCIENCIA 2006 and 2008, and is currently executing the "**Plan Estratégico de Actuación**" (**PAE-7PM**) (Strategic Plan of Action), which will be carried out for a period of 7 years. Although it is a medium-sized university, Universidad Carlos III has received generous funding in both calls for participation.

- **Eurociencia 2006:**

**Total funding obtained: 416,482 €** (7th largest amount granted)

**Number of grants: 29**

**General objectives of Universidad Carlos III:** The objective of the Plan of Action (PAE-7PM) presented was to **increase Universidad Carlos III's participation in the 7PM** through the reinforcement of the internal structure for the support of the presentation of European proposals and projects and through the creation of new services to improve academic advising for our researchers.

- **Eurociencia 2008:**

**Funding obtained: 411,700 €** (5th largest amount granted)

**Number of grants: 16**

**General objectives of Universidad Carlos III:** The objective of the new proposal (2008) is to take a significant **qualitative leap forward in the current PAE-7PM**, so that in addition to increasing the level of participation in the 7PM, it also gains admittance to the 7PM's decision-making forums by having our experts join them, as well as

through the creation and connection of a permanent antenna in Brussels.

### **1.2.3. Interdisciplinarity**

The size, structure and original design of “Campus Carlos III” gives it a privileged situation for promoting interdisciplinary teaching and research. With the starting-up of the new degree programs adapted to the European Higher Education Area (EHEA), the University strives forward with this plan in the certainty that society will demand in ever greater measure flexible, well-rounded and solidly-prepared professionals. The most relevant actions in this vein are the following:

- Promotion of dual degree programs, at both the undergraduate and graduate level.
- Required subjects in Humanities and General Basic Education and Training for all students enrolled in any undergraduate degree program.
- Fomenting interaction among different departments, institutes and research groups, which would lend itself to interdisciplinary activity in the areas of teaching, research or knowledge transfer.
- The University emphasizes minors, both within and outside of a degree’s core program; in particular, it promotes a wide and flexible offering of the latter, in which students directly participate (theater, dance, sports, volunteer programs or associations).
- The Science Park facilitates the development of multidisciplinary centers which allow for integral approaches from different perspectives.
- Together with the CSIC, the University has promoted a joint center for multidisciplinary research on Global Change, including areas such as Engineering, Law, Economics and other Social Sciences.

### **1.2.4. Innovation and quality**

Constant innovation in teaching, research and management is the key element for the continuous improvement in quality at Universidad Carlos III de Madrid. Therefore, the University has plans and actions for promotion and follow-up of, as well as support procedures for, continuous individual improvement and growth. Among these are:

- Annual plans for the Support of Innovation in Teaching, which are announced by the Office of the Vice-Chancellor for Undergraduate Studies.
- Internal Quality Assurance System, (SGIC in Spanish) which establishes the use of entities, regulations, criteria and processes for improvement in the quality of degree programs, planning and development or of learning results. It also establishes how different interest groups are involved in the design, development, evaluation and dissemination of their educational activities.
- The Quality Committee, in existence and active since November of 1994; it supervises and promotes actions for improvement in all areas of the University. In particular, all teaching activity at the University is evaluated by means of a student survey in a totally computerized procedure.
- The University promotes the reduction of the number of students per class and has established continuous evaluation as a component of the final evaluation and transversal education in basic skills.
- Annual plans for continuous improvement in management. Improvement Groups functioning since 1994 and EFQM evaluation in the Administration units since 1996.
- Annual planning of improvement projects and the establishment of new services.

In addition to these four central bases of work at Universidad Carlos III de Madrid, another transversal plan of action is the “Alianza 4Universidades” (“4 Universities Alliance”), which includes Universidad Autónoma de Barcelona, Universidad Autónoma de Madrid, Universidad Carlos III de Madrid and Universidad Pompeu Fabra. Created in 2007, the Alliance has already put several projects in motion:

- An annual program of twenty-four post-doctoral stays, which may be carried out at any of the three other universities of the Alliance.

- The creation of the 4U Office in Brussels, in conjunction with the CSIC, which allows the international consolidation of the four institutions and the establishment of services to facilitate the participation of researchers in the *VII Framework Programme*.
- Joint international promotion of the four universities.
- Proposal for new undergraduate degrees to be imparted jointly by the four universities of the Alliance. The courses will be carried out at the four universities (two years in Barcelona and two years in Madrid).
- Plan for evaluating the procedures for technology transfer based on the study of evaluation and commercialization of research results.

### 1.3. Strategic aggregations

From the transversal point of view, the **aggregate and innovative character of the project** is made clear by the group of entities which, together with Universidad Carlos III de Madrid, make up the “Campus Carlos III” project:

- CSIC (Spanish National Research Council), CIEMAT (Research Center for Energy Environment and Technology), ADIF (Administrator of Railway Infrastructures), INTA (National Institute for Aerospace Technology).
- Leganés Technology and Science Park
- University Hospital of Getafe, National Hospital for Paraplegics of Toledo, Leganés Hospital.
- Joint Center with EADS- CASA
- Telefónica R+D, ACS- Dragados, Nokia, Siemens, Indra, etc.
- 4Universities Alliance (Universidad Autónoma de Barcelona, Universidad Autónoma de Madrid, Universidad Carlos III de Madrid and Universidad Pompeu Fabra)
- City Hall of Getafe
- City Hall of Leganés
- Autonomous Region of Madrid
- Ministry of Housing

- Ministry of Culture
- Royal Board on Disability of the Ministry of Health and Social Policy
- IMDEA (Madrid Institute for Advanced Studies) Networks, IMDEA Materials and IMDEA Mathematics.

The specific role of each of these entities within the structure of “Campus Carlos III” is detailed in Section II.

## 1.4. Planned actions

The materialization of the objectives within the period foreseen in the project call is explained in the following **specific actions** which not only must be carried out with a sense of **urgency** during the years that the *Strategic Plan of the Campus of Excellence* is in effect, but which are vital to its development:

- i) **Construction of a new building to house the Center for Postgraduate Studies.**
- ii) **Construction of a new Residence Hall.**
- iii) **Development of the second phase of the Science and Technology Park.**
- iv) **Recruitment of international professors of excellence and the creation of new infrastructures.**
- v) **Adaptation of the Campus for sustainable development and accessibility.**
- vi) **Modification of Campus infrastructures adapted to the European Higher Education Area model.**

In addition to this transversal presentation of the planned actions, in section II, each one of them is explained in detail. Finally, an estimate of the **resources** necessary to carry out each specific plan is itemized in section III of this report.

## 2. Objectives

In the following section, the general approach of this report is explained in terms of objectives. The objectives that appear here in transversal form are further developed in section II of the proposal.

This Project represents an excellent opportunity to expand, develop and consolidate the path of Universidad Carlos III de Madrid in order to further its medium term goal of converting the “Campus Carlos III” into a reference point among European **centers of higher learning**. From the previously presented unique starting point, the University intends to continue consolidating its strengths, promoting and improving upon those which are already in place as it seeks opportunities to develop others. The **six basic objectives** are the following:

**1.- Strengthening Postgraduate Studies.** It is a well-known fact that a distinctive feature of top international universities is the relevant role that graduate studies play in each of them. Therefore, a central goal of the *International Campus of Excellence* project consists in continuing to expand the wide range of graduate studies already offered at Universidad Carlos III. Quantitatively speaking, our objective is to go from the current 12% of students carrying out graduate studies, to 16%, during the period that this Strategic Plan is in place. A fundamental action towards reaching this goal is the creation and setting in motion of a Center for Postgraduate Studies of international excellence and the building where it will be housed.

**2.- Increasing the residential space at the “Campus Carlos III”.** One of the fundamental pillars of campus life is the possibility of residing on campus. The University currently has one residence hall on each campus. Each year, hundreds of student applications for housing in the Getafe Residence Hall must be turned down due to lack of available rooms. Quantitatively, this second objective consists in doubling the residential capacity of the Getafe hub of “Campus Carlos III”. Thus, the main action for reaching this objective is the construction of an International Residence Hall on land which is already available on the Getafe Campus, thus allowing the university not only to offer housing to students, but also favoring the mobility of international faculty who continually visit the University.

**3.- Expanding the capacity for knowledge transfer.** The Science Park of Universidad Carlos III is the anchor of the scientific area of the Leganés Technology Park, whose developers are the Autonomous Community of Madrid, the City government of Leganés and “Campus Carlos III”. With the first phase already completed, the development of the second phase is now essential to the strategy for creating the “Campus Carlos III” which means: an increase in the number of patents exploited, an increase in the number of spin-offs and start-ups, an increment in the number of licensed incubator companies, the creation of new joint centers of sector transfer, etc.

**4.- Increasing the research capacity of the University as a whole.** The strategic lines defined in the “Campus Carlos III” are:

- Law in the Information Society: Fundamental Rights, International Law, Environmental and Global Law.
- Economy and Business in the Global Knowledge Society.
- Humanities in the 21st Century and their relationship with Technology and Communications.
- Biomedical Engineering.
- Mathematical Methods and Statistics applied to the new problems in Social Sciences and Engineering
- Industrial and Aerospace Technologies.
- Information Technologies and Communications.

These lines of study will stimulate interdisciplinary research among all of the University departments.

**5.- The promotion of the creation of a sustainable interurban Campus as the base for stimulating the surrounding area of the Autonomous Region of Madrid.** The “Campus Carlos III” can be visualized as a **knowledge base** in the heart of the Autonomous Region of Madrid, whose Central hubs are the current campuses of Getafe and Leganés, and which extends further to include the Science Park, the University Hospital of Getafe or companies which are leaders in innovation, such as EADS-CASA. The recently inaugurated railroad infrastructures situate the hub only twenty minutes from the Puerta del Sol in the center of Madrid. The mission of the “Campus Carlos III” is to constitute a decisive vector in transforming the Community of Madrid into a driving factor in the knowledge society.

**6.- Culmination of the adaptation of the Campus to the needs of the European Higher Education Area.** The position of leadership among Spanish universities held by Universidad Carlos III in the implementation of the European Higher Education Area will allow the “Campus Carlos III” project to complete the transformation of its entire educational offer to the new European higher education plan in 2012. The methodology is based in part on lecture classes with a maximum of one hundred and twenty students, who are later divided into smaller practicum groups. The other part of the plan establishes that the focus of the transmission of knowledge is a student-centered one. These two changes require the transformation of all of the classrooms and other University areas to facilitate this new educational focus.

### 3. Complementary information

At the website

[http://www.uc3m.es/portal/page/portal/inicio/campus\\_excelencia\\_internacional](http://www.uc3m.es/portal/page/portal/inicio/campus_excelencia_internacional)



complementary information can be found (A database with Indicators, Files with Objectives, Agreements, Projects and a Video) which offers evidence of the current situation of Universidad Carlos III de Madrid and supports the viability of the “Campus Carlos III” proposal and the *Strategic Feasibility Plan and Conversion to International Campus of Excellence* presented in this report.

## II. Specific actions and indicators

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### Subprogram for the Development and Explanation of a Strategic Feasibility Plan and Conversion to an International Campus of Excellence

#### 1. Basic Strategic Actions

This section presents the different essential actions that form the basis of the strategic “Campus Carlos III” project. The information is completed at the website:

[http://www.uc3m.es/portal/page/portal/inicio/campus\\_excelencia\\_internacional/informacion](http://www.uc3m.es/portal/page/portal/inicio/campus_excelencia_internacional/informacion)

which contains:

- i) a **database**, which includes the values of all of the indicators that correspond to this section.
- ii) the **files** of each basic action, according to each one of the corresponding bases of action: attracting and recruiting talent, internationalization, interdisciplinarity, and innovation and quality.
- iii) the **projects**, with a detailed presentation of each one of the six fundamental actions.
- iv) the **agreements**, which demonstrate the commitment on the part of each of the members who form part of the proposal, to the “Campus Carlos III” project.
- v) a **video**, which synthesizes the content of this proposal in an audiovisual format.

The following section briefly describes the **basic strategic actions** and the most relevant indicators.



## a) Improvements in Learning

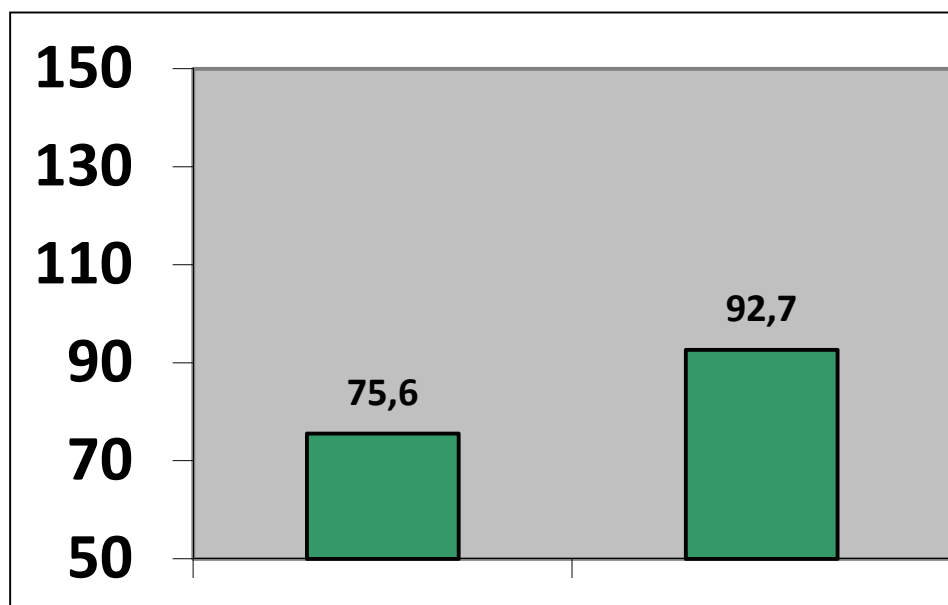
The basic strategic actions for improving learning are developed in the two levels of Undergraduate and Graduate Studies and are framed within the four fundamental lines of operation of this proposal: *attracting talent, internationalization, interdisciplinarity and innovation and quality*. The basic actions that fall within this framework are:

**a.1. A new building to house the Postgraduate Center.**

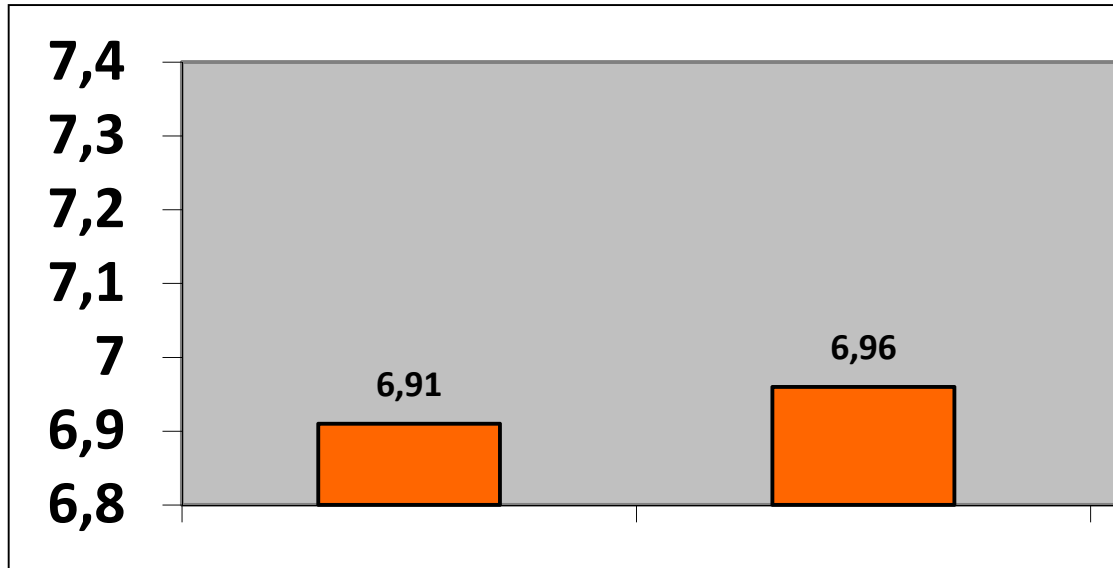
**a.2. Biology and Biochemistry laboratories for the new Biomedical Engineering Courses.**

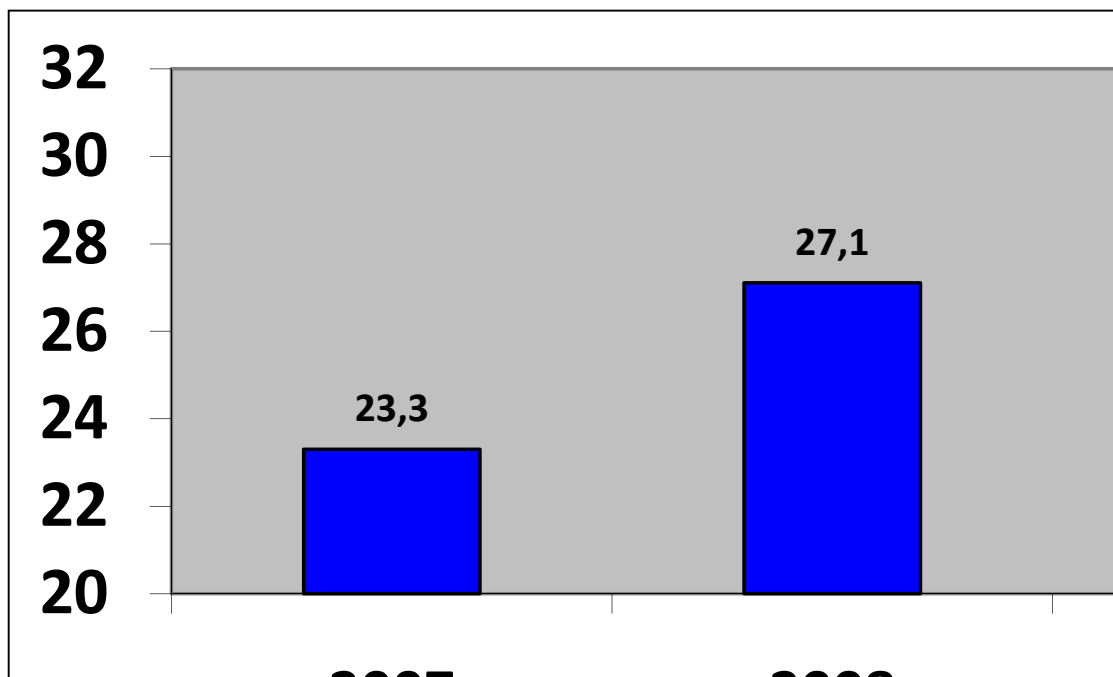
### *Undergraduate Degrees*

Universidad Carlos III de Madrid has been a **pioneer in introducing all of its undergraduate degrees adapted to the European Higher Education Area** since the 2008/09 course; this strategic decision represents the fundamental stimulus toward Improvements in Learning. The impact of this action on the evolution of the indicators of demand appears in the following three graphs. The graphs clearly show the dramatic increase in first option applications, whose number has nearly doubled in the last two years.



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The second graph also clearly illustrates the notable increase in the average entrance grade of our University's students, which is a consequence of another one of our steps toward improvement: the recently established program to give awards to those students receiving the highest grades in the national university entrance exam among those who have chosen our University. In addition, the University has begun a plan to attract Spanish students from outside of the Autonomous Region of Madrid, which has led to an increase in the percentage of such students to 29,6% in 2009/10, as can be seen in the third graph.

With respect to **internationalization**, Universidad Carlos III de Madrid has offered bilingual degree programs (English-Spanish) since the 1994/95 academic year. At present there are 11 bilingual degrees and 2 degrees completely in English. The two new undergraduate degrees in Biochemical Engineering and Aerospace Engineering will be introduced, in English, beginning with the 2010/11 academic year. The number of our students involved in the European Union's Erasmus program continues to grow. In 2007/08 a total of 361 of our students went to other countries to study, while 467 did so in 2008/09. In 2007/08 the University welcomed 410 international students, with that number increasing to 423 in 2008/09. This means that more than 5% of our University's students participate in the Erasmus program. It is estimated that in 2009/10 we will have 510 international students and that 652 students from Universidad Carlos III will go abroad.

In this area of internationalization, the University is developing a program to attract students from Asia, particularly from China, and has created the *OCAI*, International Student Recruitment Office (*Oficina de Captación Internacional*), which comes directly under the Office of the Vice-Chancellor for International Relations. Moreover, a joint international promotion of the courses is carried out by the 4Universities Alliance.

The University has also signed agreements to offer joint degrees with four foreign universities and colleges. (Ecole National d'Arts et Métiers, Helsinki University of Technology, American University and Paris X). Four other agreements are in advanced stages of negotiation.

One of the most relevant projects within the actions to stimulate improved teaching consists in the introduction of joint Degrees within the **4Universities Alliance**, together with the Universidad Autónoma de Barcelona, the Universidad Autónoma de Madrid and the Universidad Pompeu Fabra. Students in these programs will spend two years studying in the city of Barcelona and two years studying in Madrid.

From the point of view of **interdisciplinarity**, the University has an ample offer of dual degree programs and programs with minors, which are described in detail on the University's webpage. (<http://www.uc3m.es/>). This webpage is one of the fundamental tools in the visualization the "Campus Carlos III" future activities and endeavors. The University's webpage already has a special version – not merely a translation from Spanish – in English, oriented to the international community of faculty and students.

In reference to **innovation** and **quality**, The Office of the Vice-Chancellor for Undergraduate Studies announces annually its *Plans for the Support of Innovation in Teaching*. The University also has an Internal Quality Guarantee System, *SGIC*, which establishes how the entities, regulations, criteria and processes can improve the quality of the degrees, planning and development, or learning outcomes. It also establishes how the different interest groups will be involved in the design, development, evaluation and dissemination of their educational activities. In addition, there is a Committee for Quality, in effect since November of 1994, which supervises and promotes activities to improve teaching. Specifically, the University uses on-line questionnaires for the students, which they fill out every term, to evaluate all of the teaching activity at the University.

From the point of view of quality, with the introduction of the new undergraduate degrees which conform to the European Higher Education Area, the University is promoting the reduction in the number of students per classroom and has

established continuous evaluation as a component of the final evaluation and transversal learning of basic skills.

### ***Postgraduate Degrees***

A salient feature of top international universities is the relevant role that graduate studies play. Thus, a central objective of the *International Campus of Excellence* project consists in the continued expansion of the ample offer of Universidad Carlos III graduate degree programs. Quantitatively, its objective is to increase the current figure of 12% of graduate students to 16% during the four years in which this Plan is in effect. A fundamental action toward achieving this goal is the creation and start of operations of a **Center for Postgraduate Studies** of international excellence.

The level of internationalization of graduate studies at the University of Carlos III is high and the objective of this strategic plan is to make it even more so. Universidad Carlos III participates in three Master's Degrees of the European Union's Erasmus Mundus program, together with ten other universities in Spain and other European countries. For the 2009 call, Universidad Carlos III is one of the five Spanish universities that have been selected to offer a new master's Degree, and is one of the two Spanish universities leading the program. Currently, 20% of the master's degrees offered by the University are taught in English and more than 30% of the University master's degree students come from abroad.

In addition, the University offers three university master's degrees together with eight non-Spanish universities or business schools and two Spanish ones. It also offers two University (UC3M) accredited master's degrees together with nine universities from other countries. One of the main characteristics of the "Campus Carlos III" project is its goal of fomenting agreements for teaching joint graduate degree programs with prestigious Spanish and foreign universities.

The University offers blended option and distance learning options on its Colmenarejo campus, in both undergraduate and graduate degree programs. The distance learning master's degrees are taught through the University Institute for Postgraduate Studies (IUP) with the participation of the University of Alicante, the Universidad Autónoma de Barcelona, Universidad Carlos III de Madrid and the Santillana publishing company.

With respect to the quality of the graduate degree programs, according to the Report on the status of the evaluation of quality in Spanish universities by ANECA in

2008 Universidad Carlos III is ranked as the second Spanish university in quality doctorates (84.2% of its doctorates) and one of the objectives of the “Campus Carlos III” project is to further this line of excellence.

Innovation in graduate studies is reflected in programs such as the one which makes it possible for students in the majority of the university’s accredited master’s degree programs to have a laptop computer. One of the objectives of the “Campus Carlos III” project is for graduate students to have a laptop computer and that classroom teaching then integrates the possibilities that this infrastructure offers.

**a.1. A Building for the Center for Postgraduate Studies.** The basic strategic action discussed in this section consists in the **construction of a building in the Getafe hub** that would house, among other things, the new **Center for Postgraduate Studies** of the “Campus Carlos III”. The requirements presented by the European Higher Education Area and the European Research Area (ERA) have led the University to consider the need to construct a building that meets those requirements. In the last two years, plans have been presented for a project that would incorporate a combination of spaces to meet the new challenges presented by the EHEA and the ERA under one roof, while at the same time offering sufficient independence and versatility.

The intention of the functional program is to reflect not only present needs, but to foresee and adapt to growth in the number of people, as well as in services and activities in the coming years. The basic guiding principles are:

- Standardizing and meeting European guidelines for the various surfaces, giving attention to their functionality, and following internationally accepted ratios <sup>7,8</sup>.
- Giving the spaces’ functional independence, responding to their different needs; for example, the Library/CRAI (Resource Center for Learning and Research) has independent access and installations, which will allow it to have independent and longer opening hours; the faculty will have a separate access to their offices, although the “central nucleus” of the building may be

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<sup>7</sup> Designing spaces for effective learning: A guide to 21st century learning space design JISC\_HEFCE (cop 2006)

<sup>8</sup> Libraries as places: buildings for the 21st century: proceedings of the Thirteenth Seminar of IFLA's Library Buildings and Equipment Section, together with IFLA's Public Libraries Section, Paris, France, 28 July -1 August 2003.

closed, etc; the new building will be connected to the nearby *Ortega y Gasset* Building, which will facilitate users' movement between the buildings and make better use of the new facilities

- The modulation of the facade will allow different external references to be designed, reflecting their interior functionality: different natural lighting, depending on whether the spaces are offices, classrooms, or library areas.
- A sustainable, energy efficient building is planned, including all of the complexity that comes with its execution; however it would be inconceivable to carry it out any other way, given the eminently innovative character of this institution. This building will be the University's first building with the LEED sustainability certification <sup>9</sup>, and one of the first in Spain.
- A Library/ Learning and Research Resource Center, whose purpose would be to house and integrate services that are currently dispersed around the campus: a language lab, a workshop classroom, seminar rooms, group work rooms, open, flexible areas for group work, etc., with the goals of facilitating the use of the different services available to the users and offering complete service, an ample schedule of open hours, and a staff of specialized personnel. The spaces defined in the Library/Learning and Research Resource Center are meant to be flexible, modular and totally integrated with the task of teaching, offering spaces for group meetings, teaching seminars, self-study language learning, teaching and learning support and, of course, for access to the different information resources necessary for teaching, learning and research.
- Classrooms with flexible equipment to handle current teaching/educational needs. These are modular classrooms, which can be transformed as needed and which are technologically adapted to the new system of teaching and learning. They will be equipped with lightweight, moveable and versatile furnishings.

The following website shows the plans for the new building with its corresponding detailed information:

[http://www.uc3m.es/portal/page/portal/inicio/campus\\_excelencia\\_internacional/informacion](http://www.uc3m.es/portal/page/portal/inicio/campus_excelencia_internacional/informacion)

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<sup>9</sup> See the CRE Document on the sustainability of university buildings.

**a.2. Biology and Biochemistry Laboratories.** The second action in this section consists of the introduction of the Undergraduate degrees in Aerospace Engineering and Biomedical Engineering beginning with the 2010/11 academic year, which will complement the current range of Engineering Degrees offered at the School of Engineering in Leganés.

It is expected that the first year will begin with some 40 students in each of the new Programs, with classes being taught in English. These are degree programs with a potentially very high demand, so it will be possible to attract highly motivated students with an outstanding academic level. Giving the classes in English favors the incorporation of students from other countries and the introduction of mobility programs, thus promoting the internationalization of the University.

The creation of these new degrees constitutes the first step with which the University intends to shape the initial nucleus that will permit the future consolidation of new areas of research in these fields, and which will later include Graduate Studies and a Research Institute.

The purpose of expanding research at our University to these new fields of knowledge is to revitalize and reinforce research activity in the present-day Engineering Department, given the interdisciplinarity and the cutting-edge nature of these disciplines and the high technology used in Biomedical Engineering research.

This project fits perfectly into the four strategic lines defined by “Campus Carlos III”: *attracting talent, internationalization, interdisciplinarity, and innovation and quality*. The period of execution of the project is from 2007 to 2014.

The main actions included in the plan have been divided into six sections and include the preliminary phases of the feasibility study and of the elaboration and verification of the study plans, and the establishment phase itself, differentiating the introduction of the studies, the creation of the new Departments and the installations directly related with these studies: the laboratories and new spaces.

On the website:

[http://www.uc3m.es/portal/page/portal/inicio/campus\\_excelencia\\_internacional/informacion](http://www.uc3m.es/portal/page/portal/inicio/campus_excelencia_internacional/informacion)

the documentation corresponding to the introduction of the Biomedical Engineering degree appears, along with documentation corresponding to the Biology and Biochemistry laboratories.

Finally, the indicators and the files related to this section can also be found at:

[http://www.uc3m.es/portal/page/portal/inicio/campus\\_excelencia\\_internacional/informacion](http://www.uc3m.es/portal/page/portal/inicio/campus_excelencia_internacional/informacion)



## **b) Scientific Improvement**

The construction of the “Campus Carlos III” rests on very solid scientific bases. The fundamental strategic actions for scientific improvement are within the four operative lines of this project: *attracting talent, internationalization, interdisciplinarity and innovation and quality*. The actions which correspond to this point are:

### **b.1. Recruiting talent**

### **b.2. New Postgraduate Studies building**

### **b.3. Joint Center for Global Change**

### **b.4. Establishment of Biomedical Engineering and Aerospace Engineering degrees**

R+D+i investment has been one of the basic pillars of action at Universidad Carlos III de Madrid, and has placed it as one of the top Universities at the national level.

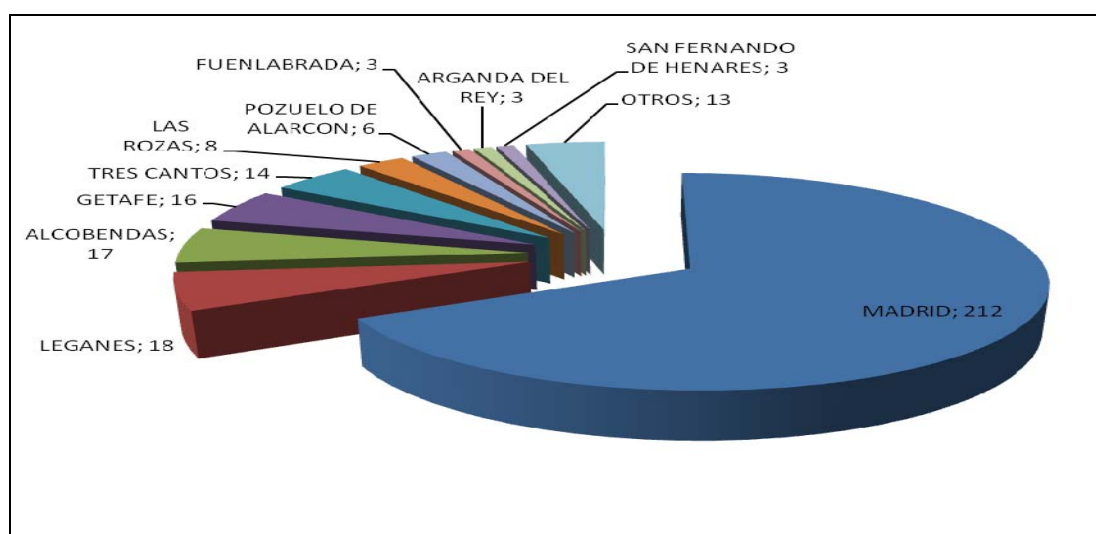
The number of scientific publications constitutes one of the most common indicators of research activity. In 2008, Universidad Carlos III was second among Spanish universities in the number of articles published per tenured professor (0.833), with their presence in the university’s areas of study (Engineering, Material Science, Economics and Business, Physics, Mathematics, Computer Science, Social Sciences-General and Multidisciplinary) at 3.2% with respect to all publications from Spanish institutions in those areas. Since the percentage of tenured professors with respect to the total is 0.99%, Universidad Carlos III’s level of productivity is more than three times that of the average level of other Spanish universities in its area of activity.

With respect to the number of *sexenios* (positive evaluations of research over a six year period), Universidad Carlos III occupies the second position in the number of *sexenios* per 100 tenured professors, and is ranked first among Spanish universities in the percentage of tenured professors with *sexenios*. In addition, and according to the “The 2009 Report on the results of the CNEAI’s evaluation” (“*Informe 2009 sobre los resultados de evaluación de la CNEAI*”) (CNEAI – National Commission for the Evaluation of Research Activity) Universidad Carlos III ranks first among all Spanish

public universities with respect to the S Factor, which measures relative success in the evaluation process of the University faculty.

Participation in calls for research proposals is one of the distinctive activities of the University, which is the second Spanish institution in Research Projects of the VI European Framework Programme obtained per 100 professors (2,309), and it is also second in Research Projects obtained in the National Plan per 100 professors (10.46). Furthermore, according to the Cotec Report on Technology and Innovation, 2006, Universidad Carlos III de Madrid, occupies first place among public universities in terms of research competitiveness and second place in research effort. In the European Union's VII Framework Programme, fifteen projects have been successful with 4,466.361€ in funding received, which represents 101% of all the funds obtained in the V Framework Programme and 85% of the funding obtained in the VI Framework Programme. In addition, the amount obtained per researcher and year in the VII Framework Programme was 42,437 €, which represents the maximum amount ever obtained by Universidad Carlos III, and situates it among the top Spanish universities with respect to this indicator.

“Campus Carlos III” offers numerous points of encounter between the University's activity and the needs of companies. In 2008, Universidad Carlos III signed 591 contracts with companies, which together with the 24 permanent Chairs with businesses, the thirty-four spin-offs created in recent years, the three joint transfer centers, and the more than thirty patents obtained provide a solid starting point for relationships with companies. It is also noteworthy that the University has applied for twenty-two patents since 2006 and holds five software licenses. The following graph shows the distribution, by town/city, of the companies with which “Campus Carlos III” collaborates.





The plans of action for scientific improvement are developed around the four fundamental lines of the “Campus Carlos III”: *attracting and recruiting talent; internationalization; interdisciplinarity; and innovation and quality*. The following are some of the main actions to be taken.

**b.1 Recruitment of talent.** Talent is a scarce commodity and a fundamental ingredient in scientific activity. Therefore, Universidad Carlos III de Madrid has set in motion various actions designed to increase the quality and quantity of its research through the international recruitment of talent. In this vein, faculty hiring policy follows criteria based on merit and ability, and accepts the principles of the *European Research Charter* and the *Code of Conduct for Hiring Researchers*, which have been approved by the University Governing Board.

The central action for attracting faculty of recognized prestige is the Chairs of Excellence program, which is co-funded by *Banco Santander*, with an annual sum granted of 120,000 Euros per researcher, and which will be carried out from 2008 to 2011. So far two calls have been held, with sixteen Chairs being awarded for the year 2008 and seventeen for 2009.

Additional information about this program can be found at the website:

[http://www.uc3m.es/portal/page/portal/inicio/catedras\\_excelencia/catedrasexcelencia](http://www.uc3m.es/portal/page/portal/inicio/catedras_excelencia/catedrasexcelencia)

Moreover, to promote internationalization and excellence, the University foment the co-direction of doctoral theses, through grants to top internationally recognized professors who commit to co-directing, making brief visits to our University and receiving our students in their institutions. With respect to doctoral degrees, Universidad Carlos III de Madrid is ranked second among Spanish universities in doctoral degree programs with a distinction for quality (84.2% of the programs).

The recruitment of young PhDs is carried out through various University programs, in which selection is based on an external evaluation administered by ANECA (National Agency for Quality Assessment and Accreditation): postdoctoral stays at Universidad Carlos III by students from three other universities which are part of the 4Universities Alliance (2 calls for applications, the last with 24 stays granted); and postdoctoral stays at Universidad Carlos III, open to PhDs related to the disciplines offered there (1 call for applications, 40 stays offered).

Starting with the 2009/2010 course, the “Campus Carlos III” program to attract top graduate students will be supported by the new International Recruitment Office (OCAI), which is responsible for tasks related to recruiting international students.

This program has two plans of action: financial aid for University master's programs (for the 2009/2010 course, 102 grants have been offered) and PIF grants (Research Personnel in Training) (*Personal Investigador en Formación*) for doing a doctoral thesis (for the 2009/2010 course, 25 grants have been offered).

The University has its own program of individual incentives for its full-time Professors, based on published criteria and objectives, related to their research (six-year research period evaluations, competitive research projects and theses directed), publications and teaching. The objective behind these incentives is to foment continued growth in all of these areas.

Internationalization is one of the key plans of action of the "Campus Carlos III", fomenting and facilitating, not only the incorporation of new researchers to our University (for example through the International Reception Office which facilitates the expediting of visas, social security papers, NIE, housing arrangements, and so on), but also the transfer of our researchers to foreign institutions. Faculty members may take a sabbatical year after six years in a tenured position. To this end, the University offers 20 sabbaticals annually, which represent 4% of the permanent teaching staff, so that they might carry out activities in institutions of recognized prestige outside of Spain. The University's researchers are indeed international, with more than 13% of the faculty being of non-Spanish nationality.

Besides participating in the various regional, national or international mobility programs, young researchers of the "Campus Carlos III" may also participate in the University's own program for encouraging stays of three to six months in foreign centers (in the last call 83 of these fellowships were awarded). The quality and motivation of the University's young PhD candidates is demonstrated, for example, in the awarding of the *José Castillejo fellowships* for the 2009/2010 course, in which Universidad Carlos III ranked first in the absolute number of PhDs who received the fellowship.

Along with research activity itself, management of research is a basic element for collective success. "Campus Carlos III" intends to continue its policy of incorporating research managers (20 in the last year) who not only help with the researchers' administrative work, but also carry out a more pro-active role in attracting, and developing relationships with companies and the surrounding community, improving the process of university-business environment transfer, and facilitating the participation of all of our excellent research groups in the various national and international programs.

As part of the "Campus Carlos III" strategic plan, our intention is to continue carrying out these actions as part of the plans related to the field of science in order to

continue improving the recruitment of talent, the internationalization of the faculty, fomenting scientific interdisciplinarity and innovation and quality of results.

**b.2. Center for Postgraduate Studies.** The University's scientific improvement requires recruiting top students and creating a greater infrastructure for the graduate programs in order to facilitate the development of international and interdisciplinary programs that give an added value to the students' training. Toward this objective, one essential action consists in the creation of a Center for Postgraduate Studies. Details regarding this center and the building where it will be located can be found in section a) of Improvements in Learning.

**b.3. Joint Center for Global Change.** The Joint Center CSIC (Spanish National Research Council) -UC3M for Global Change is a pioneering initiative at both the national as well as the international level. The most important added value of this center is its multidisciplinary focus, which includes expert researchers in different branches of learning, covering everything from renewable energy to the study of migratory flows due to changes in the environment. The lines of research at the center that are considered priorities by "Campus Carlos III" will be: Energies and Emissions, Forecasting, Prospective and Management Strategies, the Sociological Dimension of Global Change and Environmental Law.

The center will be located within the "Campus Carlos III" facilities at the Leganés Science and Technology Park. The Center's building will be adjacent to Universidad Carlos III's other buildings in the Park (phase I has been completed and phase II is in the planning stage), the Center's IMDEA (Madrid Institute for Advanced Studies) NETWORKS Building (in the planning stage), and other buildings with unique scientific facilities that the University is negotiating. The Global Change Center will have an area of approximately 10.000 m<sup>2</sup> with room for more than one hundred researchers, and it will contain cutting edge laboratories for different areas of research.

#### **b.4. Biomedical Engineering and Aerospace Engineering.**

The introduction of the Undergraduate Degrees in Aerospace Engineering and Biomedical Engineering starting in the 2010/2011 academic year will complete the current range of Undergraduate Degrees in Engineering that are offered at the School of Engineering on the Leganés Campus, and it represents the start of the strategic lines of research in Biomedical Engineering and Aerospace Engineering.



In the first year 40 students are expected to begin in each of the new undergraduate degree programs, which will be taught in English. These are new degree programs with a high level of unmet demand; hence the University hopes to attract highly motivated, top students. Teaching the classes in English favors the incorporation of foreign students and the implementation of mobility programs, which will further favor the University's internationalization.

The introduction of these undergraduate studies constitutes the first step with which the University hopes to shape an initial nucleus that will allow for the future consolidation of new areas of research in these fields, to which Graduate Study Programs and a Research Institute will later be added.

The objective behind the expansion of research at our University to these new areas of knowledge is to revitalize research activity in the current departments of Engineering, given the interdisciplinarity, the cutting edge character and the high-level technology of the research in the field of aerospace engineering, as well as in that of biomedical engineering.

The projects fit perfectly within the four strategic lines defined by "Campus Carlos III", *attracting and recruiting talent, internationalization, interdisciplinarity and innovation and quality.*

### **c) Conversion of the campus to develop an integrated social model**

The conversion plan for the campus to develop an integrated social model is based on the philosophy of innovation and quality, and consists of the following basic actions:

**c.1. New student residence hall in Getafe.**

**c.2. Improved accessibility program.**

**c.3. Energy savings plan.**

**c.4. "Campus Carlos III" financial aid and grant program.**

**c.5. Orientation and social participation at the University. FEDORA (Forum Européen de l'Orientation Académique) Program.**

### **c.7. New sports complexes in Getafe and Leganés.**

From an urban development point of view, the “Campus Carlos III” project aspires to form a basic axis of sustainable intercommunication between the hubs of the current **Getafe and Leganés campuses**. The aim is to integrate the entire Getafe campus into a single unit (with pedestrian access, bicycle lanes and several bicycle rental points) which runs from the Las Margaritas-University local train station to the area of the sports center. In turn, the plan in Leganés would integrate the student residence in Leganés, the building on “avenida del Mediterraneo”, the central part of the campus and the Science Park.

The actions that will lead to the conversion of the campus as it is today into “Campus Carlos III” of International Excellence are the following:

**c.1. New Student Residence Hall.** Universidad Carlos III de Madrid houses some nine hundred students in its 3 Student Residence Halls. The consolidation of the University’s prestige has increased the demand for student and faculty housing, rendering the current facilities insufficient. Moreover, student and faculty mobility and international exchange are aided enormously when the University has its own adequate housing solutions nearby.

The principal objectives of the Project are to:

- Meet demand.
- Restore urban plots of land.
- Provide improvements to the University and its social setting.
- Facilitate international coexistence and the recruitment of outside talent.

It will be built bearing the following characteristics in mind: functional architecture, materials that are of high quality, efficient and durable, commitment to the environment, energy efficiency and accessibility for residents with special needs.

The project’s guiding values are: an atmosphere of international coexistence, integrated and humanistic education following the same philosophy as the existing University residence halls, and an admission system based on academic excellence and diversity.



The Residence Hall will have 10 double rooms, 300 singles and 6 for individuals with special needs, and a flexible renting model will facilitate their occupation by users with different profiles. In addition, there will be areas for study (library, computer room, multi-purpose room), cultural areas (music room, TV room, conference room), sports areas (gym and game room), laundry, garage, dining room and other common areas.

The Residence Hall will be located in the Getafe hub of “Campus Carlos III”, a strategic location in terms of public transportation by highway, railway or underground. The University already has a suitable tract of land on its property, which is less than a five-minute walk from the Getafe local train station “Las Margaritas-University”.

The project for the new residence hall and all the corresponding information can be found at:

[http://www.uc3m.es/portal/page/portal/inicio/campus\\_excelencia\\_internacional/informacion](http://www.uc3m.es/portal/page/portal/inicio/campus_excelencia_internacional/informacion)

The international aspect of the proposal is reinforced by the infrastructure of the Colmenarejo campus student residence hall, which is very suitable for international scientific meetings as well as for in-company training.

In addition to the new residence hall, “Campus Carlos III” has a new housing offer of rental apartments as a result of the recently signed agreement between the University and the “*Sociedad Pública de Alquiler (SPA)*” (*State Rental Agency*).

**c.2. Improved accessibility program.** The elimination of architectural barriers on campus and in University buildings has taken place within the framework of the continuous agreements signed with the ONCE (Spanish National Organization for the Blind) in 2000, 2002, 2003, 2004, 2005, 2006 and 2007. The following actions have required more than a half million Euros: works to improve accessibility to the Getafe Campus and to Buildings 4, 5, 6 and 7; works to adapt several restrooms for use by individuals with mobility disabilities, improved accessibility to the Adolfo Posada Building and construction of 12 access ramps in various places; installation of elevators in Buildings 1, 2 and 3; installation of a stair glide and an automatic door in the cafeteria of the Department of Humanities, Communication and Library Science; adaptation of classrooms and other places, with reserved places in the classrooms; specially adapted rooms for people with reduced mobility in the residence halls;

parking places that have direct elevator access to classrooms for people with reduced mobility.

Works to adapt sports facilities for those with special needs were carried out in 2005 and 2006 through a subsidy from the *Dirección General de Deportes de la Autonomous Region of Madrid* (General Directorate for Sports of the Autonomous Region of Madrid) for the sum of 60,000 Euros. In Getafe: lowering and conditioning of elevation differences in access ways to outdoor sporting facilities; renovation of shared changing rooms; renovation of adapted restrooms; elevating device to first floor stands; access door to the facility and access gate. In Leganés: renovation of existing restrooms and showers; renovation of shared sinks; elevating device in the outdoor access way and access doors to the facility.

The following works are now being contracted and/or are pending implementation:

- Installation of a magnetic loop in the conference room of the Concepción Arenal building in Getafe to serve the hearing impaired.
- Motorization of the cafeteria doors in the Department of Humanities, Communication and Documentation in Getafe.
- Construction of an access ramp to the main lecture hall on the Getafe Campus.

The measures taken to improve accessibility for the disabled with regards to spaces, infrastructure, and information technology and telematics services target three areas: accessibility of the University portal; access to equipped classrooms, access and use of computer stations; and audiovisual accessibility to audiovisual communication environments, systems and services for the sensory impaired.

The **Programa de Integración de Students con Discapacidad (PIED)** (Integration Program for Special Needs Students) was created in 1996 and made Universidad Carlos III a pioneer among Spanish universities. The PIED is the university service in charge of directly caring for the specific needs of special needs students. Its responsibilities include their reception and welcome, providing information, orientation and pedagogical support, and promoting coordination and shared action to guarantee equal opportunities in the University community.

Along with the support, welcoming and planning services, regularly scheduled activities to promote the social inclusion of special needs students and staff are held:

- Activities for the awareness-raising, training and participation of the University community: socio-cultural activities, training actions focused on

faculty and administrative and service staff, volunteers to support special needs students.

- Outside cooperation activities for the inclusion of those with special needs through communication and collaboration with organizations centered on their care and representation, the organization of training and awareness-raising activities and the participation in entity coordination platforms regarding the care and representation of the disabled.

Upcoming activities will be defined by the approval of the *“Plan de Accesibilidad Integral” (Comprehensive Accessibility Plan)*, scheduled for December 2009. Future actions must be applied to all action plans: accessibility, care for special needs students and the promotion of the social inclusion of the disabled. The main actions, among others, are:

- Information plan for future students
- Increasing the quota of reservations for master’s programs.
- Including a special needs section in pre-enrollment and registration.
- Systematizing the communication of special needs student data among all the service departments involved.
- Studies support: adaptation of materials; creation of a department of sign language interpreters, national and international mobility of special needs students.
- Teaching support: recognition of support as a teaching task; formalizing the process and criteria for curricular adaptations.
- Promoting social inclusion of the disabled: intensifying inter-departmental cooperation; activating the university’s presence in the RUNAE (University Network of Student Affairs) and other coordinating structures; promoting the dissemination of *“UC3M and Disability”*.

**Preparation of a sustainable mobility plan on “Campus Carlos III” within the framework of the Getafe and Leganés city council mobility plans.** One of the basic actions in establishing “Campus Carlos III” consists of the sustainable interconnection between the different parts of the Campus. Universidad Carlos III de Madrid has worked with the city councils of Getafe and Leganés in relation to the mobility plans of both municipalities, and aims to develop sustainable mobility projects for the new Campus within the framework of these plans. This requires specific funding.

As a first phase of this project, a sustainable convoy was organized with the other universities in the Madrid region. It toured the different campuses, carrying out activities to help increase awareness of the need to develop new habits of more

sustainable transportation. For this activity, the Leganés City Council made bicycles available last May 5 to users to take a symbolic ride between the two campuses, and the local police of both municipalities helped by ensuring safety conditions.

Other future actions include the bidding specifications for the preparation of a sustainable mobility plan on the Campus within the framework of the mobility plans for both municipalities. Specifically, with the Leganés city council, a bicycle lane is planned to link the residence hall with the Campus, including the setting up a service of bicycle rental points which the city council has already begun, with locations at the local train and underground exits. Furthermore, a specific section for the Leganés Science Park is planned.

Also noteworthy are the sustainable mobility promotion campaigns, the future preparation of a questionnaire that will serve to make a diagnosis of habits, which will aid in the creation of the Sustained Mobility Plan and respond to the demand for increased bicycle parking and signs on the campus.

The cost of the mobility plans will be approximately 100,000 Euros and could be assumed by the Autonomous Region of Madrid's Consorcio de Transportes (Transportation Consortium).

**c.3. Energy savings plan.** The Sustainability Committee, created in July 2008, has put a set of energy saving measures into action. Among them is the development of an energy efficiency plan on the future "Campus Carlos III", basing it on the assessment of earlier pilot plans, and which includes sustainable actions associated with the reduction of the institution's emissions. The following chart shows the progress of various different consumption indicators over the past years:

Consumption of raw materials	2003	2004	2005	2006	2007	2008	Units
Electricity consumption per user	709.9	693.9	787.1	787	813	769	kWh/user/year
Gas consumption per user	51	49	41.5	46.3	47.8	36.2	m3/user/year
Carbon dioxide issued from energy consumption per user	505	490.7	524.48	535.29	553.28	502.48	Kg./user/year
Water consumption per user	7.42	6.02	6.68	5.24	5.33	4.72	m3/user/year
Office paper consumption per worker			2.22	2.03	2.02	1.96	Kg./worker/year

Recycled office paper consumption per worker	0.12	0.08	0.13	0.87	Kg./worker/year
Importance of recycled office paper	5.45	4.13	6.28	44.38	%

Sustainability is also part of the University's teaching and research activities: there are research groups with relevant activity on the subject of sustainability and there is a varied offer of classes in the undergraduate and Master's programs:

[http://www.uc3m.es/portal/page/portal/conocenos/docencia\\_sostenibilidad\\_uc3m](http://www.uc3m.es/portal/page/portal/conocenos/docencia_sostenibilidad_uc3m)

All of this is on the University's Sustainability webpage:

<http://turan.uc3m.es/uc3m/serv/MA/medioambiente.html>

At Universidad Carlos III de Madrid there is interest in developing innovative forms of learning that aid in the creation of new ways of teaching and improve characteristics of those that already exist. Thus, one aim is to use and convert, if appropriate, the most innovative buildings into structures which transmit some of those values the institution considers relevant, such as fomenting the culture of sustainability and the associated technologies. To this end, the University already has the following renewable energy installations which are occasionally used for educational purposes, particularly in the engineering degree programs offered in Leganés:

- Photothermal installation to heat the water of the heated swimming pool in the Alfredo Di Stefano Sports complex,
- Photothermal installations on the roof of the Agustín de Betancourt building,
- Photovoltaic installation connected to the power supply in the Avenida del Mediterráneo building,
- BIOLAB laboratory: biomass characterization testing laboratory

As innovative learning techniques, greater use of these installations is proposed as well as the development of new infrastructure to also be used in the area of teaching. To this end, the development of a large solar energy installation in various phases has been proposed. The first stage would be to install 100kW, some 2000 m<sup>2</sup>, on the roofs of the buildings and thus, transform the campuses. The cost of this installation would be approximately 600,000 €. Contacts with partners who support the initiative will be made, and an initial selection of possible sites has been made.

Likewise, the new building to house the Center for Postgraduate Studies proposed for the Getafe hub will include different types of renewable energy that will aid energy efficiency in the building. In addition there will be sun exposure studies and simulations, following current technical regulations and venturing beyond to propose sustainability criteria in various areas as required by LEED certification: water, energy and construction materials. As specific examples, the project has solar panels as well as a geothermal installation; improvements along these lines mean an additional 10%-20% to the total cost of the building, depending on the final scope.

Another building worthy of note, currently in the monitoring phase, is the “Ortega y Gasset” building in Getafe, where energy consumption is analyzed by sector: air conditioning, heating, lighting, and other uses, which has led to certain steps of improvement being taken on the rest of the campus. Some of these measures have been the regulation of the daytime lighting schedule, and the reduction of air conditioning in August, which is estimated to mean an annual energy reduction of 180,000 kWh.

Furthermore, the University has a set of strategic actions that integrate steps in three areas: environmental management of the campus based on environmental criteria in buildings, purchases and the campus; awareness-raising and communication for the entire university community, and increased environmental educational training and research.

**c.4. “Campus Carlos III” financial aid and grants.** The University, with its departments and services, is the ideal place from which to offer students grants, with the guarantee that they will be properly overseen and controlled in terms of compatibility with educational activities and will offer additional training. On-campus student life is more complete if studies and additional activities (cultural, sports, associations, and volunteer activities) are linked to the possibility of carrying out a paid pre-professional activity so that a certain level of personal independence and autonomy can be attained while enjoying a training experience with a future scope.

The lines of development of financial aid and grants on “Campus Carlos III” are:

- Organizing all the University’s existing information on financial aid and grant possibilities for young people and/or students so there will be simple, universal access, structured according to profiles and areas of interest, to facilitate access to relevant information in each case.

- Setting up a permanent committee to attract public and private initiatives related to aid, subsidies, grants or temporary work for young people or students.
- Performing tasks of information, advice and mediation between students and their needs, and existing internal and external aid and grant resources.
- Reorganizing the offer and development processes for internal collaboration grants within the different university organisms, making them more career-related, attractive and accessible to students, and more useful for all parties involved.

**c.5. Orientation and social participation at the University.** The mission of assistance, association and social work at the university is to strengthen students' well-rounded educations, especially to aid in their personal, social and ethical development. This work will be carried out on "Campus Carlos III" in several directions:

- Successfully integrating students into university life is a fundamental aim, particularly for those with special difficulties or those who are joining the campus for the first time, especially international students. In order to fully achieve this, the University makes several specific support resources and programs available to students.
- Psychological assistance programs that aim to take a further step in the students' well-rounded education, contributing to their personal development.
- The "*Compañeros*" (Companions) Guidance Program. A new way of dealing with the difficulties incoming students may encounter through advice and counseling by their peers: fellow students-upperclassmen. It is a service available to new students and their professors which aims to prevent drop-outs in the first year at university.
- A basic right students have is to form and join associations, which at the same time is an important source of personal growth. The University has its own norms with the goal of encouraging students to participate in this facet of campus life. The support service foments the creation of associations, distributes available resources, subsidizes projects and plans educational and training activities.
- Moreover, being a university student entails more than studying; it should be a way of interacting with the world, becoming sensitive to social injustice and actively committing to the defense of human dignity and the rights of men and women alike. The University encourages volunteerism among all members of its community and particularly among its students. To achieve this, campaigns are carried out and on each campus there is a Volunteerism Information Point,

assigned as a part of the Network of Universities in Madrid, thus linking it to the Madrid Region initiative.

- A well-rounded education also requires the availability of teaching and resources which increase students' sensitivity to situations of their age group and the world they live in. Each year campaigns are organized in an effort to raise awareness and advise students on subjects such as healthy habits, prevention of drug addiction, gender violence, etc.

Finally, we must highlight the special need to develop a long-term project in this area with a focus that places us in the European scope of action, working together with other outstanding universities. In this regard, the model lays out the work to be done in five large blocks, following the coordinates established by FEDORA (Forum Européen de l'Orientation Académique) for excellence in European university orientation services. The FEDORA Project work plan for "Campus Carlos III" can be seen at:

[http://www.uc3m.es/portal/page/portal/inicio/campus\\_excelencia\\_internacional/informacion](http://www.uc3m.es/portal/page/portal/inicio/campus_excelencia_internacional/informacion)

**c.6. Professional guidance and planning.** One of the services a campus of excellence must provide its students is that of career counseling and guidance. The objective of the "SOPP" (Professional Guidance and Planning Service), managed by the "Fundación Universidad Carlos III", is to facilitate job placement and professional development of the University's students and graduates. To this end, it provides the following services:

- Job Bank and Practicum
- Professional Guidance
- Job Training
- Job Fair

Information about the SOPP's activities and how it functions can be seen at:

[http://www.uc3m.es/portal/page/portal/inicio/campus\\_excelencia\\_internacional/informacion](http://www.uc3m.es/portal/page/portal/inicio/campus_excelencia_internacional/informacion)

**c.7. New sports complexes in Getafe and Leganés.** The University has a Sports center in Getafe and a center with an indoor pool in Leganés, both of which serve the people of the area. The "Campus Carlos III" project includes a water complex with two swimming pools, along with the sports center in Getafe. This center will



also be open to the neighboring general public and will be built at no cost, through a development agreement with a specialized company.

The other action in the scope of “Campus Carlos III” consists of the construction of a sports center in Leganés, a project which is already underway in collaboration with area neighborhood associations.

Information about the swimming pool in Getafe and the sports center in Leganés can be found at:

[http://www.uc3m.es/portal/page/portal/cultura\\_y\\_deporte/deporte/centros](http://www.uc3m.es/portal/page/portal/cultura_y_deporte/deporte/centros)

## **d) Improvements directed towards the implementation of the European Higher Education Area, including adapting installations**

The start-up of the “Campus Carlos III” project takes place with **most of the University’s teaching already adapted** to the European Higher Education Area and with considerable experience in setting this process in motion. The basic strategic actions are framed within the four fundamental operating lines of this undertaking: recruitment of talent, internationalization, an interdisciplinary approach and innovation and quality. The fundamental actions aligned at this point are:

**d.1. Adaptation of teaching areas to the new methodology.**

**d.2. Coordination with high schools in the area.**

**d.3. Policies to recruit international students.**

**d.4. International communications project.**

**d.5. Professional placement of students.**

**d.6. Physical and organizational environments centered on internationalization.**

The **Teaching** section in point 1.1, referring to the current situation, describes in great detail the level of excellence, innovation and internationalization that Universidad Carlos III de Madrid has achieved in its teaching. All its degrees, which have already been implemented, inherit the characteristics of excellence,

internationalization, interdisciplinary approach and innovation and quality, and serve, from the beginning, to expand on and complete the plans and programs which have permitted these levels to be reached. Now the actions proposed in the “Campus Carlos III” project shall be introduced.

**d.1. Adaptation of teaching areas to the new methodology.** The project to modify infrastructure used for student learning is one of the principal actions that the University has had to undertake within the framework of the conversion process to adapt studies to the EHEA. To this end, prior to the specific description of the project, and in order to contextualize it within the set of processes to implement undergraduate studies, the principal lines of this process directed at satisfying the new model of integrated teaching are laid out here.

The Campus infrastructure modification process has a direct relationship to the new undergraduate degrees implementation process, gradually carried out beginning in 2007/08. In undergraduate studies, all the subjects have a weekly reduced group session with a maximum of 40 students and a theory teaching session in groups of approximately 100 students. The transversal subjects and most electives are taught in groups of 40 students. Furthermore, courses involving laboratory work have four sessions each semester in laboratories or computer rooms in groups of a maximum of 20 students. All this has required the University to undertake, year by year, diverse conversions to the University classrooms and their equipment, according to these new models, with new sizes, new flexible furnishings, electrical hook ups and audiovisual projection network system, in the terms specified by the project.

The learning system based on continuous evaluation makes it necessary to have other types of spaces available to students, such as areas for group work, for language learning, etc. and this has also been tackled in this project. Additionally, it has been necessary to begin a new IT process (Aula Global G2/ G2 Global Classroom) to offer online support to continuous evaluation and the new model of presence learning.

In this process of space conversion, 26 classrooms were modified in the summer of 2008 and 31 in the summer of 2009, to adapt them to one of the two definitive models. This conversion, apart from changing the surface area, includes new furnishings, new equipment, new connectivity and a new projection system and sound booster. In the summers of 2010 and 2011 approximately 56 classrooms will be modified.

The full project to adapt teaching areas to the new learning methodology can be viewed at:

[http://www.uc3m.es/portal/page/portal/inicio/campus\\_excelencia\\_internacional/informacion](http://www.uc3m.es/portal/page/portal/inicio/campus_excelencia_internacional/informacion)

#### **d.2. Coordination with area junior high and high schools.**

A fundamental task for the development of “Campus Carlos III” is its promotion in high schools, which informs, interests and attracts the best students to carry out their undergraduate studies on the Campus. There are already programs with this aim. In the 2006/07 academic year, 105 visits were made to centers to provide information about the University. In the 2007/08 academic year the number of visits rose to 117.

Furthermore, the University welcomes groups of area high school students to show them the facilities on site and inform them directly about the different study options that are available to them. In the 2006/07 academic year, 128 events of this type took place, which rose to 133 in 2007/2008. The student rating of the visit was 4.5 out of 5.

In 2008, the University began *Selectividad* (University Entrance Exam) and Guidance Workshops with the participation of 430 students. The University also offers different conferences and courses for high school teachers.

Another way to bring high schools into contact with the University is through the sporting events that the University organizes for high school students during the year. Finally, the University has created a program called “Colabora y Cuéntalo” (Collaborate and Tell about it), to inform schools about different University activities.

**d.3. Policies to recruit foreign students.** The University has plans to increase its number of ERASMUS students on its campuses. A total of 361 students carried out stays in other European countries in the 2007/08 academic year and 447 did so in 2008/09. Also 410 students from different foreign universities, including Hispanic Studies students from the USA, carried out stays at our University in the 2007/08 academic year and 423 did so in 2008/2009. The estimate for 2009/10 is 510 international students at Carlos III and 652 Universidad Carlos III students abroad.

The University systematically participates in international promotion fairs for students, and a program to recruit students from Asia, especially from China, is already underway. In terms of the logistics of receiving international students, the

University has a new Office for International Recruitment (OCAI) for students, as well as an international housing program for students (Student Residence Halls, the ALOJA project, the State Rental Agency-UC3M Agreement).

#### **d.4. International communications project.**

International Campuses of Excellence, orienting the University towards specialization and preparing it to compete with universities world-wide, will bring about greater mobility of students, teaching faculty and researchers. Therefore what is needed are communications plans, targeting qualified audiences on an international scale, including students who are well prepared for a demanding education, faculty with international experience and top researchers. The novelty of this university organizational model imposes new communications strategies in order to achieve recognition and to disseminate the advantages for all participants continuously, clearly and in the appropriate places. Thus the “Campus Carlos III” Communications Plan will be a highly valuable instrument to enable us to compete in the new educational environment of international universities. This plan is a dynamic process focused on excellence which therefore must have adequate evaluation tools and the necessary capability to adapt to the new requirements of the institution and the competitive environment.

The strategic objectives of the international communications plan for “Campus Carlos III” are:

- i) Planning communications about the Campus’ new organizational model to be carried in 3 phases:
  - International Presentation. For the first two years.
  - Consolidation. From year two to year four.
  - Project audit and redesigning.
- ii) Carrying out a study of the targeted audiences for the new offer of “Campus Carlos III”:
  - Quantitative segmentation by demographic and socioeconomic indicators and by level of education in the selected geographic areas: USA, Europe, Australia, and countries with emerging economies.
  - Comparative studies of high schools and universities in the world.
- iii) Development and application of a new visual and corporate identity for “Campus Carlos III”.

- Branding study, in which the beginnings of a new graphic identity are developed, paying attention to the corporate culture, vision and mission of the Campus and through comparative studies of the brand logos of the sector's leading institutions.
- Creation of a new brand, which must represent our University's values of excellence and internationalization. It will be in line with the best corporate designs and will be easily applicable. It will also have a manual of graphic identity, design, publication, and editing style, for its correct application in all media channels. Additionally, a follow-up protocol together with a permanent auditing system will be developed and applied, through an external branding agency.
- The corporate materials will embody the following principles:
  - Internationalization: systematic creation of bilingual (Spanish-English) materials with the option for them to be translated to other languages according to the needs of the project.
  - Prestige and excellence: this must be shown in the elegance and innovation of the graphic style and design.
  - Modernity: this must be patent in the creativity and the absolutely up-to-date graphic style.
  - Sustainability: it must use materials obtained by sustainable means and sustainable raw materials, accredited by international institutions through environmental audits.
  - Usefulness: investment in materials will be made according to how useful they are for the proposed purpose.

**iv) Designing a new international advertising strategy with International Communications agencies.**

To promote national and international awareness of "Campus Carlos III", branding and advertising campaigns on its educational offer will be carried out. The international media plan will especially value any media that targets possible opinion leaders: career and studies advisors and counselors, foreign university student associations, etc. Moreover, the publications and websites selected will be those that publish studies and research rankings, educational trips and stays, as well as ones specialized in the International university offer, such as that produced by NAFSA, the North American institution. Communication channels in English will be opened: websites, e-mail accounts

for personalized attention, newsletters, forums, etc., with audiovisual and multimedia content. Additionally, Internet SEO positioning and SEM campaigns with precise search engine, site and social network selection will be done on International Studies, science and specialized content within the areas of knowledge of “Campus Carlos III”.

Finally, advertising campaigns will be carried out in different media, such as press, radio and TV, as a reference in the areas with audiences that are of interest, and we will be present at fairs and media events in those countries. International communications agencies will collaborate to plan and develop informative and PR actions through their offices and correspondents in different locations around the world.

- v) Designing and creating internal communications actions to keep the University community informed about the progress of the Campus and to promote active participation in its development.
- vi) Coordinating the communications actions of the different University bodies (its Foundation, the institutes, etc. ) with the new academic and research proposals of “Campus Carlos III”.

The previous plan is completed by an online media proposal for an International promotion campaign of the Campus and can be seen at

[http://www.uc3m.es/portal/page/portal/inicio/campus\\_excelencia\\_internacional/informacion](http://www.uc3m.es/portal/page/portal/inicio/campus_excelencia_internacional/informacion)

**d.5. Professional placement of students.** The Carlos III Foundation plays a relevant role in the functioning of “Campus Carlos III”. One of the services that a campus of excellence must provide for its students is career guidance and assistance in the search for a job. The objective of the SOPP (Professional Guidance and Planning Service), which is run by the Universidad Carlos III Foundation, is to facilitate job placement and professional development for our students and graduates. To accomplish this, it provides services such as a Job Bank and internships, job training, an employment observatory and the job fair (Forempleo).

The SOPP has various studies at its disposal which highlight the high professional insertion rate of the University’s students.

Information about the SOPP activities and how it functions as well as the studies carried out on the professional insertion of students can be seen at:

<http://www.uc3m.es/portal/page/portal/fundacion>

#### **d.6. Physical and organizational environments centered on internationalization.**

“Campus Carlos III” already has the physical and organizational environments that favor internationalization. At the University’s Language Center, Spanish, English, Chinese, German, French and Japanese are taught. Additionally, Universidad Carlos III de Madrid acts as an official Center for Language Examinations in Spain (DELE, TOEFL and Cambridge First, Advanced and Proficiency) and has requested to be the headquarters for the Confucius Society for the teaching of Chinese. In December 2008 and in March 2009 two new spaces for self-directed language learning, associated with the libraries, were opened.

Since the 1999-2000 academic year, the University has successfully organized the Hispanic Studies course in collaboration with 9 highly prestigious U.S. universities. Over the last two years, 327 North American students have taken this course.

The University has an international housing program for students and faculty (Student Residence Halls, the ALOJA project, the State Rental Agency -UC3M Agreement) and recently the International Recruitment Office (OCAI), which is directly under the Vice-Chancellor for International Relations, has been created for students.

#### **e) Knowledge and technology transfer as a result of academic research for the business sector**

Knowledge transfer is one of the central activities in the “Campus Carlos III” approach. The University’s Science Park leads the activity at Technology Leganés Park, established by the Autonomous Region of Madrid, the Leganés City Council and “Campus Carlos III”. The principal strategic action in this area consists of developing the second phase of the Science Park in Leganés:

##### **e.1. Transfer and research results**

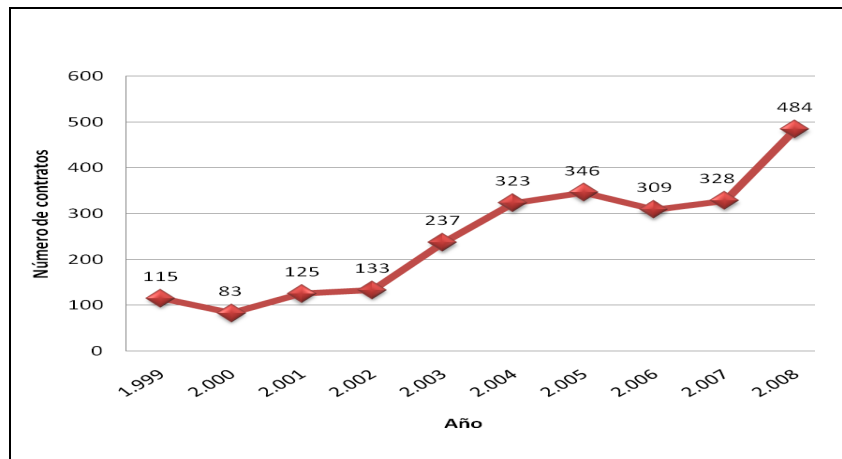
##### **e.2. Joint centers for technology transfer**

##### **e.3. Development of the second phase of the Science Park**

**e.1. Transfer and research results.** The research carried out at UC3M is frequently formalized through contracts, collective agreements or cooperation with public or private entities (coordinated research). These contracts mean obtaining of economic

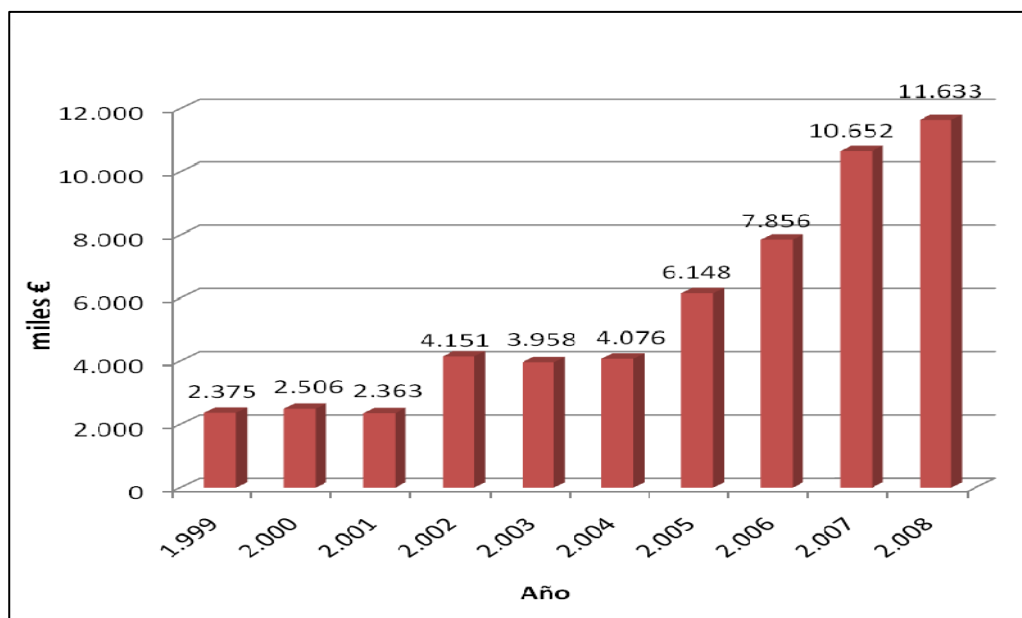
resources and facilitating knowledge transfer from the university world to the economic-social framework.

Total funding obtained by the University for research reached 35 million Euros in 2008, of which 36% correspond to contracts with outside entities. In terms of its progress, the growth of funding has been stable and steady throughout the years. In coordinated research, both in the number of signed contracts and in the funding obtained, growth has been observed. This reflects the confidence the socioeconomic environment has in our University's role as researcher and innovator.



(Number of contracts/Year)

Annual progress of the number of contracts obtained.

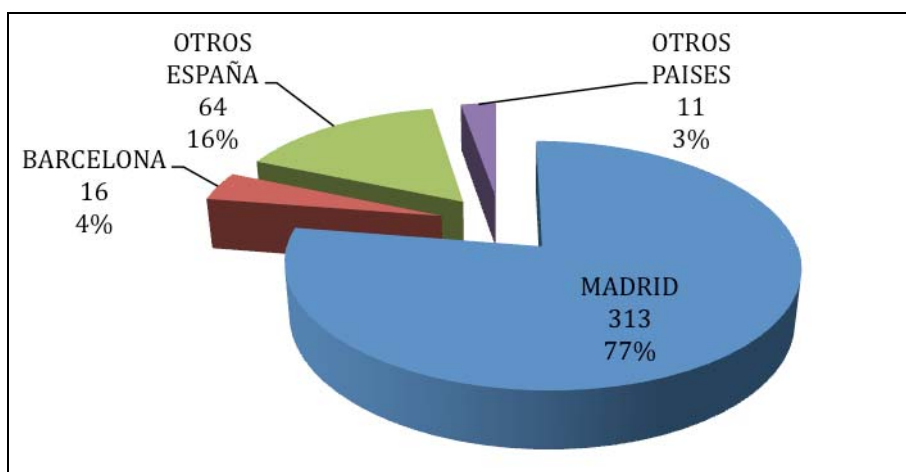


(thousands €/year)

Annual progress of funding obtained from outside entities.



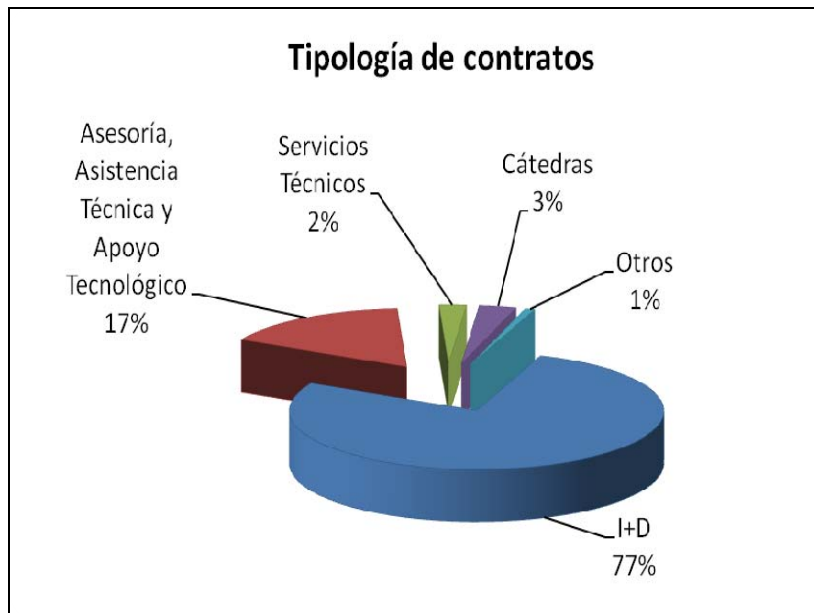
The majority of the companies that UC3M collaborate with are located in the areas surrounding the University, that is, in the municipalities of Madrid, Getafe and Leganés, and in other towns in the Autonomous Region of Madrid. The University also has contracts with institutions from other areas of Spain and from other countries. The following chart shows the distribution of collaboration with the business sector by location.



(OTHERS in SPAIN) (OTHER COUNTRIES)

*Distribution of the companies with which UC3M collaborates (Data from 2005-2008)*

The objective of most contracts signed by the University is to carry out R+D+I projects (77%). The following chart shows contract distribution by type in 2008:



**(Type of contracts)**

(Consulting, Technical assistance and Technological support 17%)

(Technical Services 2%)

(Chairs 3%)

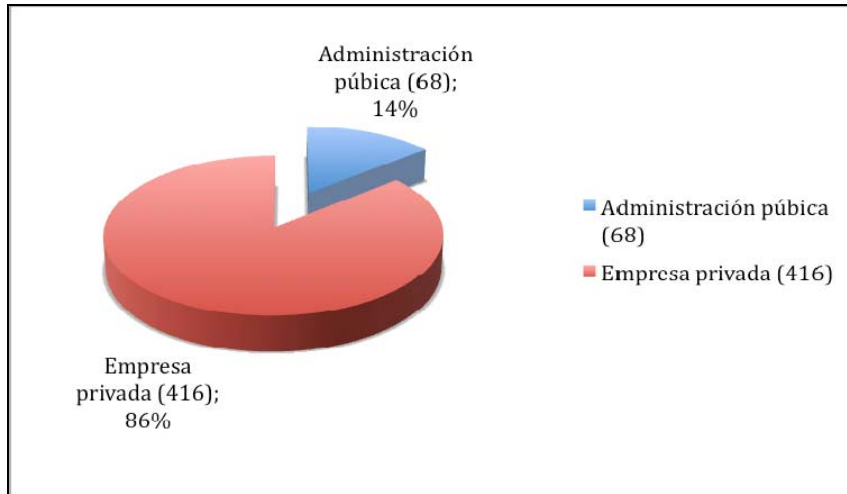
(Others 1%)

(R+D 77%)

Through the research chairs, a permanent relationship has been established between the University and Business to strengthen a field of interest to both parties. Currently, there are 24 research Chairs at the University. At the following Internet address information on the research Chairs can be seen:

[http://www.uc3m.es/portal/page/portal/investigacion/nuestros\\_investigadores/catedras](http://www.uc3m.es/portal/page/portal/investigacion/nuestros_investigadores/catedras)

Contracts are signed with both private and public entities. In 2008 86% of the contracts signed were with private entities and 14% were with public administrations:



(Private company 86%)

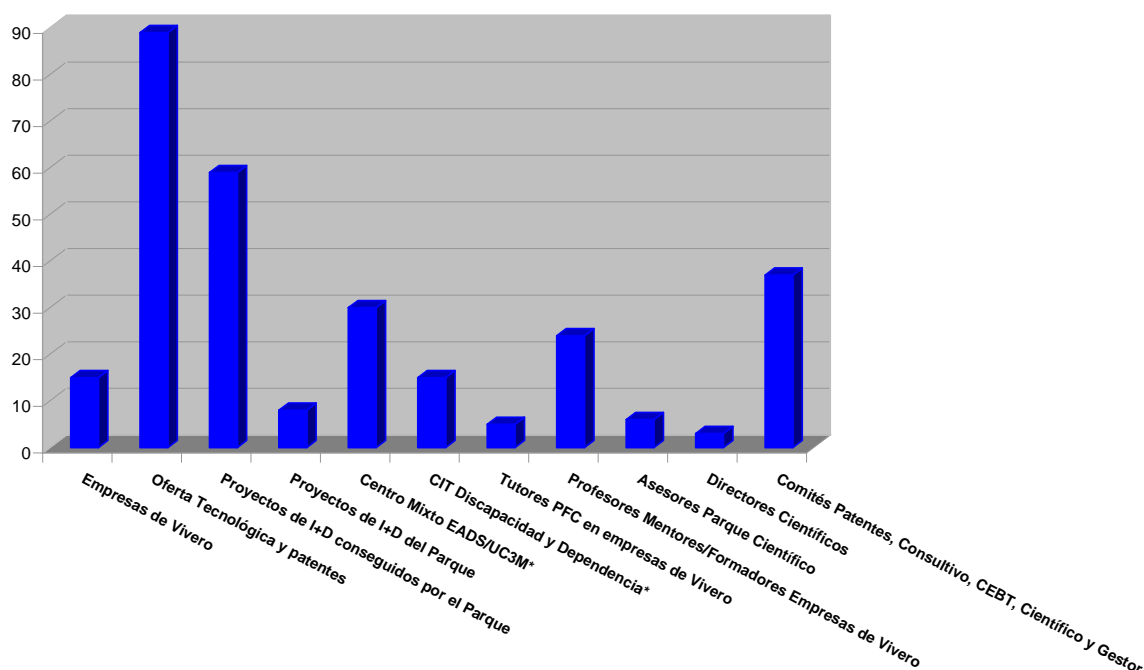
(Public Administration 14%)

At the same Internet address there is a [list of the companies that had signed agreements with Universidad Carlos III Carlos III in 2008](#). It indicates the department collaborated with and the funding of the project or the pending project.

From its beginning, the UC3M Science Park's principal objective has been to bring companies and research together so as to substantially increase technology transfer. Obviously, to achieve this objective, it has been necessary to involve our faculty in the Science Park's diverse activities and to commit to new paths of transfer which this University/Company interaction has favored.

In the attached chart the number of Science Park collaborators can be seen, according to the different activities they carry out there:

Número de Profesores que colaboran con el Parque según actividad



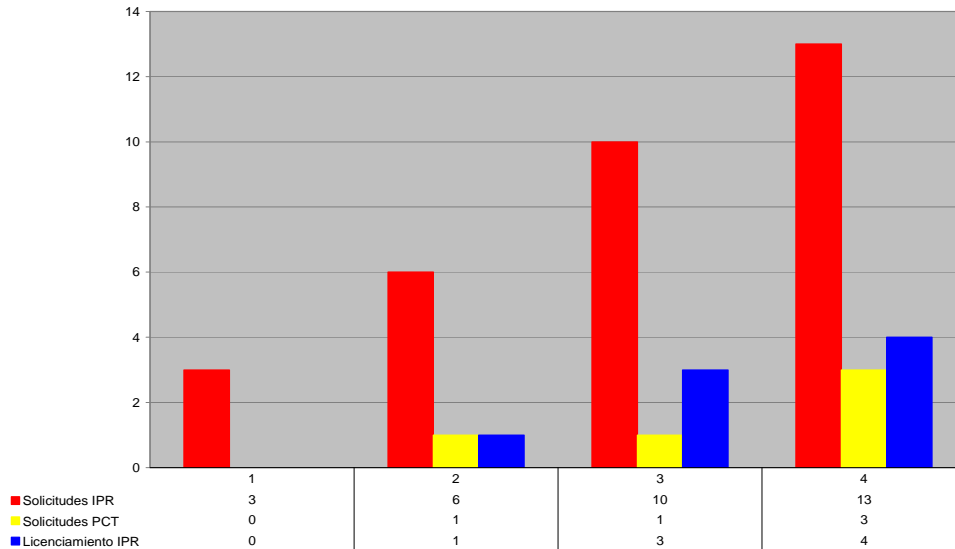
Number of Faculty Members who collaborate with the Park by activity

*Start up companies in business incubator, Technological and patent offered, R+D projects obtained by the Park , Park R+D projects, EADS/UC3M Joint Center, CIT Disability and Dependence, Final Undergraduate Project tutors in start up companies in the business incubator, Faculty Mentors/Trainers in start up companies in Business Incubator, Science Park Advisors, Science Directors, Committees on Patents, Consulting, CEBT (Creation of Technology Based Enterprises) Science and Management*

It is currently estimated that 291 faculty members collaborate at the Science Park. That represents 29% of Universidad Carlos III's full time faculty.

The progress of patents over the last few years is shown on the following chart for the 2006-2009 period:

- No. of software patent and registration requests (IPR)
- No. of international patent requests (PCT)
- No. of patent licenses and software registrations



(IPR Requests)  
(PCT Requests)  
(IPR Licensing)

### Criteria of temporary grouping

Percentage rate progress of IPR			
2006	2007	2008	2009
100 %	100%	67%	30%

### e2.Joint Technology Transfer Centers

- EADS-UC3M Aerospace Systems Integration Center (Centro de Integración de Sistemas Aeroespaciales EADS-UC3M).

The Joint Aerospace Systems Integration Center is a joint project involving EADS, Universidad Carlos III, private companies and other social agents whose aim is to give impulse to processes of innovation and the generation and transfer of knowledge and technology in the aerospace sector.

Activities are centered on: Technological Research and Development, Technology Services (audits, forecasting and surveillance, etc.), Mapmaking and the making of Technological Plans, Analysis Services, certification, technological testing and

assessment, Dissemination and transference of technology, made-to-measure sector training and Support for the generation of Technology-based companies.

In order to do this, the center has at its disposal the infrastructure offered by the University laboratories as well as its own specific laboratories which are located in the Science Park: the testing of identification systems and smart cards laboratory, the computer security laboratory the communications systems laboratory and the spectral sensors and payload testing laboratory.

- Disabilities and Dependency Center

The Center's principal mission consists of identifying new lines of research relating to technologies which concern wellbeing and health and generating scientific and technological knowledge in this area for the creation and development of technical support, services and innovative technological solutions which contribute to improving the situation of disabled and/or elderly persons who are dependent on others. To achieve these aims, it was necessary to form a multidisciplinary team of professionals from the fields of law, engineering and audiovisual communication, among others.

Activities are centered on research into devices, sensors and support products, the training of sector professionals and the integration of market solutions to produce support systems and services for special needs persons.

In order to do this, the center has three laboratories: an audiovisual accessibility laboratory, an assistive technologies laboratory and an assistive robotics laboratory.

The project was initially articulated according to defined lines of activity resulting from working conferences held jointly between the University, Users' Associations, Businesses and Government Bodies.

- Spanish Center for Sub-titling and Closed-Captioning (*Centro Español de subtitulado y audiodescipión* (CESyA)).

The Spanish Center for Sub-titling and Closed-Captioning was created in 2005 as a center which depended on the Royal Board on Disability (*Real Patronato sobre Discapacidad*), led by Universidad Carlos III and with the participation of the CERMI (The Spanish Committee of Representatives of People with Disabilities). The aim is to facilitate accessibility to audiovisual means and situations for persons with disabilities. It is a nation-wide technical center in audiovisual matters as is recognized in the law governing sign language and support measures for oral communication and in the cinema law.

Activities are centered on research, training, raising social awareness, normalization and the creation of a database of subtitled and audio-described material.

In order to do this, the center has its own facilities in the science park and uses the accessibility to TDT laboratories and those of the Disability and Dependency Center.

### **e.3. Development of the Second Phase of the Science Park.**

The Universidad Carlos III Science Park was created with the aim of its activity being related both with the business network within its catchment area and with the University's own areas of excellence, so that the results of academic research would be transferred to the business sector.

The Park has, as specific missions:

- The transfer of knowledge, technology and research results from the University to industry (cooperative projects, IPR licensing, the creation of technology-based companies and the creation of Joint Centers for Innovative Technology).
- Detecting and transmitting to the University the demands and future technological needs of industry, in order to incorporate them on to the University's future research agenda.

The Universidad Carlos III Science Park leads the scientific area of the LEGANÉS TECNOLÓGICO, which has the backing of the Autonomous Region of Madrid, Leganés City Council and Universidad Carlos III. The companies which are established in the Park were selected according to a set of indicators developed by the Universidad Carlos III whose aim is to encourage companies that stand out from the rest owing to their technological know-how and commitment to innovation.

## Urban Planning Description Leganés Tecnológico



Phases	Total Surf. Area	Total Plot Ratio	Scientific University	Scientific Business	Low-density Indust. Use	High-dens. Indust. Use	Tertiary Commerc.
1º Phase	507.374	263.949	20.406	57.674	149.559		56.716
2º Phase	636.462	279.256	Por determinar	46.549	102.307		130.401
3º Phase	1.661.042	740.893	Por determinar	80.186	146.678	187.511	326.518
<b>Total Project</b>	<b>2.804.878</b>	<b>1.284.098</b>	<b>20.406</b>	<b>184.409</b>	<b>398.543</b>	<b>187.511</b>	<b>513.635</b>

This is a long-term project whose aim is the construction of a set of buildings where the principal activity will be technology transference. Those buildings presented in this project constitute Phase II, now that Phase I is complete, fully functioning and with full occupation of the buildings.

The main body of the buildings was designed by means of a repetitive system of blocks of approximately 1,000 square meters joined by a buffer zone acting as a link between the modules. This buffer zone has various functions. For one part it is the communication and services axis, which makes the organization of both easier, and it also allows for other uses such as that of a meeting point, a place to relax etcetera.

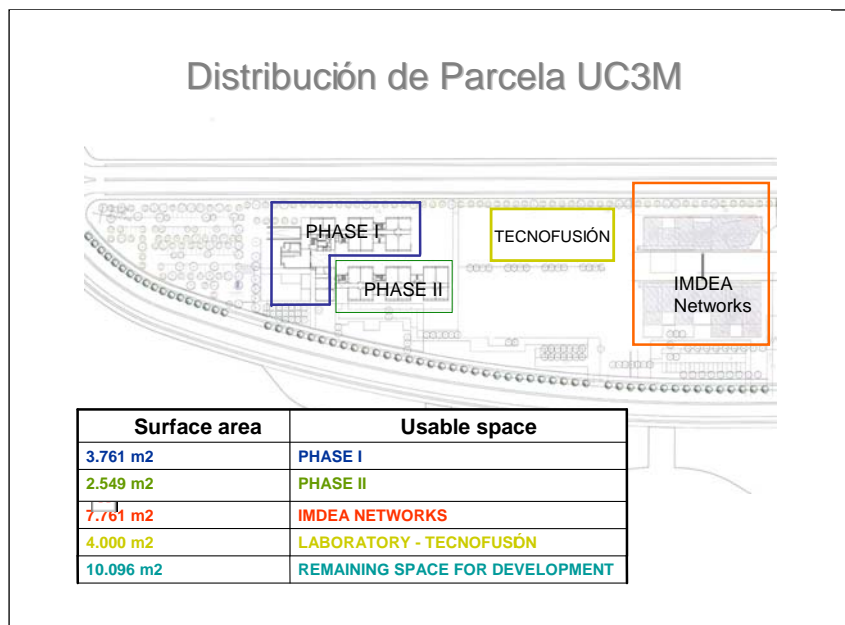
From a horizontal perspective, the north bay is made up of three modules, with a depth of 3.3 and 2.2 square meters, while the south bay consists of four modules of the same dimensions. This layout provides a better composition of premises of different sizes, thus favoring a wide range of modules which, to meet the needs of growth of companies in the business incubator, range in size from 20 to 110 square meters.

Seen from above, the organization of the body of the workshops and the business incubator, which is repeated on all three floors, varies where their use is concerned:



- Ground floor: Heavy laboratories both for RDI and for companies in a process of incubation.
- First and Second floors: Light laboratories and offices.

Following is the layout of the SC1 plot which has been assigned to the “Campus Carlos III” by the Leganés City Council.



UC3M Plot Layout

In February 2009 part of the Science Park’s activity was moved from a provisional University building in Leganés to the UC3M Phase I Science Park Central Building. Currently almost all of the building’s 3,761 square meters are occupied, as follows:

<b>Technology-based Companies</b>	<b>9 (14 offices from 20 to 110 m<sup>2</sup>)</b>
UC3M/EADS Joint Center	4 laboratories
CIT Disabilities and Dependency Center	3 laboratories

Technology-based Companies	3 laboratories
Hispano-Japanese Robotics Center	1 (currently being set up)
Joint Sustainability Center	1 (currently being set up)
Spanish Center for Sub-titling and Closed-Captioning (CESyA)	2 offices
Science Park Personnel (19 people)	7 offices
Science Park Administration	2 offices
Leganés Tecnológico offices	2 offices
Auditorium, meeting rooms, cafeteria and other facilities	



*Images of the central building of the University Carlos III Science Park (Phase I)*

### ***New Infrastructure: Phase II***

Owing to lack of space, the following infrastructures and companies remain in the building which was occupied provisionally:

Pre-incubation	<p>A common space for pre-incubation activities. The following business projects are at the pre-incubation stage:</p> <ul style="list-style-type: none"> <li>○ Daureos</li> </ul>
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	<ul style="list-style-type: none"> <li>○ Diviresca</li> <li>○ Go Optimizaciones Fotovoltáicas</li> <li>○ EUDAP, Engineering and Services</li> <li>○ H2O solutions, treatment ofsewage water</li> <li>○ <b>Avanzis – Small-project engineering</b></li> </ul>
Campus of the Entrepreneur	A space for the creation and development of companies based on non-technological knowledge.
Non-TBC Companies	A space that provides accommodation for non-TBC companies. Three new companies are currently being assessed for admission.
TBC Companies	<p>There are four companies which have been given approval and are in the incubation stage but which are based outside the Science Park central building owing to lack of space. They are:</p> <ul style="list-style-type: none"> <li>○ Clustermind</li> <li>○ Sun2Market</li> <li>○ Capital Certainty</li> <li>○ Betatick, S.L.</li> </ul> <p>The Business Plans of eight entrepreneurial ideas are currently being developed. Three of them presented their applications in September 2008.</p>

Apart from the above, there are other needs for additional space to be taken into consideration:

- The eventual growth of the companies which are currently at the incubation stage in the central building of the Science Park.
- The consolidation of the Hispano-Japanese Robotics Center.
- The consolidation of the Joint Sustainability Center.
- The development of the new RTD Centers in the transport and economics fields which will require additional space and are currently under consideration.

The second phase of the Science Park can be seen at the following address:

[http://www.uc3m.es/portal/page/portal/inicio/campus\\_excelencia\\_internacional/informacion](http://www.uc3m.es/portal/page/portal/inicio/campus_excelencia_internacional/informacion)

## **f) Interaction between the Campus and the community at large**

Since it was first established, Universidad Carlos III has given a great impulse to the community at large in its surrounding area. The “Campus Carlos III” project aims to continue extending this interaction with the community at large and to project its activity into an even wider field. The fundamental lines of action included in this point are:

- f.1. University for Older Students (over 55)**
- f.2. Urban Campus. Sports complexes in Getafe and Leganés.**
- f.3. Foreempleo (employment fair).**
- f.4. Equality Unit.**
- f.5. University Cooperation for Development.**
- f.6. Cultural Activity in the Student Residence Halls.**

The interaction between “Campus Carlos III” and the community at large reaches an ever-wider field. Firstly and most immediately are the University for Older Students and the campus, which is integrated into the urban fabric of Getafe and Leganés. A little further afield, Foreempleo acts as a jobs fair throughout the Autonomous Region of Madrid. Lastly, the university cooperation for development is a project without frontiers and is global in scope.

From a quantitative point of view, the university has numerous on-going agreements with businesses and institutions. The full list may be seen at:

[http://www.uc3m.es/portal/page/portal/inicio/campus\\_excelencia\\_internacional/informacion](http://www.uc3m.es/portal/page/portal/inicio/campus_excelencia_internacional/informacion)

### **f.1. University for Older Students.**

One of the University’s projects which has had a great social impact, is the “University for Older Students” program, which began in 2000. This program was set up in collaboration with the IMSERSO (a government body, dependent on the Health and Social Policy Ministry, which provides social services for the elderly) and the Autonomous Region of Madrid, and offers courses of great academic quality. Since it was set up more than 2,588 students over the age of 55 have attended courses. Surveys carried out among students following the program show a high degree of satisfaction.

There is more information about the University for Older Students at the following address:

<http://www.uc3m.es/programaparamayores>

### **f.2. Urban Campus. Sports Complexes in Getafe and Leganés.**

The Campus projected in this proposal is open to the community at large. The urban Campuses in Getafe and Leganés have a good number of squares with benches and other features, which are open to the public.

As was described in section c7), where this can be seen in detail, the swimming pool project in Getafe is to be open to local residents. The same idea is the basis of the sports center which is projected for Leganés and which is being developed in collaboration with Residents Associations. This may be seen as a symbol of the interaction with the community at large that the “Campus Carlos III” aims to achieve.

### **f.3. Forempleo.**

This is one of the fundamental tools for interaction between the “Campus Carlos III” and its community at large and it consists of the Orientation and Professional Planning Service (Servicio de Orientación y Planificación Profesional, or SOPP in its Spanish initials), dependent on the Carlos III Foundation and which appears in section c), and its “Forempleo” jobs fair, which helps with first job placements. It is held annually and is a meeting point between university students seeking their first job and companies which are looking to hire the best professionals. The fair enjoys great prestige, both regionally and nationally.

The last edition held, Forempleo 2008 (the XIII edition) was a great success with 130 companies from different sectors attending, 134 stands and around 12,000 students. It also received very positive feedback both from students and the participating companies.

From the feedback sent by the participating companies, the most outstanding aspects were the working breakfasts and the conferences, as well as the quality of the curricula presented during the event. In the opinion of the visitors, what was most valued were the mass publications distributed to the students, recent graduates and visitors to the fair, and the possibility of leaving their Curriculum Vitae at the stands of all of the companies which attended this ‘date’ with the first job. The visitor profile was as follows:

- Average age, 22.
- Men 65% / Women 35%.
- 67% were students, 33% were graduates.
- Visitors from outside the Madrid Autonomous Region: 20%.
- Preferred sectors to work in: Energy (13.9%), I.T. (13.7%), Construction and Real Estate (12.9%) and Advertising and Marketing (9.5%).

Numerous companies participated in the event: ABB, Abbott, Abengoa, Accenture, Acciona, Air Liquide, Allianz Seguros, Alstom, Alten, Altran, Applus+, Araoz & Rueda Abogados, Atos Origin, Attest Consulting, Aubay, Axa Seguros e Inversiones, Baker & Mckenzie, Banco Espirito Santo, Banco Guipuzcoano, Banco Pastor, Banco Santander, Banesto, Bankinter, Barclays, BBK, BBVA, BDO Audiberia, Bombardier Transportation, Bosch, Bricomart, British American Tobacco, Caixa Galicia, Caixanova, Caja de Burgos, Caja España, Caja Madrid, Cap Gemini, Carat, Centro de Estudios Financieros, Cepsa, Cetelem, CGI, Citi, Codere, Colegio Oficial de Ingenieros Industriales de Madrid, Consejería de Empleo y Mujer. Servicio Regional de Empleo, Coritel, CSC, Cuatrecasas Abogados, Cumbria Consulting, Decathlon, Deimos Group, Deloitte, Día, EADS, Endesa, Entidad Pública Empresarial Red.es, Ericsson España, Ernst & Young, Everis, Ferrovial, Fluor, Foster Wheeler Energía, Gamesa, Garrigues Abogados y Asesores Tributarios, Gestamp Automoción, GFI Informática, GMV, Gómez Acebo & Pombo Abogados, Grupo Anaya, Grupo Bergé, Grupo L'Oréal España, Grupo Ormazabal, Grupo Schibsted, Grupo SOS, Grupo Tragsa, Hay Selección, HP, Iberdrola SA e Iberdrola Ingeniería y Construcción, Ibermática, IBM, Indra, Ineco-Tifsa, ING Direct, INSA, Intecsa Ingeniería Industrial e Initec-Energía, Isolux Corsan, IT Deusto, Kiabi, KPMG, Legalia Abogados, LG, Lidl, Lovells, Management Solutions, Manpower, MAPFRE, Meta 4, Ministerio de Trabajo e Inmigración, Neoris, NH Hoteles, Oracle, Perez-Llorca, Philips Ibérica, Pricewaterhousecoopers, Procter & Gamble, Psicotec, Ramón & Cajal Abogados, Randstad Work Solutions, Red Eléctrica de España, Repsol, Sadiel Tecnologías de la Información, Saint-Gobain, Satec, SDF Ibérica, Siemens, Steria Ibérica, Systems Niscayah, TecnoCom Telecomunicaciones y Energía, Telefónica I+D, Tetra Pak, Thales Information System, T-Systems, Uría Menéndez Abogados, VASS, Veolia Environnement, Vodafone, Ydilo AVS.

#### **f.4. Unidad de Igualdad (Equality Unit).**

In September 2008 the Office of the Vice-Chancellor for Equality and Cooperation and the Equality Unit, dependent on the Vice-Chancellor's Office, were set up. The University now has an Equality Commission and the Equality Unit now has its own web page.

The first *University Carlos III Equality Plan* is currently being drawn up along with the diagnostic system for identifying possible inequalities. Concerning teaching in this area, the University offers 20% of the Master's in Gender Equalities Studies, which is organized by the Menéndez Pelayo University and the Spanish National Research Council (*Consejo Superior de Investigaciones Científicas*, CSIC in its Spanish initials). Also at the project stage is the creation of an Audiovisual School for special needs persons in collaboration with the Antena 3 Foundation.

The "Campus Carlos III" projects in this area are:

- The implanting and execution of the first Equality Plan.
- An international conference, to be held in Córdoba in October, on the protection of the elderly, disability and inequalities, organized by the University of Córdoba in Collaboration with the Institute for the Development and Analysis of Family Law in Spain (*Instituto para el desarrollo y análisis del Derecho de familia en España*, IDADFE in its Spanish initials), Universidad Carlos III and the Regional Government of Andalusia.
- Gender Violence Week. November 2009.
- Conference on Disability. December 2009.
- No Spanish University has a gender violence observatory. The project is to include in the Equality Plan a protocol for harassment and measures against gender violence, defining institutional measures against, sexual aggression or other types of gender violence. These policies will establish the design, implementation and evaluation of programs and plans of action which will include training and the raising of awareness.
- Equally, as short-term action, following the model of universities such as, for example, Pennsylvania, Columbia or Harvard, the creation of a service for counseling, reporting and resolution of gender violence-related conflicts.

Details of actions already taken and that are to be taken concerning equality and gender violence in the "Campus Carlos III" project can be seen at the following address:

[http://www.uc3m.es/portal/page/portal/inicio/campus\\_excelencia\\_internacional/informacion](http://www.uc3m.es/portal/page/portal/inicio/campus_excelencia_internacional/informacion)

#### **f.5. University Cooperation for Development Unit (OCUD).**

Cooperation for Development in the "Campus Carlos III" proposal is channeled via the University Cooperation for Development Office (*Oficina de Cooperación Universitaria al Desarrollo*, OCUD) which was set up recently. Its main objective is to

foster action taken by “Campus Carlos III” as an active and independent agent in cooperation for development: training and raising awareness, inter-university cooperation, cooperation projects, technical assistance and international volunteering, getting the university community involved in these activities.

The Office of the Vice-Chancellor for Equality and Cooperation works in a network with the other public universities in Madrid. The Cooperation and Development Commission of the Conference of Madrid University Rectors (*La Comisión de Cooperación y Desarrollo de la Conferencia de Rectores de las Universidades de Madrid*, CRUMA) has set in motion various joint initiatives:

- Volunteering (the University Volunteers Network in the Sahrawi refugee camps in the Western Sahara).
- Channeling emergency aid (an agreement between the Red Cross and the public universities of Madrid for humanitarian crises). This agreement foresees the creation of a fund for emergency aid which is activated by an agreement between both parties and is channeled via the Red Cross.
- Cooperation, with the signing of Framework Collaboration Agreements between the Government of the Autonomous Region of Madrid and the Madrid Universities for cooperation for development.

Future projects for this office are:

1. Drawing up the “Campus Carlos III” Strategic Cooperation Plan, which will prioritize health, culture, the role of women, respect for local knowledge, the improvement of science and technology systems and those of education and training.
2. A conference to raise awareness about African reality (three cycles, with Humanities credits awarded) and the presentation of the new Plan Africa.
3. Exhibition and presentation conference of the Project Togo.
4. IV Solidarity Week.
5. A ten-hour training course for volunteers.
6. Fostering dialogue between Development NGOs, foundations and other bodies which work in Cooperation for Development.
7. The design and implementing of the University’s own volunteer program.
8. Collaboration in the setting up of the Tindouf Library.
9. Support for the creation of the Oaxaca Technology Park (Mexico).
10. A conference for the presentation of cooperation and volunteer projects supported by Universidad Carlos III.



There are more details about the “Campus Carlos III” University Cooperation for Development project at the following address

[http://www.uc3m.es/portal/page/portal/inicio/campus\\_excelencia\\_internacional/informacion](http://www.uc3m.es/portal/page/portal/inicio/campus_excelencia_internacional/informacion)

**f.6 Cultural Activities in the Student Residence Halls.** In the student residence halls there is a wide-ranging program of cultural activities which helps to complete the students’ education and to disseminate culture in the community at large. The program is structured, basically, along two lines: conferences and complementary activities.

The conferences concern a great range of themes such as social problems, economics, sports, science and research, literature, foreign policy and climate change.

The complementary activities include, fundamentally, three areas: sports, culture and solidarity (film, magazines, photography, exhibitions, intercultural conferences, languages, concerts, theatre etc.).

# III. Financial assessment and four-year planning

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## **Sub-program of Development and the Specification of a Strategic Plan of Feasibility and Conversion to International Campus of Excellence.**

Following is an estimation of foreseen costs for the specific actions proposed. Carlos III University does not currently have at its disposal the funding necessary to make these investments, nor are there any agreements in place for the necessary loans. For that reason, the information given here should be considered an approximate estimate of the resources needed, along with a tentative calendar for the execution of the projects. The amounts are expressed in thousands of Euros.

The summary of what has been requested can be seen in the following table:

	<b>2009</b>	<b>Period 2010-2012.</b>	<b>Total</b>
<b>Action num. 1</b>	2,484	33,976	36,460
<b>Action num. 2</b>	2,500	11,000	13,500
<b>Action num. 3</b>	1,244	6,014	7,258
<b>Action num. 4</b>	1,234	1,817	3,051
<b>Action num. 5</b>	1,650	7,112	8,762
<b>Action num. 6</b>	3,041	2,500	5,541
<b>TOTAL</b>	<b>12,153</b>	<b>62,419</b>	<b>74,572</b>

Following is a presentation in greater detail of each action to be taken. In the same way, each case is accompanied by a summary of each investment, the possible need for complementary investments, the estimated annual maintenance cost, where applicable, and the foreseen amortization rate.

<i>Action num.</i>	<b>1</b>
<i>Title</i>	<b>New Center for Postgraduate Studies Building.</b>
<i>Description</i>	<b>The construction of a new building in the Getafe hub to house, among other things, the new “Campus Carlos III” Postgraduate Center.</b>
<i>Priority</i>	<b>1</b>
<i>Current situation</i>	<b>Currently out to tender, to be concluded in the autumn of 2009.</b>
<i>Timescale</i>	<b>2008 – 2012</b>

<b>Budget</b>	<b>Carried out in 2008</b>	<b>2009</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>	<b>Total</b>
<b>Investment</b>	0	2484	8916	8761	16299	<b>36460</b>

<i>Investment details</i>	<p>The new Center for Postgraduate studies building will have a total of 19,224.96 m<sup>2</sup>, 11,316.96 m<sup>2</sup> above ground level and 7,908 m<sup>2</sup> below ground level. Of the total above ground level there will be 8,706 usable m<sup>2</sup> distributed as follows:</p> <p>21 classrooms which will occupy 1,680 m<sup>2</sup> and will have the capacity for 1,240 students.</p> <p>Offices for teaching and research staff will take up 2,283 m<sup>2</sup>.</p> <p>The spaces given over to meeting rooms, administrative offices, and areas for administrative personnel and University services will take up 755,36 m<sup>2</sup>. As well as this there will be a library with 3,987 m<sup>2</sup>.</p>
<i>Need for additional complementary investment</i>	NO
<i>Estimated annual maintenance costs (€K)</i>	904

<i>Action num.</i>	<b>2</b>
<i>Title</i>	<b>New Student Residence Halls</b>
<i>Description</i>	<b>The construction of a new Residence Hall for students and teaching staff on the Getafe Campus.</b>
<i>Priority</i>	<b>1</b>
<i>Current situation</i>	<b>Preliminary study carried out.</b>
<i>Timescale</i>	<b>2010 – 2012</b>

<b>Budget</b>	<b>Carried out in 2008</b>	<b>2009</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>	<b>Total</b>
<b>Investment</b>		2500	2000	5000	4000	<b>13500</b>

<i>Investment details</i>	We propose a building with 10 double and 300 single rooms, as well as six adapted for persons with special needs, 330 m <sup>2</sup> for common study areas, 500 m <sup>2</sup> for cultural spaces, 120 m <sup>2</sup> for sports and games, and more than 2,500 m <sup>2</sup> for other common services, 1,600 m <sup>2</sup> for parking space and 4,300 m <sup>2</sup> of landscaped outside areas.
<i>Expected return on investment</i>	It is considered that it will be fully-functioning from the second year of its completion, generating some €350,000 annually before interests and repayments.
<i>Need for additional investment</i>	Buildings constructed on the plot which are not foreseen in the budget.
<i>Amortization rate foreseen for the building (€/annum)</i>	270
<i>Observations</i>	

<i>Action num.</i>	<b>3</b>
<i>Title</i>	<b>Second phase of the Science Park</b>
<i>Description</i>	<b>A new building for the pre-incubation areas, non-technology-based companies and the Campus of the Entrepreneurs (<i>Campus del Emprendedor</i>) and for the extension of the technology-based companies' area.</b>
<i>Priority</i>	<b>1</b>
<i>Current situation</i>	<b>The architectural project has been finalized and approved by the Government of the Autonomous Region of Madrid and planning permission has been applied for.</b>
<i>Timescale</i>	<b>2009 – 2011</b>

<b>Budget</b>	<b>Carried out in 2008</b>	<b>2009</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>	<b>Total</b>
<b>Investment</b>	<b>12</b>	<b>1232</b>	<b>4275</b>	<b>1639</b>	<b>100</b>	<b>7258</b>

Of the total investment made, €1.1m is to be spent on equipment.

<i>Investment details</i>	The second phase of the Science Park has 2,549.73 m <sup>2</sup> built above ground level, of which 2,485.06 m <sup>2</sup> are usable, and 1,056.74 m <sup>2</sup> of surface below ground level, of which 988.88 m <sup>2</sup> are usable.
<i>Need for additional complementary investment</i>	NO
<i>Estimated annual maintenance cost (€K/annum)</i>	124€
<i>Amortization rate foreseen for the building (€K/annum)</i>	154 (2.49% annually) as of 2012.
<i>Observations</i>	The Leganés City Council assigned the SC1 plot, of 20,406 m <sup>2</sup> , to Carlos III University, on which Phase I has already been built and which will house Phases II and III.

<i>Action num.</i>	<b>4</b>
<i>Title</i>	<b>Biology and Biochemistry laboratories.</b>
<i>Description</i>	<b>Setting up of the Biology and Biochemistry laboratories, to be functioning in 2010 for the new Undergraduate Degree in Biomedical Engineering.</b>
<i>Priority</i>	<b>1</b>
<i>Current situation</i>	<b>Project under way.</b>
<i>Timescale</i>	<b>2009 – 2012</b>

<b>Budget</b>	<b>Carried out in 2008</b>	<b>2009</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>	<b>Total</b>
<b>Investment</b>	0	1234	906	906	5	<b>3051</b>

<i>Investment details</i>	For the new Undergraduate Degrees in Aerospace Engineering and Biomedical Engineering, 1,330 m <sup>2</sup> currently used for storage will be refurbished.  After refurbishing work is completed a usable surface of 958 m <sup>2</sup> will be available, distributed as follows: two laboratories of 150 m <sup>2</sup> , 18 offices for teaching and research staff (368 m <sup>2</sup> ) and four classrooms occupying 440 m <sup>2</sup> .
<i>Need for additional complementary investment</i>	<b>NO</b>
<i>Estimated annual maintenance cost (€K/annum)</i>	72 €
<i>Amortization rate foreseen for the building (€K/annum)</i>	Insignificant.
<i>Observations</i>	

<i>Action num.</i>	<b>5</b>
<i>Title</i>	<b>Adaptation of the Campus to sustainable development and accessibility.</b>
<i>Description</i>	<b>The drawing up and carrying out of a sustainable mobility Plan, an energy efficiency Plan and a total accessibility Plan to eliminate architectural barriers and improve accessibility for special needs persons in current and future Campus infrastructures.</b>
<i>Priority</i>	<b>1</b>
<i>Current situation</i>	<b>Currently out to tender and design bid awarded.</b>
<i>Timescale</i>	<b>2008 – 2012</b>

<b>Budget</b>	<b>Carried out in 2008</b>	<b>2009</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>	<b>Total</b>
<b>Investment</b>		1650	3632	1480	2000	<b>8762</b>

<i>Investment details</i>	<p>A large solar energy installation, of approximately 2,000 m<sup>2</sup>, will be developed, providing 100KW of energy in its initial phase.</p> <p>As a result of the improvements already made, savings in energy of 180,000 KW/h have already been achieved.</p> <p>Work carried out or under way to improve access to the Campuses and University buildings. Adaptation of classrooms, bathrooms, the construction of 12 access ramps, the installation of three elevators to provide access for special needs persons to three buildings, automatic access doors, adapted rooms in Residence Halls.</p>
<i>Need for additional complementary investment</i>	Yes.
<i>Estimated annual maintenance cost.</i>	Not applicable.
<i>Amortization rate foreseen (€K/annum)</i>	Not applicable.
<i>Observations</i>	Some of these improvements have already been carried out since the year 2000.

<i>Action num.</i>	<b>6</b>
<i>Title</i>	<b>Modification of Campus infrastructures to adapt them to the EHEA model.</b>
<i>Description</i>	<b>Remodeling of classrooms to adapt them to the new model. Included are: adaptation of size, new furniture, electrical connectivity and the distribution of audiovisual equipment.</b>
<i>Priority</i>	<b>1</b>
<i>Current situation</i>	<b>Project begun in the summer of 2008, with successive phases to be carried out during the summers until 2011.</b>
<i>Timescale</i>	<b>2008 – 2011</b>

<b>Budget</b>	<b>Carried out in 2008</b>	<b>2009</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>	<b>Total</b>
<b>Investment</b>	650	2391	1700	800		<b>5541</b>

<i>Investment details</i>	In 2008 a total of 26 classrooms were remodeled, 12 on the Getafe Campus, eight on the Leganés Campus and six on the Colmenarejo Campus.  In 2009 a total of 31 classrooms were remodeled, 22 on the Getafe Campus and nine eight on the Leganés Campus.
<i>Need for additional complementary investment</i>	NO
<i>Estimated annual maintenance cost</i>	Not applicable.
<i>Amortization rate foreseen</i>	Insignificant.
<i>Observations</i>	Insignificant.



## IV. R+D+i Actions

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### Subprogram for Research, Development, Technological Innovation and Transference

#### 1. Strategic research programs

Carlos III University of Madrid is made up of twenty-six departments and three centers (The School of Law and Social Sciences – Economics, Business studies, Statistics, Law, Political science and Sociology, School of Humanities, Communication and Documentation – Humanities, Journalism, Audiovisual Communication and Documentation, and the School of Engineering – Civil Engineering, Information Technology and Telecommunications), where 510 full-time tenured professors work. In these departments 118 research groups carry out their different activities, in compliance with the strategic plans and the top-priority sectors of the National R+D Plan 2008-2011. The fundamental and strategic guidelines of the “Campus Carlos III” project, the research lines included in them and the sectors and actions in which Universidad Carlos III de Madrid has significant capabilities.

The **fundamental strategic guidelines** for the development of the “Campus Carlos III” for International excellence are the following:

- **Law in the Knowledge Society: Fundamental Rights, International Law, Environmental and Global Law.**
- **Business and Economics in the Global Knowledge Society.**
- **Humanities in the 21st Century and their relationship with Technology and Communication.**
- **Biomedical Engineering.**
- **Mathematical and statistical methods applied to new problems in Social Sciences and Engineering.**
- **Industrial and Aerospace Technologies.**
- **Communication and Information Technologies.**

The research outlines and their corresponding strategies can be found in the following charts. In addition, the key sectors and their corresponding strategic action are presented for each strategic program.

**a) Law in the Knowledge Society: Fundamental Rights, International Law, Environmental and Global Law.**

Research Areas
<p>Fundamental Rights. Human Rights.</p> <p>International Commercial Transport Law and its Repercussion on International Commercial practice</p> <p>Urban Planning, Urbanism and Environment.</p> <p>Telecommunications Law and Information Technologies.</p> <p>Public Policies for Leisure and Entertainment.</p> <p>Risk Management and Security Policies.</p> <p>The Constitutional Court of Spain as a Guarantor of Fundamental Rights and as Arbitrator in Conflicts between Territorial Bodies. International Organisms and Regional Processes.</p> <p>Analysis, Management and Evaluation of Public Policies.</p> <p>Public Administration and the European Union. Spanish and European Foreign Policy.</p> <p>Economics of Public Law. Law and International Economic Relations.</p> <p>Law Theory. Sociology of Law. History and Philosophy of Law. Ecclesiastic Law. Equality and non-discrimination. Argumentation and Legal Interpretation. Democracy and Good Government. Theory of Justice.</p>
Sector areas in Spanish National R+D + innovation plan
<p>Transportation and Infrastructure. Construction, Urban Planning and Cultural Heritage. Security and Defence. Environment and Eco-innovation.</p>
Strategic Actions
<p>Energy and Climate Change. Telecommunications and Information Society.</p>

## b) Business and Economics in the Society of Global Knowledge.

### Research Areas

Business Growth and Sustainable Development. Business Strategy and Sustainable Development. Innovation, Productivity and Sustainable Development. Public Intervention and Growth.

Economics of Technical Change: Innovation, Absorption Capability and Business Performance; Patents and Innovation Intensity; Competition and Evaluation of the Economic Investment Climate; Determining Elements in Total Factor Productivity (TFP); Enterprising Orientation, Business Innovation and Market Orientation. Influence on Results and Business Growth.

Social Corporate Responsibility. Voluntary Disclosure of Information as a Result of Economic, Institutional and Ethical factors. Structure of Property and Relationships with Interest Groups.

New Trends in Risk Assessment and Measurement. Portfolio Construction Methodology. Asymmetries, Persistence and Volatility in Economic Variables.

Econometric Modelling for the Analysis of Problems Related to Consumption; Labor Economics, Industrial Economics, Economic Development, International Economics and Finances.

Forecasting Methods using Time Series and Multivariate Analysis.

Economics of Health and Medicine.

The Spanish Economy: Spain's Situation in an International Context in relation with other OECD Members or with the World.

Political, Public and Welfare Economics: Political Economics; Regulation Economics; Economic and Political Conflict Theory; Impact of Economic Policies; International Trade.

Macroeconomics and Labor Economics: Monetary Policy; Immigration; Income and Wealth Distribution; Consumption and Habits; Regional Development and Emerging Economies; Women, Youth and the Labor Market; the Housing Sector.

Micro-economics and Industrial Economics: Regulation and Competition Policies in Liberalized Sectors (Energy, Telecommunications, Transportation); Tenders; Social Networks; Experimental Economics; Theory of the Behaviour of Economic Agents; Contracts and Incentives; Corporate Government; Environmental Economics.

European Agriculture from a Historical Perspective.

Convergence and Growth Patterns in the 19<sup>th</sup> and 20<sup>th</sup> Centuries.

The Foreign Sector and Growth in the European Peripheral Economies.

History of Economic Thought on Intervention.

Spanish National Accounting from a Historical Perspective.

Protectionism; Comparative Advantage, Growth in Southern Europe and Latin America. Monetary History of Latin America.

Sociology and Environment.

Gender and Family Sociology. Social movements.

#### **Sector areas in Spanish National R+D + innovation plan**

Environment and Eco-innovation; Energy; Tourism; Industrial Sectors and Pharmaceuticals.

#### **Strategic Actions**

Health; Energy and Climate Change; Telecommunications and Information Society; Nanoscience and Nanotechnology, New Materials and New Industrial Processes.

### **c) Humanities in the 21st Century and their Relationship with Technology and Communication.**

#### **Research Areas**

Cyber-anthropology. Culture and technology. Literature and Cyber-culture.

Cultural Management. Emerging Tourism. Cultural Heritage and Museum Science.

Society and Violence in the Contemporary World.

Theory of Literature and of Visual Arts. Culture, Knowledge and Communication Theory.

Journalism in the Age of Internet: New contents, Styles and Professional Frameworks.

Information, Education and Entertainment. Educational Television and Childhood.

Development of Systems for Improving Media Accessibility for the Disabled.

Interactive Television.

Economical Aspects of Television. Television Audiences.

**Sector areas in Spanish National R+D + innovation plan**

Construction, Urban Planning and Cultural Heritage. Tourism.

**Strategic Actions**

Telecommunications and Information Society.

**d) Biomedical Engineering**

**Research Areas**

Medical instrumentation. Telemedicine and Assistance Technologies. Ubiquitous Computing. Cinematic and Dynamic Analysis and Synthesis of Machines and mechanisms.

Medical imaging. Diffuse Optics Tomography. Inverse Problems.

Computational Biology. Automatic Learning and Evolutionary Computing. Bioinformatics and Biostatistics.

Tissue Engineering and Regenerative Medicine.

Robotic Bio-engineering and Nano-mechanisms for Medical Examination.

New Immune-compatible Actuators Based on Artificial Muscle.

Improving the lives of Dependent Persons through Systems and Robotic Aid.

**Sector areas in Spanish National R+D and innovation plan**

Industrial Sectors; Pharmaceuticals; Tourism; Transportation and Infrastructure.

**Strategic Actions**

Biotechnology; Health, Nanoscience, Nanotechnology, New Materials, New Industrial Processes; Telecommunications and Information Society.

**e) Mathematical and Statistical Methods Applied to New Problems in Social Sciences and Engineering.**

<b>Research Areas</b>
Polynomial Approximation Methods in Linear Prediction Models.
Processing of Information Entropy based on Orthogonal Polynomials and Special Functions.
Biophysics of DNA. Genomics, Proteomics and Metabolomics. Evolution and Evolutionary Dynamics.
Structure of the Stock Market. Social Networks and Information Dissemination.
Numerical Linear Algebra. Matrix Theory.
Wavelets.
Heterogeneity in Statistical Models and Model Selection. Dimension Reduction Techniques. Re-sampling Methods.
Bayesian Forecasting.
Statistical Treatment of Problems with high dimension data.
Data Mining. Intensive Computation.
Methodology for the Construction of Macroeconomic Vector Models for PIB Components. Methodology for Inflation Prediction.
Risk modelling.
Optimization of Dynamic and Stochastic Systems using Mathematical Programming Methods. Stochastic Programming. Non-linear Optimization in large scale problems.
<b>Sector areas in Spanish National R+D and innovation plan</b>
Environment and Eco-innovation; Energy; Security and Defence; Aerospace; Transportation and Infrastructures; Pharmaceutical and Industrial sectors.
<b>Strategic Actions</b>
Biotechnology; Energy and Climate Change; Telecommunications and Information Society; Nanoscience and Nanotechnology; New Materials and New Industrial Processes.

## f) Industrial and Aerospace Technologies.

### Research Areas

Aircraft Preventative Maintenance and Integrated Vehicle Health Monitoring (IVHM).

Development of Autonomous Navigation systems for Unmanned Aerial Vehicles (UAV).

New Secure Wireless Avionic Systems.

Cinematic and Dynamic Analysis and Synthesis of Machines and Mechanisms. Defect Detection in Mechanical Systems.

Magnetic Levitation, Magneto-mechanics and Superconducting Levitation.

Vehicle Engineering.

Network Integration of Renewable Energies. Renewable Energies in the Electricity Market.

Jets. Swells. Bubble break-up in Turbulent Dispersion. Bio-fluids.

Design of Gas Detection Sensor Systems. Artificial Intelligence; Learning from Machines; Neuronal Networks; Investment Techniques.

Structural Alloys in Nuclear Fusion Mechanisms. Nanostructural Alloys: Micro-Structural Characterization and Mechanical Properties.

Collision Impact Absorbers.

Luminescence techniques in Polymers, Compound Materials and Nanocomposites. Hybrid Thermo-stable Polymers and Polymer-mixes.

Automated Flight Information Reporting System.

New In-Flight Control and Communication Architectures for more electric aircraft

Multispectral Infrared Sensors for the non-destructive evaluation of aircraft.

### Sector areas in Spanish National R+D and innovation plan

Aerospace; Energy; Transport and Infrastructure; Security and Defence; Industrial Sectors.

### Strategic Actions

Nanoscience and Nanotechnology, New Materials and New Industrial Processes.  
Telecommunications and Information Society.

**g) Communication and Information Technologies.**

**Research Areas**

Internet in the Future, Web Architecture, Information Protocols, Distributed Web Services, Overlay Networks, Vehicular Networks, Mobile Networks, High Performance Optical Networks.

Data Analysis. Grid Environments. Scalable E/S System Architecture. Middleware Architecture for Wireless Sensor Networks (WSN) and other built-in systems. Distribution Systems.

Telemedicine. E-learning. Business Information Systems. Emergency Management Technologies. Web 2.0 and 3.0.

Cryptographic Algorithms and Protocols. Biometry: Security, Accessibility. Personal Data Protection: Privacy.

Machine Learning. Machine Learning Applied to Automatic Planning Systems. Machine Learning and Evolutionary Computation. Neuronal Networks.

HCI. Visual Languages. Ubiquitous Computation. Hypermedia/web Engineering. Design for all.

IT Project Management. Process and Project management. Effective Software Development Management.

Digital Circuit Design through Descriptive Hardware Languages, Design of Performance Analogue-Digital Converters, Design of Error Tolerant Circuits and of Hardware Accelerator for Process Calculation.

Optical Communication Systems and Development of Optoelectronic Systems and Laser Technology Applications.

Advanced Robotics for Service Applications: Assistance, Rehabilitation, Infrastructure Maintenance, Vigilance, etc.

**Sector areas in Spanish National R+D and innovation plan**



Industrial Sectors; Energy; Security and Defence. Tourism. Aerospace. Transportation and Infrastructure. Construction, Urban Planning and Cultural Heritage.

### Strategic Actions

Telecommunications and Information Society.

Further information on lines of research and research groups can be seen at:

[http://www.uc3m.es/portal/page/portal/investigacion/nuestros\\_investigadores/grupos\\_investigacion](http://www.uc3m.es/portal/page/portal/investigacion/nuestros_investigadores/grupos_investigacion)

These strategic outlines for “Campus Carlos III” include those projects which are already fully established, such as academic productivity, in publications of international prestige which more than triples the national average, as well as its new projects such as Aerospace Engineering and Biomedical Engineering starting this year following international excellence criteria.

## 2. Strategic aggregates

For the development of the strategic programs found in “Campus Carlos III” the following entities are part of the strategic aggregates:

- Spanish National Research Council (CSIC), CIEMAT, ADIF, INTA.
- Parque Científico-Tecnológico Leganés Tecnológico (Leganés Science Park)
- Hospital Universitario de Getafe (Getafe Teaching Hospital), Hospital Nacional de Paraplégicos de Toledo (Toledo National Paraplegic Hospital), Hospital de Leganés (Leganés Hospital).
- Centro mixto con EADS (Joint EADS centre)
- Telefónica I+D, ACS-Dragados, Nokia, Siemens, Indra, etc.
- Alianza 4Universidades (Alliance between the Universidad Autónoma de Barcelona, Universidad Autónoma de Madrid, Universidad Carlos III de Madrid and Universidad Pompeu Fabra)
- Getafe City Council
- Leganés City Council

- Autonomous Community of Madrid
- Ministry of Housing
- Ministry of Culture
- Royal Board on Disability. Ministry of Public Health and Social Policy
- IMDEA Networks, IMDEA Materials and IMDEA Mathematics

The tasks of the most relevant aggregates are described below.

The first aggregate is the creation of the Joint Centre CSIC-UC3M for Global Change. The Center is a pioneer both at the national and international level. The most significant added value in this center is its multidisciplinary approach, which includes experts in different areas, from renewable energy to the study of the migratory movements due to changes in the environment. The priority research fields in this center carried out by “Campus Carlos III” will be Energy and Emissions, Prediction, Forecasting and Management Strategies, Sociological Dimension of Global Change and Environmental Law.

The center will be located inside the facilities owned by Universidad Carlos III de Madrid in the Science Park, Leganés. The building that will house the Center will be adjacent to the Universidad Carlos III Science Park (the first part of the project is completed, and the second part is in planning), the IMDEA NETWORKS Centre (also in planning stages) and other buildings with singular scientific facilities for which the University is now in negotiation. The Global Change Centre will cover an approximate area of 10,000 square meters, will provide space for more than 100 researchers and will feature state of the art laboratories in different research areas.

The introduction of the new undergraduate degree program in Biomedical Engineering is the springboard for one of the strategic guidelines in “Campus Carlos III”, in strategic aggregation with the Getafe Teaching Hospital. The goal is to have 40 students in the first year, and the classes will be taught in English. These degrees carry great demand potential, and thus favor the incorporation of highly motivated students with an excellent academic level. The fact that the classes will be taught in English will encourage the inclusion of international students and the introduction of mobility programs thus fostering internationalization.

The introduction of these undergraduate programs represents a first step for the University in the creation of a central nucleus to consolidate the new research areas in the future, which will also benefit from Postgraduate programs and a Research Institute.

The addition of EADS-CASA to the strategic aggregates in “Campus Carlos III” is due to the establishment of new studies and lines of research in Aerospace Engineering, and to the recently created Joint Research Center in “Integration of Aerospace Systems”.

The goal behind the expansion of research in our University into these new areas of knowledge is to revitalize and strengthen the research work in the University’s Engineering Departments. This will be achieved thanks to the interdisciplinarity, timeliness and high technology research which characterize both aerospace and biomedical engineering. The project fully fits the four strategic lines defined by “Campus Carlos III”: Attraction and recruitment of Talent, internationalization, interdisciplinarity, and innovation and quality. The duration of the project is from 2007 to 2014.

Another strategic aggregate for the construction of the “Campus Carlos III” is the “**Alianza 4Universidades**” (4University Alliance), created by the Universidad Autonoma de Barcelona, Universidad Autonoma de Madrid, Universidad Carlos III de Madrid and Universidad Pompeu Fabra. In this context, on December 1<sup>st</sup> 2008 a **Specific Collaboration Agreement** was signed in order to create an Office in Brussels, in the CSIC Headquarters in Brussels, the decision-making center for Community institutions involved in research-related areas. In March 2008 a Collaboration Agreement was signed between the National CSIC Agency and the A4U Association to “regulate the use by this Association of a certain space in the headquarters of said National Agency in Brussels”.

The goals include:

- Consolidation of the internationalization of the 4 institutions making up the Alliance.
- **An increase in the number of experts from UC3M** taking part in the elaboration of the different programs in the Framework Programme.
- The launch of new services to facilitate participation in the FP7 and strengthen support for researchers.
- **Coordination of the European Offices** among the four universities making up the A4U Alliance.

### 3. Levels of scientific excellence

Research constitutes one of the fundamental pillars of the “Campus Carlos III” project. Its importance in Universidad Carlos III has grown steadily and continuously, year after year. This activity is based on a program that allows the aggregation of human capital in diverse organizational structures, with outstanding results in indicators such as *sexenios* (six year periods of research), funding obtained (including participation in the UE’s Framework Programmes and EUROCIENCIA), publications of international impact, and patents and software licences.

#### Strategic aggregates

The growing complexity of the demand in business technology gives impetus to the University to be ready to meet the needs of society. The structure of “Campus Carlos III” is organized around the 26 Universidad Carlos III Departments and its 118 research groups. The “Campus Carlos III” fomentes the use of instruments which facilitate the convergence of different technologies with the real market, and whose objective is to approach complex technology demands and achieve solutions that thoroughly satisfy society as a whole and the business sector in particular. The project presented here includes the added value of research areas in Engineering (Industrial, Computing and Telecommunications), in Social Sciences and Law (Law, Economics, Business, Statistics) and Humanities, Library Science, Journalism and Audiovisual Communication, together with the new areas in Biomedical Engineering and Aerospace Engineering; thereby providing an educational product that is totally integrated with the demands of today’s society.

The instruments allowing the interaction are the Centers for Technological Innovation (CITs) and the Joint Centres contributing to an axis made up of the different innovation agents. Among their activities is the creation of a common space of information that allows them to identify the specific needs of the businesses and adjust their services accordingly. This common space is the result of an interactive learning process which involves not only the businesses but also other agents in the same environment, such as universities, public research facilities and public administration. “Campus Carlos III” is strongly committed to a move in that direction, and, indeed, the following already exist:

- Joint University-Business Centers: Center for the Integration of Aerospace Systems EADS-UC3M, a joint space for EADS, Universidad Carlos III, businesses and other social agents, to impulse innovation, generation and

information transfer and technology processes in the aerospace sector. Further information can be found at the following web site:

[http://www.uc3m.es/portal/page/portal/investigacion/parque\\_cientifico/centros\\_idi/Sistemas\\_Aeroespaciales\\_EADS\\_UC3M](http://www.uc3m.es/portal/page/portal/investigacion/parque_cientifico/centros_idi/Sistemas_Aeroespaciales_EADS_UC3M)

- Centers for Innovative Technology with business trusteeships and public administration: Technology Center for the Disabled and Dependent, which is a joint Technological Platform between the University, Public Administration, businesses and associations of the disabled and dependent that searches for and develops technical support, services and technological innovative solutions and aims to improve the situation of dependence in the disabled or elderly. Further information can be found at the following website:

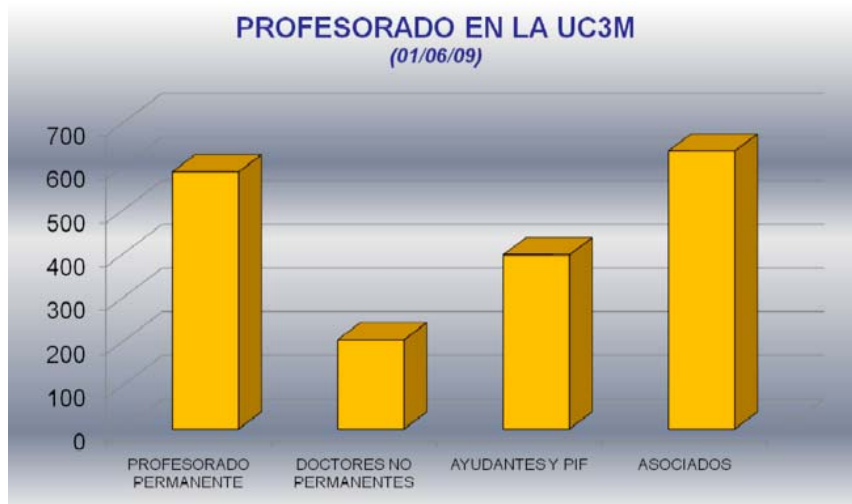
[http://www.uc3m.es/portal/page/portal/investigacion/parque\\_cientifico/centros\\_idi/discapacidad\\_dependencia](http://www.uc3m.es/portal/page/portal/investigacion/parque_cientifico/centros_idi/discapacidad_dependencia)

- Joint centers with the public administration: the Spanish Subtitle and Closed-captioning Center (CESyA) under the Royal Board on Disability – Ministry of Health and Social Policies, created in order to promote a wider accessibility in the audiovisual media environment through the services of subtitling and audio description.

<http://www.cesya.es/>

### **Structure of the Academic Staff**

The academic staff of “Campus Carlos III” is young, dynamic and highly qualified, with an outstanding potential for results which can be observed in the figure below.



UC3M Faculty  
(01/06/09)

*Tenured professors, non-tenured PhD, Assistants, Part-time*

In addition, the University has 262 people contracted through research projects and 20 research managers.

Regarding its scientific qualification, the faculty at Universidad Carlos III **rank second in number of 6 year research periods per 100 tenured professors**, according to the CyD Report (2008), and ranks **first among the Spanish Universities in percentage of tenured professors with 6 year periods of research**. Moreover, and in compliance with the “2009 Report on evaluation results by the CNEAI”, **Universidad Carlos III ranks first among all Spanish Public Universities regarding factor S**, in measuring the relative success in the faculty’s evaluation process.

The number of scientific publications represents one of the basic indicators in research activity. In 2008, Universidad Carlos III ranked second in publications by tenured staff (0.833) among the Spanish Universities. The articles published in the area of university activities (Engineering, Material Science, Economics and Business, Physics, Mathematics, Computer Science, Social Sciences - general and multidisciplinary) made up 3.2% of all the publications from Spanish Institutions in those areas. Bearing in mind that the percentage of tenured faculty from the total is 0.99%, Universidad Carlos III’s output triples the average of Spanish universities in their area of activity.

In 2008, Universidad Carlos III was second in number of publications with international impact (Web of Science) per tenured professor (0.833) amongst the Spanish universities. (Source: 5<sup>th</sup> Forum on evaluation of Quality of Higher Education and Research, San Sebastián, 2009).

Another very significant indicator when describing research activity is the ability to obtain research projects. Universidad Carlos III ranks second among Spanish Universities in number of Research Projects of the 6<sup>th</sup> Framework Programme of the European Union obtained per 100 tenured professors (2,309). ((Source: 5<sup>th</sup> Forum on evaluation of Quality of Higher Education and Research, San Sebastián, 2009). Moreover, Universidad Carlos III is the second Spanish University in number of Research Projects in the National Plan R+D+i obtained per 100 tenured professors (10,46). (Source: 5<sup>th</sup> Forum on evaluation of Quality of Higher Education and Research, San Sebastián, 2009). Universidad Carlos III has a continuous increase of funding per research project (an increase of 63% in the past year). This funding represents 20.2% of the University's total budget.

Furthermore, Universidad Carlos III ranks first among public universities in research competence and second in research efforts in the Cotec Report of Technology and Innovation in Spain in 2006. One of the factors which contribute to these results is the internationalization of the academic staff: more than 13% of the faculty is not Spanish.

According to the report on the state of quality evaluation in Spanish universities carried out by ANECA (2008), Universidad Carlos III is second among the Spanish universities in percentages of PhD programs receiving a Quality award (84.2% of all programs).

Regarding the qualifications of its young PhDs, Universidad Carlos III de Madrid is the Spanish institution with the highest number of PhDs having obtained a José Castillejo fellowships for the 2009/2010 academic year.

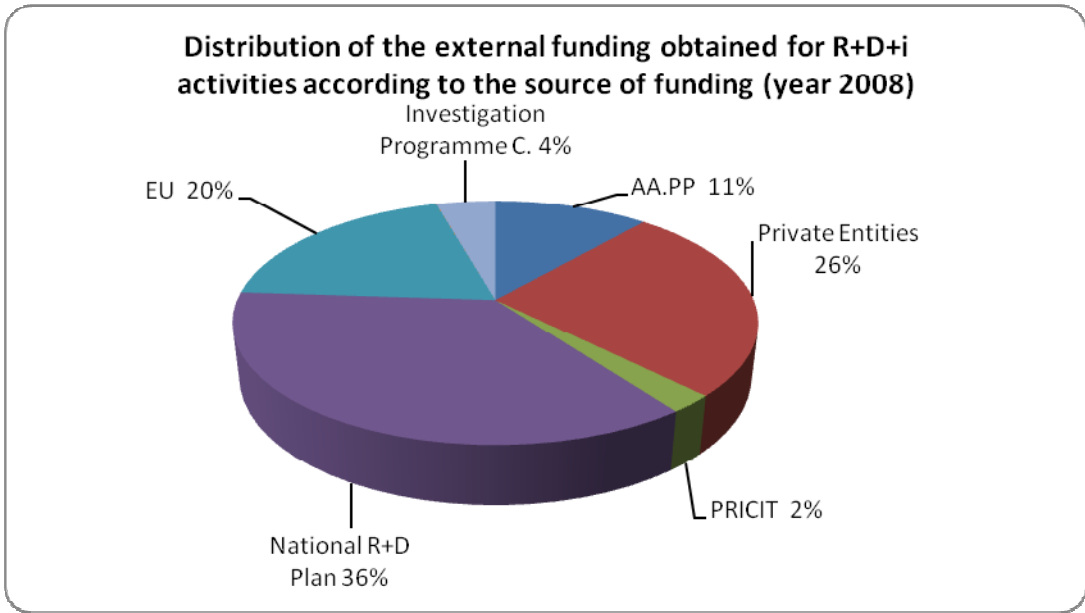
### Funding for R+D+i

**In 2008, more than 35 million euros were obtained**, with 96.6% (34.22 million euros) coming from external funding and 3.4% from the University. **This is the highest amount achieved, representing 20.2% of the total budget for the University, and an increase of 63% from the previous year**, representing the highest increase in the past years. The following figure shows the data from the past 5 years, categorized according to the origin of the funding and the total importance of the funding for R+D+i in relation to the University's budget.

2004	2005	2006	2007	2008
------	------	------	------	------

<b>Competitive funding</b>	10,504	9,047	12,030	11,569	19,884
<b>Private funding</b>	5,556	7,173	8,825	7,189	12,838
<b>Research Program</b>	0	2,286	3,650	2,150	1,494
<b>Universidad Carlos III</b>	382	795	1,061	1,143	1,177
<b>Total</b>	<b>16,442</b>	<b>19,301</b>	<b>25,566</b>	<b>22,051</b>	<b>35,393</b>
<b>Percentage of the funding raised for research from the University's total budget</b>	<b>**</b>	<b>**</b>	<b>14.39%</b>	<b>13.23%</b>	<b>20.22%</b>

In 2008, the University was funded mostly through the National R+D+i Plan, the EU's Framework Programme and through contribution of private entities. These three sources contributed 82% of the total, as can be seen in the following graph:

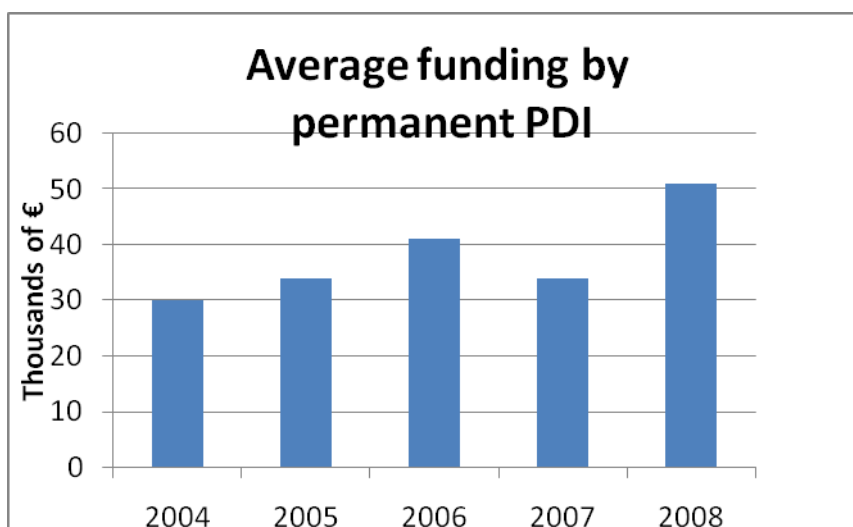


The University has 2,469 researchers (according to the latest data on R+D activities from the Spanish Institute for Statistics (INE)), including contracts paid through research projects and students with grants, who are aided by 797 technicians and assistants.

It is noteworthy that the indicator for average funds obtained per tenured professor from Universidad Carlos III has reached extremely high levels, as can be seen in the following figure describing the situation in the last 5 years:



Year	Total (Thousands of €)	Funding per tenured prof. (Thousands of €)
2004	16.442	30
2005	19.300	34
2006	25.566	41
2007	22.051	34
2008	35.393	51



### EU's Framework Programmes

Participation in the EU's Framework Programmes by our researchers has been constant. The **total number of project proposals presented by UC3M in the 5<sup>th</sup> and 6<sup>th</sup> Framework Programmes was 270**, a very high number for a University this size. The joint success rate was **26.6% (72 approved actions)**, higher than the European average.

In the current Framework Programme, two years after it started, the number of proposals presented has reached the noteworthy number of **115**, mainly in the "Cooperation" program, but also in the others that build the Framework programme ("Ideas", "People", "Capacities" and "Euratom"). The principal knowledge areas that the proposals are focused on are: *Information society-ICT* (46 proposals), *nanoscience, nanotechnology, materials and technology production* (14), or the new area in the 7<sup>th</sup> Framework Programme, *Socioeconomic Science and Humanities*, which has already achieved more than a 50% success rate (4 approved projects).

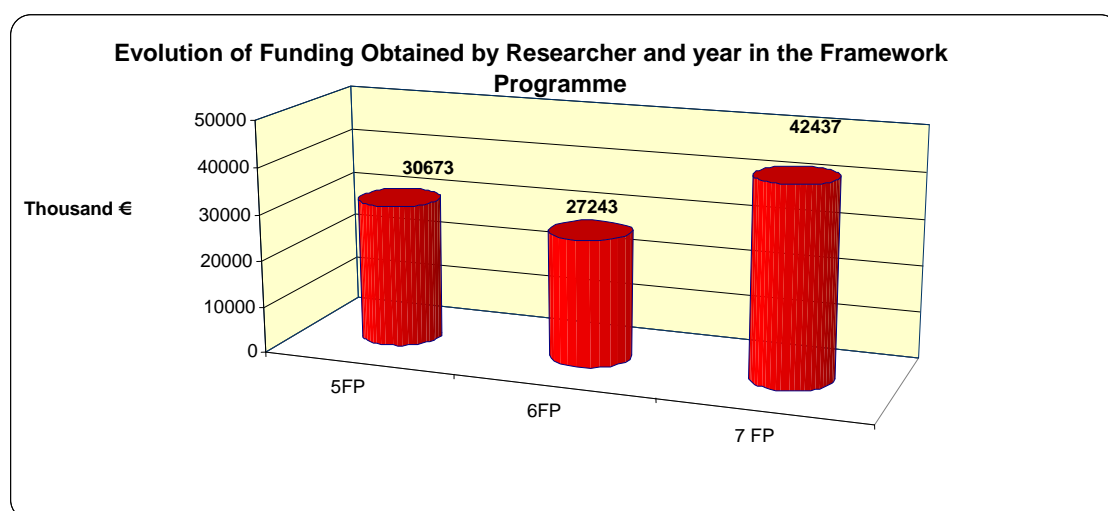
The funding received by UC3M in the 5<sup>th</sup> and 6<sup>th</sup> Framework Programmes was **9,680,258€ (4,416.962 € in the 5FP 5,263,296 €, in the 6FP).**

In the 7<sup>th</sup> Framework Programme, **15 projects have been successful**, with the following distribution:

- *Cooperation: 12 (ICT, 5; Socioeconomic Science and Humanities, 4; Nanoscience, 1; Energy, 1; Security, 1).*
- *People: 2 (Initial Training Network-ITN, 1; International Outgoing Fellowship for Career Development-IOF, 1).*
- *Euratom: 1*

**4,466,361 €** have been obtained: the funding obtained up until now in the 7FP is 101% of what was obtained in the 5<sup>th</sup> Framework Programme and 85% of what was obtained in the 6<sup>th</sup> Framework Programme. This fact demonstrates the growing importance of funding from the European Union and the international interest in the research activities that make up the “Campus Carlos III” project.

The **Evolution in funding obtained per researcher and year** can be seen in the following graph: the amount obtained in the 7<sup>th</sup> Framework Programme (42,437€ per researcher and year) is a historical maximum and puts Universidad Carlos III at the top in the ranking of Spanish Universities regarding this indicator.



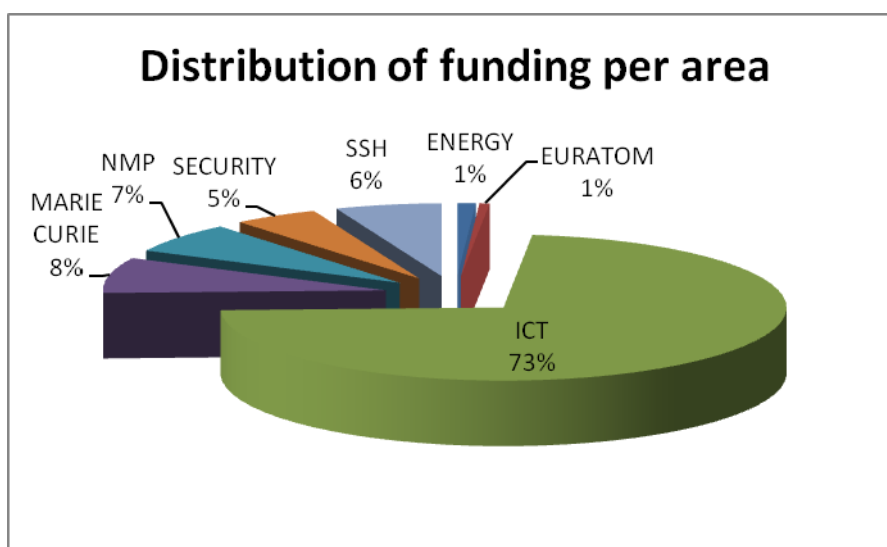
## EUROCIENCIA

In 2006, the Spanish Ministry for Education and Science launched the program EUROCIENCIA, within the EUROINGENIO 2010 initiative, with the objective of stimulating the participation of universities and public research centers in the 7<sup>th</sup> EU Framework Programme.

- The **Universidad Carlos III Strategic Plan** has been **funded by the Ministry of Science and Innovation** with a total amount of **416,482 EUR**.

The **first part of EUROCIENCIA** was carried out in the year 2008, achieving the following goals:

- I. **Presented proposals:** achieved objectives: 101%
- II. **Approved proposals:** achieved objectives: 52%.
- III. Coordinated projects: **achieved goal: 1**.
- IV. **Funding received: 7,316.564 EUR**, which represents 108% of the expected goal. The distribution in areas of the funding for European projects can be seen in the following graph:



Beyond the quantitative objectives regarding funds raised and number of approved projects, the strategic plan aims to strengthen the participation in **scientific areas where traditionally the University has not been part of the Framework Programme (Socioeconomic Sciences and Humanities)**.

### Technology Platforms

The participation in the definition of the Strategic Research Agendas of the European Technology Platforms (ETP's) is one of the objectives of the "Campus Carlos III". The aim is to be a part of the research lines established by the platforms, and adapt the University's research agenda to the strategic needs of the different industrial sectors and society as a whole.

The University's involvement in the Spanish platforms, which "mirror" those of Europe, is centred on nine of the constituted and working platforms to date. This involvement is carried out through different research groups and departments, highlighting the areas related to the IT's. Nevertheless, given the open character of these platforms, "Campus Carlos III" aims to broaden its participation to other areas.

The ETP's in which our University is currently participating are:

- eNEM: Spanish Technological Platform for Audiovisual Technology on the Web
- eMOV: Spanish Technological Platform for Wireless Communications
- eSEC: Spanish Technological Platform for Security and Trust
- PTFE: Spanish Railway Technological Platform
- INES: Spanish Technological Software and Services Platform
- Spanish Technological Electric Network Platform
- PTEC: Spanish Technological Construction Platform (The University is part of its association, there being only two universities; it is a member of its strategic committee and also part of the permanent commission)
- PROMETEO: Spanish Technological Platform for Systems with Integrated Intelligence
- MANUFUTURE (E): Spanish Technological Platform for R+D+i in the manufacturing field.
- HISPAROB: Spanish Technological Platform for Robotics. The secretariat is on UC3M'S premises.

### **Publications, patents and licenses**

Universidad Carlos III carries out intense research activity in terms of international publications. According to Web of Knowledge in the 1999-2009 period, Universidad Carlos III researchers have published 2.928 articles. Bearing in mind the areas where Universidad Carlos III is active (Engineering, Material Science, Economics and

Business, Physics, Mathematics, Computer Science, Social Sciences - general and multidisciplinary), **the percentage of publications by the University in relation to the Spanish total is 3.2%, a very high number considering the percentage of tenured professors at Universidad Carlos III de Madrid in relation to the Spanish universities, 0.99%.**

(<http://www.educacion.es/educacion/universidades/estadisticas-informes/estadisticas/personal-universitario.html>)

One of the action plans in order to improve the quality of the publications of the researchers in Universidad Carlos III was the official announcement of a personal incentive aimed at the University's professors based on the quality of their five best publications during the 08/09 academic year. In most of the areas, for the classification of each publication the quartile ranking in the JCR and the number of authors was used as scoring criteria, and in areas such as law and humanities, ad-hoc criteria reached by consensus with the involved departments were used.

Further information regarding studies on publications in various University departments and their international positions can be found at:

[http://www.uc3m.es/portal/page/portal/investigacion/rankings\\_universidades](http://www.uc3m.es/portal/page/portal/investigacion/rankings_universidades)

In addition to its production of publications, the University has applied for 22 patents and 5 software licenses since 2006.

Postgraduate education is vital in the "Campus Carlos III" project. Nowadays, Universidad Carlos III de Madrid offers 25 master's degrees, 5 of which are taught in English and 2 are part of the European Union's Erasmus Mundus programme. In the last Erasmus Mundus official announcement, Universidad Carlos III de Madrid was one of the five universities that have included a new master's degree in the program and it is one of only two Spanish universities that coordinate a master of these characteristics. Furthermore, there are 19 doctorates, 82.4% of which have obtained the Quality Award, and 47.4% of which are taught in English. This has enabled the University to attract 35.39% of the student body outside the Community of Madrid, and 26.06% non-Spanish students.

The University's scientific improvement requires attracting top students and having a broader postgraduate infrastructure to help develop international and interdisciplinary programs that provide added value to the students' education. The biggest step in that direction is the creation of Center for Postgraduate Studies. The details on this center and its building can be seen in the Scientific Improvement of the preliminary Subprogram.

## 4. Capacity for the recruitment and training of researchers and technologists

“Campus Carlos III” has set in motion various actions to increase the quality and quantity of their research through international talent recruitment. Universidad Carlos III’s faculty’s policy follows the selection criteria based on merit and ability and it follows the European Charter for Researchers and the Code of Conduct for the Recruitment of Researchers, both approved by the University’s Governing Council.

The principal proceeding for the recruitment of renowned researchers is the Chairs for Excellence program, co-funded by Banco Santander, with an annual funding of 120,000€ per year per researcher for the 2008-2011 period. There have been two calls with 16 Chairs in 2008 and 17 in 2009. Further information can be found at:

[http://www.uc3m.es/portal/page/portal/inicio/catedras\\_excelencia/catedrasexcelencia](http://www.uc3m.es/portal/page/portal/inicio/catedras_excelencia/catedrasexcelencia)

Furthermore, recently two “Rafael del Pino” Chairs have been created, in the areas of Economics, Statistics and Business, with 100.000€ in funding each and co-funded by the Rafael del Pino Foundation and the University.

Regarding doctoral programs, Universidad Carlos III de Madrid ranks second among Spanish Universities in doctorate programs receiving the Quality award (84.2% of all doctorate programs). Moreover, to boost internationalization and excellence, the possibility of co-direction of theses is being pursued, through grants for internationally recognized professors that are willing to co-direct, executing brief stays in our university and welcoming our students in their home Universities.

The recruitment of young PhDs is carried out through different program, in which the selection is based on an outside evaluation carried out by ANECA: post-doctoral stays in the Universidad Carlos III by students from the other three Universities that make up the 4University Alliance (2 calls offered, the latter with 24 stays); and postdoctoral stays at the Universidad Carlos III, open to PhDs related to the existing disciplines at the University (40 stays offered in the first call).

The “Campus Carlos III” program for the attraction of top graduate students will be supported in the 2009/10 academic year by the new International Recruitment Office (OCAI), in charge of the recruitment of international students.

This program has two lines of action: grants for master’s degree students (for the 2009/2010 period 100 grants have been awarded) and PIF grants (Research Personnel in Training) (*Estatuto del Personal Investigador en Formación*) for doctoral theses (in the 2009/2010 academic year 33 grants have been awarded).

The University has its own program of individual incentives for its full-time PhDs, based on public and objective criteria, in relation to their research activity (six-year research periods, competitive research projects and theses directed), their publications and their teaching. The purpose of these incentives is the continuous improvement in these areas.

Internationalization is one of the key plans of action in the “Campus Carlos III”, promoting and facilitating not only the incorporation of new researchers (for example, through the International Reception Office that will help with visas, social security, NIE number, lodging...), but also helping the University’s researchers go abroad. Professors can take a sabbatical after six years in a permanent position. The University annually offers 20 sabbatical stays, which represent about 2% of the tenured faculty members, to develop activities in renowned and prestigious centres outside of Spain. The University’s research staff is highly international with more than 13% of professors holding non-Spanish nationality.

Apart from participating in regional, national or international mobility programs, young researchers in the “Campus Carlos III” can also participate in a Carlos III program that promotes mobility with stays in foreign centers, from one month to six months (in the last call, 83 of these grants were given). The quality and motivation of the young PhDs in the University is expressed through the José Castillejo fellowships for the 2009/10 academic year. Universidad Carlos III was the first institution in number of PhDs that were granted these fellowships.

Along with research activities, research management is a key element in collective success. “Campus Carlos III” will continue to carry out the incorporation of research administrators (20 in the past year). They help not only in the administrative research activities, but also with a more pro-active recruitment and development of relations with businesses and the social environment, improving the transference process between the university and the business environment and easing the participation of all our excellence research groups in different programs, both national and international.

As a part of the strategic plan that is “Campus Carlos III”, we intend to continue developing these measures within the scientific field to help with talent recruitment, the faculty’s internationalization, the promotion of scientific inter-disciplinarity and the innovation and quality of the obtained results. Furthermore, the University has the following programs:

- More than a third of the students in masters or doctorate programs receive University funding.

- Awards for excellence given out by the Board of Trustees with the support of Banco Santander, aimed at young researchers, alumni, top students, and administration and service staff.
- Economic incentives for professors based on objective indicators such as publications, research (six-year research periods, competitive projects and number of theses directed) and teaching quality, including data from student surveys, IT use, etc. A total of 316 professors received this incentive in 2007 and 587 professors in 2009.
- Program to promote gender equality, with measures such as the reduction of 50% of teaching hours for a two year period after having a child, and the reduction of two years per child to calculate competitive productivity indicators.

The recruitment of young PhDs is being carried out with different programs, in which the selection process is based on an outside evaluation carried out by ANECA:

- Call for post-doctoral stays at Universidad Carlos III by students from the other 3 universities that make up the “4University Alliance” (two calls, 12 and 24 stays offered, respectively).
- Call for post-doctoral stays in the Universidad Carlos III, open to PhDs working on subjects related to the existing disciplines in the University (one call, 40 stays offered).

The University frequently participates in the regional, national and international programs for the recruitment of researchers. The results are:

	2005	2006	2007	2008
<b>I3</b>	5	3	8	9
<b>RyC</b>	2	0	3	2
<b>Juan de la Cierva</b>	7	7	2	4
<b>Marie Curie</b>	0	1	1	2



The postgraduate program in “Campus Carlos III” is based on the one offered by Universidad Carlos III and can be summarized in the following basic data:

- Official Master’s degrees (2009/10): 26 (6 inter-university and 5 in English)
- Erasmus Mundus: 3 (the university coordinates one of them), along with another ten European universities.
- Doctorates (2008/09): 19 (16 have been awarded the Quality Award (84.2%) and 9 in English (47.4%).
- Students from outside of the Community of Madrid: 451 (35.39% of the total and 26.20% from abroad)

One of the central objectives in the “Campus Carlos III” is to strengthen the postgraduate program, creating new degrees and increasing the capacity for recruiting international students.

One of the first programs is the open call for proposals and ideas for new graduate programs that will begin in the 2011/12 school-year. The proposals will be evaluated by an international academic committee made up of renowned professors and with the participation of business representatives.

The central action plan regarding graduate programs consists of the creation of a Centre for Postgraduate Studies; the details can be found in section a) Learning improvement.

The “Campus Carlos III” program for the attraction of top graduate students will be supported in the 2009/10 school-year by the new International Recruitment Office (OCAI), in charge of the recruitment of international students, both graduate and undergraduate. This program has two plans of action:

- Recruitment of Master’s degree students, based on public calls for grants with a maximum length that depends on the duration of the master the beneficiary is studying,
- Recruitment of PhDs, based on public calls through a regulation in compliance with the Statute on Research Personnel in Training (*Estatuto del Personal Investigador en Formación*) (PIF).

Furthermore, there is a program for co-funding between the University and the research groups that apply for it regarding study grants and PIF grants. The

applications for this program are evaluated competitively by ANECA (National Agency for Quality Assessment and Accreditation). Finally, in 2008 21 FPI and FPU grants were awarded.

The results in these programs in the latest calls were as follows:

	2005	2006	2007	2008
<b>Study grants</b>			96	133
<b>PIF Grants</b>	117	50	9	42
<b>Grants and specific grants for research groups</b>	406	432	520	430

Internationalization is one of the key plans of action in the “Campus Carlos III”, promoting and facilitating not only the incorporation of new researchers (for example, through the International Reception Office which will help with visas, social security, national identity cards, lodging...), but also helping the University’s researchers go abroad (for example, 20 sabbatical stays are offered yearly, which is roughly 4% of the tenured academic staff, to carry out their activities outside of Spain).

Young researchers at Universidad Carlos III, in addition to being active in different regional, national and international mobility programs (for example in the awarding of the José Castillejo fellowship for 2009/10, **UC3M is the first university in the ranking of PhDs per university which were awarded the grant**). They can also participate in a program promoting mobility through stays (3 to 6 months) in foreign centers. The following data shows the number of students that have been awarded these grants in the past four years:

	2005	2006	2007	2008
Young PhDs	25	22	24	15
Researchers completing pre-doctoral education	20	34	30	41

The cost of the University-funded lines of action that make up “Campus Carlos III” in the field of researcher and technologist recruitment and education for the year 2009 is:

Lines of action	Self-funded budget
Chairs of Excellence	600,000 €
4U Postdoctoral stays	79,917 €
Postdoctoral stays	1,056,839.2 €
Study grants	1,370,400 €
Doctorate scholarships	475,200 €
Young PhDs	180,000 €
Researchers completing pre-doctoral education	140,000 €
<b>Total</b>	<b>3,902,356 €</b>

## 5. International Leadership

In 2006 Universidad Carlos III de Madrid participated in 39 scientific assessment committees, 121 committees for scientific congresses and meetings and 92 scientific journal editorial advisory boards.

Research activity within the international framework of Universidad Carlos III de Madrid is based on participation and fundraising in the European Union Framework Programmes. The University has co-ordinated a total of five research projects in the two Framework Programmes previous to the current one: three in the Fifth Framework Program and two in the Sixth Framework Programme. In addition, two projects in the **Seventh Framework Programme are being led**, one in the ICT area (CARMEN Project by Professor Arturo Azcorra) and the other corresponding to an ITN of the “People” Program (Professor Horacio Lamela’s MITEPHO Project). Furthermore at the national level the university co-ordinates a CONSOLIDER project (Professor Gregorio Peces Barba’s “The age of rights” Project). Finally, in the autonomous region, within the incentives for carrying out R+D programs among research groups in the Madrid Autonomous Region, four projects are being co-ordinated in the technology area and three projects in social sciences and

humanities. The number of projects funded on a competitive basis rose to 190 in 2008, corresponding to 508 public university professors.

## 6. Commitment to University and Campus strategy

One of the most outstanding characteristics of the University is the academic faculty's full-time commitment to teaching, as well as its far-reaching commitment to research and technology transfer. Universidad Carlos III currently has 2,038 researchers, 300 technicians and 497 assistants dedicated to research (data provided by the National Institute of Statistics in 2008). This allows the creation of long- and medium-range research and transfer strategies.

The University has a periodic Research Commission meeting to carry out strategic research plans proposed by the Governing Boards of the University. The Commission has created several commissions which present specific action proposals, create objective assessment criteria, propose new regulations, etc.

In the interest of supporting research, the University devotes a significant part of its resources to research and technology transfer. This is reflected in its broad network of laboratories with outstanding equipment and support technicians, who offer their services to UC3M researchers as well as outside researchers, and to a generous UC3M research program.

Research and innovation management is carried out by a highly qualified team which makes up the Research Service and Technology and Scientific Park (both comprising the OTRI (Knowledge Transfer Office), made up of more than 60 people, the majority holding postgraduate degrees). In addition, the University has a pioneer program of decentralized support for research groups reflected in 20 Research Managers devoted to the groups and located within them.

Carlos III's support for research as a fundamental pillar is manifested in the sustained increase in financing through internal funding which was in 2008, almost 26% more than the previous year.

EVOLUTION OF INTERNAL FUNDING OF UC3M FOR RESEARCH ACTIVITIES	
Year	Thousands of Euros
2002	393.80

2003	453.87
2004	389.38
2005	794.57
2006	1,061.41
2007	1,142.86
2008	1,572.36

Actions and specific support measures for research are carried out through the *Programa Propio de Investigación*, PPI (Internal Research Program). In the last three years the funds assigned by the University to the PPI have doubled. The contents of the Programs included in the PPI are:

CALL		Directed at:	Reason for grant
MOBILITY	POSTDOCTORAL	Young PhDs at UC3M	Stays in other centers (3-6 months)
	PREDOCTORAL	Pre-PhD candidates at UC3M	Stays in other centers (1-4 months)

PARTICIPATION IN EUROPEAN PROJECTS	PREPARATION OF PROPOSALS	Research PhDs at UC3M	Presentation of EU proposals
	CO-FUNDING OF PROJECTS		Co-Funding of granted projects

CONFERENCES	INTERNATIONAL AND NATIONAL	Research PhDs at UC3M	Organization of international conferences,
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	WORKSHOPS/ SEMINARS	workshops.
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WEB	Institutes and Research Groups at UC3M	Design and improvement of webpages to increase UC3M's presence and visibility
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The Support for Emerging Research Groups program deserves special attention. This support, which was 600,000€ in 2008 and co-funded by the Autonomous Region of Madrid, sets out to support young researchers in their first research projects. The assessment criteria are: Scientific-technical quality of the proposal and of the objectives, Activities and methodology, Research group Excellence, Working objectives, Distribution and disclosure of results, Budget.

The UC3M research rules policy is based on the concept of reinvestment in research, co-funding the Internal Research Programs as well as complementary research activities of the internal researchers and of its Departments or Institutes.

The indirect costs of the research projects in 2008 were 2,428,000€ of which 1,352,000€ correspond to Departments and Institutes and 1,076,000€ to the Office of the Vice-Chancellor for Research.

Universidad Carlos III, in its steadfast commitment to improve the quality of its research and obtain levels of excellence, is aware that the best way to achieve this is to count on the collaboration of external scientific committees from the beginning to assess the research carried out by their departments, institutes, research groups and researchers. These committees are chosen according to subject matter assessed, selecting for this task outstanding international researchers.

During the 1990s, Universidad Carlos III was a pioneer in starting up the assessment of scientific quality of the totality of its departments, within the National Plan of Quality Assessment of Universities under the Ministry of Education, with the aim of detecting strengths, weaknesses, and proposing the corresponding improvements.

These processes of assessment have benefitted from the participation of internal as well as external committees. The University created protocols for the systematization of these procedures with the aim of assuring their objectivity and

faithful reflection of the research taking place in each one of the departments being evaluated.

At present, not only have all of the University departments been assessed, but some of them have also had second follow-up evaluations in order to determine the proposed improvements

Two assessment committees have participated in these assessment processes: an internal one presided by the Vice-Chancellor for Research, and five to seven members representing all strata of the departments; and by an external committee, composed of three members pertaining to different national and international research centers. The committees' visits were organized following a rigorous, systematic schedule of meetings with all of the sectors of the departments involved in research activities.

Universidad Carlos III has always implemented and proposed improvements through these assessment processes. To this end, in 2004, the University signed an agreement with ANECA (National Agency for Quality Assessment and Accreditation) for a project aimed at carrying out a Department Assessment Plan based on UC3M's experience. In this project the University proposed a guide and methodology designed to evaluate the research carried out in university departments.

Universidad Carlos III also established other assessment processes, with a view to having the UC3M centers become recognized by the Organic Law on Universities, LOU. This process began in the 1990's with four centers becoming LOU centers (*Ley Orgánica de Reforma Universitaria* (Organic Law on University Reform), LRU at that time) between 1993 and 2001. At the end of 2005, the Autonomous Region of Madrid decided to suspend the process of creation of LOU institutes in order to modify the assessment process.

Universidad Carlos III de Madrid has at this time 20 centers and four LOU institutes, and the immediate objective, once the Autonomous Region of Madrid decides to continue with the process of establishment of LOU institutes, is to begin the assessment procedure in the UC3M centers in order to have them become LOU institutes.

This transformation process is made up of two committees, one internal and one external. The internal one is formed by three or four members pertaining to the center, and the external committee by two or three members, specialists in one of the areas of the institute, pertaining to prestigious national or international research centers.

In its commitment to improve its scientific research institutes and centers, and with the aim of increasing research excellence, Universidad Carlos III de Madrid launched a new assessment process last year determining their funding. The assessment process was entrusted to the *Agencia Nacional de Evaluación y Prospectiva*, ANEP (National Assessment and Forecasting Agency), which worked in a commission through a battery of criteria and indicators drawn up by a UC3M commission, and unanimously approved by the Research Commission and ratified by the UC3M Governing Board. This procedure allowed 200,000€ to be distributed among the UC3M institutes and centers which received the best assessments based on the following criteria: Institute Capacity, Institute Activity, Objectives and Strategic Lines.

Another of the central themes in which the assessment processes implemented by Universidad Carlos III have been consolidated is UC3M's own Research Program. These procedures, in line with the ones utilized in top international universities, were initiated at the beginning of the 1990's and consisted in the formation of ad hoc assessment committees for each one of the annual calls. These committees are made up of four or five university professors pertaining to the different areas. The selection of the professors is carried out taking into consideration possible conflict of interest, and their work is anonymous at all times, thus assuring objectivity in their judgment.

UC3M has a pioneer Knowledge Transfer Office, OTRI, which was created in 1993. UC3M's Transfer Office participated actively in the creation of the Knowledge Transfer Office Network, RedOTRI, in 1997 (the first president being from UC3M), in the creation of a Network of Research Management Units, RedUGI, and has participated actively in the network of Science and Technology Parks Associations in Spain, APTE, since 2000. The OTRI has been adapted over the years to research and transfer needs and currently has two services: Research Service and Science and Technology Park, coordinated by the SIPARC Committee.

The Research Service is made up of four units: Unit of Research Management, UGI; Unit of Research Promotion and Assessment, UPEI; and Unit of Research Coordination and Support, UCSI. The units include experts in projects at the autonomic, national and international levels as well as co-operative and regulated projects. The general objectives of the Research Service are:

- Support for the researchers, especially in fundraising and fund management.
- Support for the Institution in comprehensive management and decision-making in research material.
- Research structure stimulation



- Promotion and support for forecasting research and assessment
- Research distribution and disclosure

The 27 people making up the Research Service team are highly qualified, with 15 Bachelor's Degree holders, seven of them in the area of Law and Economics and four holding PhDs.

UC3M's Science Park has a singular structure. It is an UC3M instrument (integrated into the structure of the University through the OTRI and not a juridical person) with its objective being to strengthen transfer as a fundamental element for the generation of applied knowledge, making effective the available resources to coordinate the scientific-technological areas in the public and private sectors.

UC3M's Science Park has the specific aim of transferring knowledge, technology and research results from the University to industry (in the disciplines of co-operative, licensed and creation of technology companies) as well as the attraction of and transmission to the University of the demands and future technology needs of society in general and the industrial sector in particular. To this end the University has a multi-disciplinary team of 19 people, forming a solid group of professionals with experience acquired in the industrial as well as innovation fields, carrying out their activity principally in the following areas:

- ✓ Copyright and industrial copyright protection
- ✓ Creation of the University's technology portfolio
- ✓ Marketing of research results
- ✓ Communication, marketing, research results distribution and disclosure
- ✓ Creation of Technology businesses
- ✓ Identification of future technology needs of businesses in the surrounding area
- ✓ Creation and development of Joint Centers and Centers for Innovative Technology
- ✓ Surveillance and technology forecasting
- ✓ Internationalization
- ✓ Business training

To enable the transfer of knowledge to society and thus to the productive sector, the Science Park is built on a series of structures:

- Commercialization and Technology Transfer
- Creation and consolidation of Technology businesses –business incubators

- Technological surveillance services – CIMTAN, Circle of innovation in aerospace and nanotechnology materials
- Marketing and promotion activities
- R+D +innovation: CIT-SEG Safety and Space
- R+D +innovation: Disability and dependence
- Training in science and technology marketing
- Company in-house training

At the same time, UC3M has multiple research infrastructures organized according to needs and objectives: group research laboratories (the majority of the groups have their own laboratories that range from computer rooms to television and radio studios, advanced technological equipment, courtroom, etc), laboratories linked to the Network of Laboratories of the Autonomous Region of Madrid and laboratories integrated into the Science and Technology Park.

Currently there are eight laboratories registered in the Network of Laboratories of the Autonomous Region of Madrid, which have excellent infrastructures, technical support personnel and quality control systems.

The general aim of all of the laboratories is to promote innovative services to the University's own researchers as well as to companies and industry in order to facilitate their access to the University's technological offer.

LABORATORY		CREATED
LINEALT	HIGH VOLTAGE TESTING AND RESEARCH LABORATORY	2000
LACTE	SCIENTIFIC AND TECHNOLOGICAL BUSINESS SUPPORT LABORATORY	2001
LABMET	TRANSMISSION ELECTRON MICROSCOPY LABORATORY	2002
LABMEC	MECHANICAL CHARACTERIZATION OF MATERIALS LABORATORY	2002
LABITV	VEHICLE INSPECTION EQUIPMENT CALIBRATION LABORATORY	2002
LMNM	MULTI-FUNCTIONAL NANOSTRUCTURED MATERIALS	2004

	LABORATORY	
LATIR	THERMOGRAPHY AND INFRARED IMAGES LABORATORY	2005
BIOLAB	BIOMASS FUELS TESTING LABORATORY	2007

The Science and Technology Park has several research infrastructures which are established in eight laboratories specialized in the transfer of research to the business world. Maps and market forecasts in collaboration with relevant businesses in the productive sector and administration were designed to define these laboratories. Following are the lists of laboratories and the year of their creation.

<b>EADS-UC3M Center for Integration of Aerospace Systems</b>	
Systems identification testing laboratory	2008
Computer security laboratory	2007
Communication systems for security and space laboratory	2008
Spectral sensor laboratory	2009

<b>Center for disability and dependence</b>	
Audiovisual accessibility laboratory	2006
Technical aid laboratory	2007
Robotic aid laboratory	2007
DTT accessibility laboratory	2009

# V. Knowledge Transfer Activities

## Research + Development + innovation and Transfer subprogram

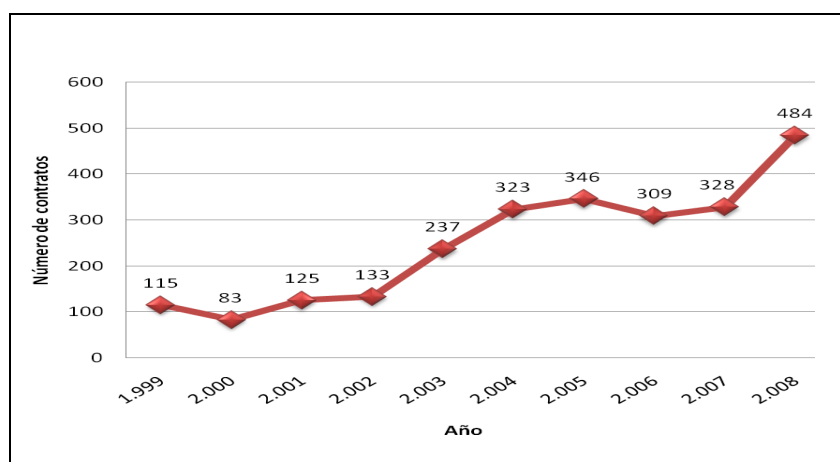
### 1. University-Business connection

The research carried out at UC3M is frequently formalized through contracts, or cooperation agreements with public or private entities (coordinated research). These contracts imply receiving economic resources and facilitate knowledge transfer from the university world to the economic social network.

In 2008, 591 contracts were signed with businesses, which along with the 24 permanent Chairs with businesses, the 34 spin-offs created in the past years, the three joint transfer centers and more than 30 patents, firmly establishes Carlos III Campus's dedication to research and transfer.

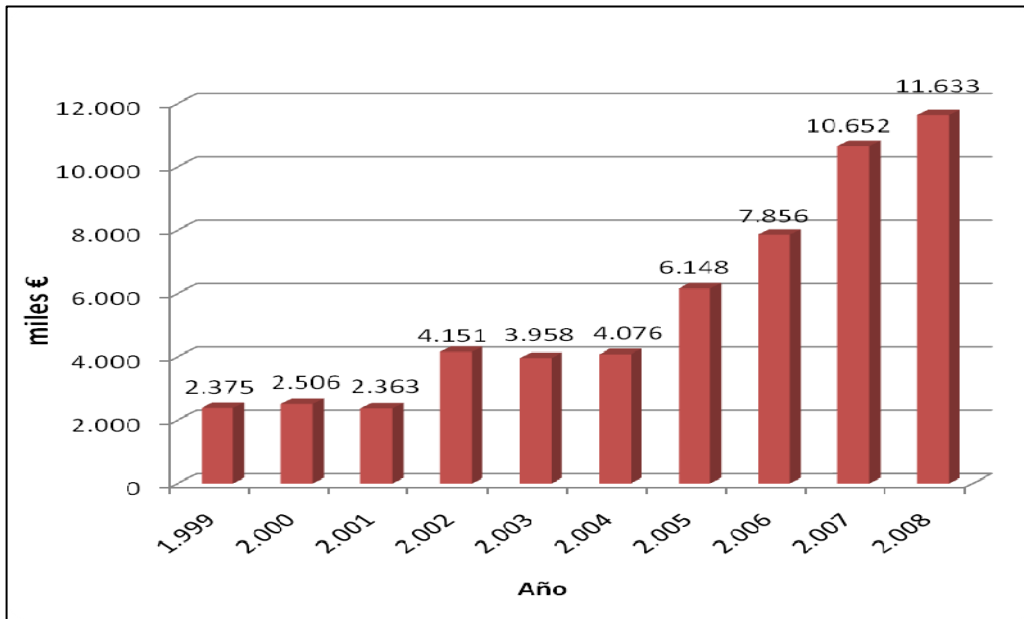
The total UC3M funding obtained for research in 2008 reached the sum of 35 million Euros, 20.2% of the University budget, of which 38% corresponds to national public competitive funding, 26% to private funding, 20% to EU public competitive funding and the remaining 16% to others.

In terms of evolution, financial growth has been stable and sustained over the years. In the case of regulated research, growth has been observed in the number of contracts signed as well as funding obtained, which suggests a vote of confidence from the socio-economic area in the research and innovative role of "Campus Carlos III".



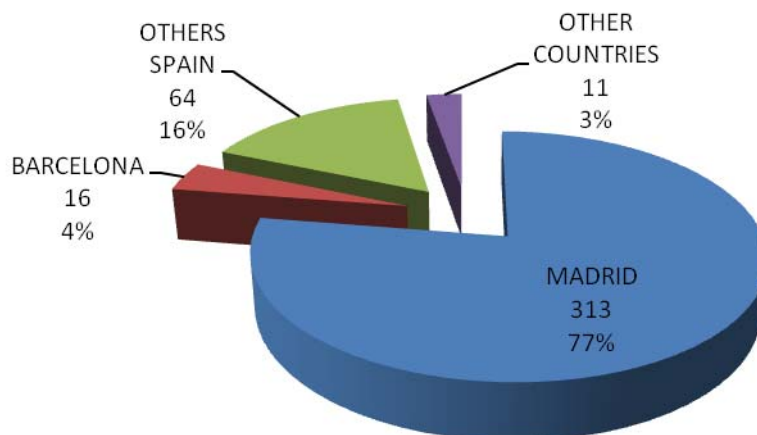
*Evolution of the number of contracts signed with businesses*

(Number of contracts/year)



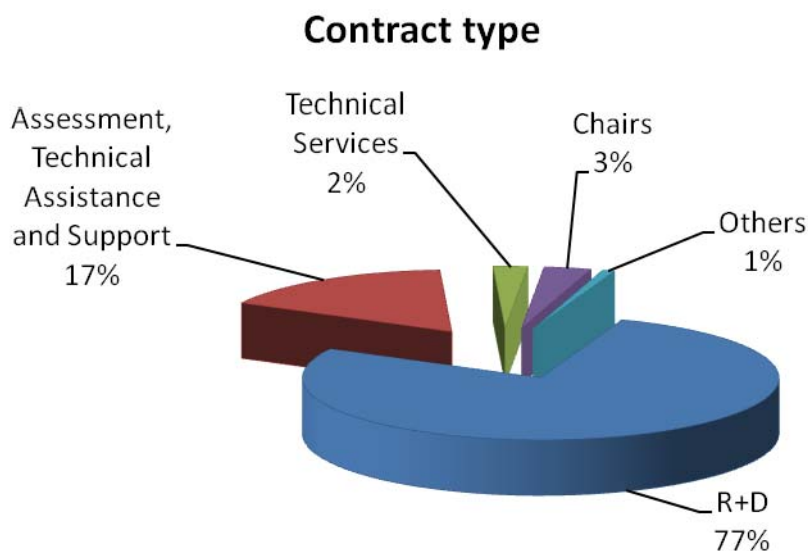
*Evolution of funding obtained  
(thousands€/year)*

The businesses with which Universidad Carlos III collaborates are located in the area of influence of the university: Madrid, Getafe and Leganés, and in other towns of the Autonomous Region of Madrid. In addition the University collaborates with institutions located in other autonomous regions as well as other countries. In the following figure, the locations of the businesses can be seen.



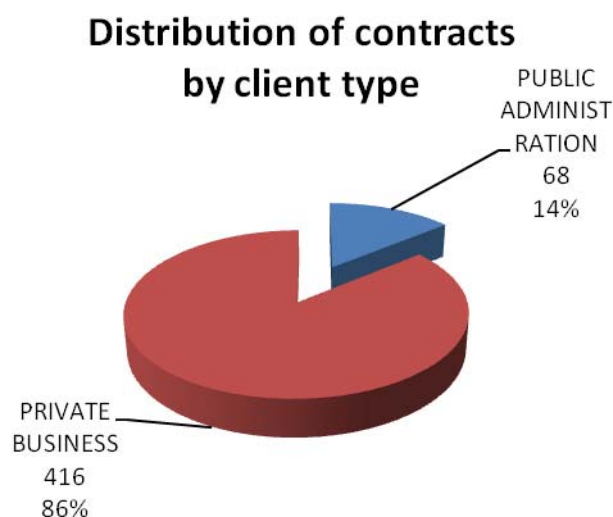
*Locations of businesses collaborating with "Campus Carlos III" (Data from 2005-2008)*

The majority of the contracts signed by the University refer to making R+D +innovation projects (77%). In the following graph the contract distribution by type for 2008 is shown:



In addition, the University signed several Framework Agreements that signify a strong connection with businesses and cover a wide range of activities, including research project development.

The contracts are formalized with private as well as public entities. In 2008, 86% of the contracts were signed with private entities and 14% with public administration:



Lastly, the [List of the businesses which signed agreements with UC3M in 2008](#) provides details about the departments with which UC3M collaborates and Project financing.

## Research Chairs

Through the Chairs a permanent relationship between the University and business is formed to foster a scientific technical field of interest to both parts. “Carlos III Campus” project starts from a solid reality in this aspect, since currently at the University the following research chairs are operational:

- ABBOTT Chair of Economics of Medicine
- AECA Carlos Cubillo Chair of Accounting and Auditing
- ASGECO Chair of Consumer Law
- BESEL Chair of Electronic Power Systems Research and Specific Training
- BANCAJA Chair for Young Entrepreneurs
- BSCH and Fundación Caja Madrid Chair of Statistical Studies
- Concepción Arenal Chair of International Protection of Vulnerable Persons and Groups
- Ericsson Chair of Telecommunication Studies
- Fundación IKERTIA Chair
- Fundación Juan Irrutia Chair of Macroeconomic Forecasting and Analysis
- Fundación Ramón Areces Chair “Luís de Camoes” of Portuguese Studies
- Fundación Universidad Carlos III “Ignacio Ellacuría” Chair of Theology and Religious Studies
- Höganäs Chair of Powder Metallurgy R+D
- Jean Monnet Chair of European Union Studies
- Jean Monnet Chair of European Economic Integration
- María Moliner Chair
- Merck Chair of Social Welfare Enhancing Pharmaceutical Policy

- NOKIA Chair of Information and Communication Technologies Training and Research Program
- PEUGEOT Chair of Systems and Automatic Engineering Research
- PriceWaterhouseCoopers Chair of Actuarial Research
- ROCA Sanitarios S.A. Chair of Mechanical Engineering Research and Development
- SEPSA Chair of Electronic Systems Research and Training
- TELEFÓNICA Chair of Economics and Productivity of Telecommunications

## 2. Scientific and Technology Park

“Leganés Tecnológico” is a Tertiary Science and Technology Park with an area of 2,804,000 m<sup>2</sup> promoted by the Autonomous Region of Madrid, the Leganés City Hall and “Campus Carlos III”. In one of its activities, the Science Park integrates two inter-related areas:

**Business Area:** Businesses with a clear commitment to innovation whose business activity is related to the technology specialization of the park (ICT, Industrial Processes and Advanced Materials) have been included. The business area will be developed in three phases, where the Leganés Technological Consortium will market 93,308m<sup>2</sup>, 66,498m<sup>2</sup> and 114,554 m<sup>2</sup> respectively, for each one of the three phases.

**University Area:** Devoted to the head office of the Science Park and the structures of the Park for the management of the R+D+innovation. A series of instruments which, promoted and managed by Universidad Carlos III, will be located in an area with superior characteristics of image and quality. Construction of buildings for a total of approximately 20,406 m<sup>2</sup> for the first phase is foreseen.



**Science Park**





The Science Park, starting from its definition in the Strategic Plan that initiated its creation, was presented as specialized park, for its business system throughout its area of influence as well as for the University's areas of excellence. This specialization is set out in the following preferential spheres of action.

- Telecommunications
- Informatics
- Industrial Processes
- Advanced Materials

The specific pursuits are:

- Transfer of knowledge, technology and research results from the University to industry (in the disciplines of cooperative projects, IPR licensing, creation of technological businesses, Joint Centers and Innovative Technology Centers).
- The attraction of and transmission to the university of the demands and future technology needs of industry in order to incorporate them into the Carlos III University's research agenda

## Organization

The organizational structure of the Science Park is based on a team which manages and supervises the different instruments for technology transfer, scientific dynamization and dissemination, together with a series of committees and commissions which supervise, assess, and validate the activity of the Science Park.

The managing team of the Carlos III Science Park, in charge of activities related to technology transfer, is made up of **9 people** holding permanent positions. There are 10 staff members who receive partial funding from the University, making a total of 19. The Science Park personnel generally come from the high technology sector and have extensive experience in technological and business management.

Five of the staff members hold doctoral degrees, 12 have engineering or another similar degree, and 2 hold administrative support positions.

## Science Park Monitoring Committees

The activity of the Science Park is regulated by 3 committees which are in charge of assessing and managing the Park's activities:

**Administrative Committee:** Made up of the Vice-Chancellor for Research, the Vice-Chancellor for Infrastructures, the Dean of the School of Law and Social Sciences, the Dean of Humanities, the Dean of the School of Engineering, the Head of Administration, the Finance Director, the Science Park Managing Director, and the Science Park Assistant Director, this committee is the chief decision-making body of the University Science Park.

**Scientific Committee:** International in nature, the Scientific Committee is the entity which establishes and supervises the scientific quality guidelines regarding the evaluation of companies and Centers wishing to form part of the Park. It is composed of individuals of scientific renown from Universidad Carlos III as well as from the national and international community. In addition, its members also include representatives from the University Executive Board and the University members of the consortium who manage the "Parque Leganés Tecnológico" (Leganés Technological Park), which encompasses the Science Park. The Scientific Committee serves as a consultant in all aspects of the Park relating to decisions as to scientific quality criteria. It was responsible for the criteria for assessment and its intervention was pivotal in acceptance of projects presented in the Park in the public bid award for land.

The members of the Scientific Committee are as follows:

Armando de la Cruz	Architect –Division Manager of Town Planning (Leganés City Hall)
Enrique Gómez García	Head of the Technical Industry Unit (Leganés City Hall)
Professor Carlos López Jimeno	Managing Director of Industry, Energy and Mines (CM)
José María Rotellar	Managing Director of Economy, Statistics and Technology Innovation(CM)
Professor Luis Maltez	President of TECPARQUES/ TAGUSPARK
Professor Claire Demain	Catholic University of Louvain
Professor Carlos Balaguer	Vice-Chancellor for Research (UC3M)
Professor Belén Ruiz Mezcuca	Assistant Vice-Chancellor for Science Park Research (UC3M)
Professor Carmen Vázquez	Vice-Chancellor for Quality, Infrastructure, and Environment (UC3M)

Professor Alejandro Balbás de la Corte	Department of Business Economics (UC3M)
Professor Arturo Ribagorda	Department of Information Technology (UC3M)
Professor Miguel Ángel Salichs	Department of Automatic Engineering (UC3M)

**Advisory Committee:** This committee is composed of 16 University professors who are closely linked to the activities and areas of knowledge associated with the Science Park. Its function is of an advisory nature: it guides and unites the varying concepts and ideas for running the different elements of the Science Park.

There are also the following ad hoc commissions:

- **Commission for inventions:** Made up of experts from the different areas of knowledge in the management of IPR. Their mission is to resolve procedures relating to the protection and exploitation of research results generated by the University.
- **Commission for the Creation of Technology-Based Companies:** Made up of experts from the different areas of knowledge involved in Company Creation, its mission is to ensure the correct development of the Business Incubator from two standpoints:
  - Regulatory execution of the activity relating to company creation, adapting to the new legal framework of the current law governing universities.
  - Acceptance of businesses in incubation according to University policy and strategy.

The principal activities of the Technology Park in accordance with the aforementioned missions are: knowledge transfer, technology and University research results for industry (in the areas of cooperative projects, IPR licensing, creation of technology-based companies and creations of Joint and Technical Innovation Centers).

### 3. University Park activities

#### Protection and Commercialization of Research Results

The Science Park Commercialization Unit dedicates most of its effort to identifying those research results which are most apt for transfer, evaluating said results, patenting them, and when appropriate, designing specific plans for commercialization and carrying out follow up on transfer actions.

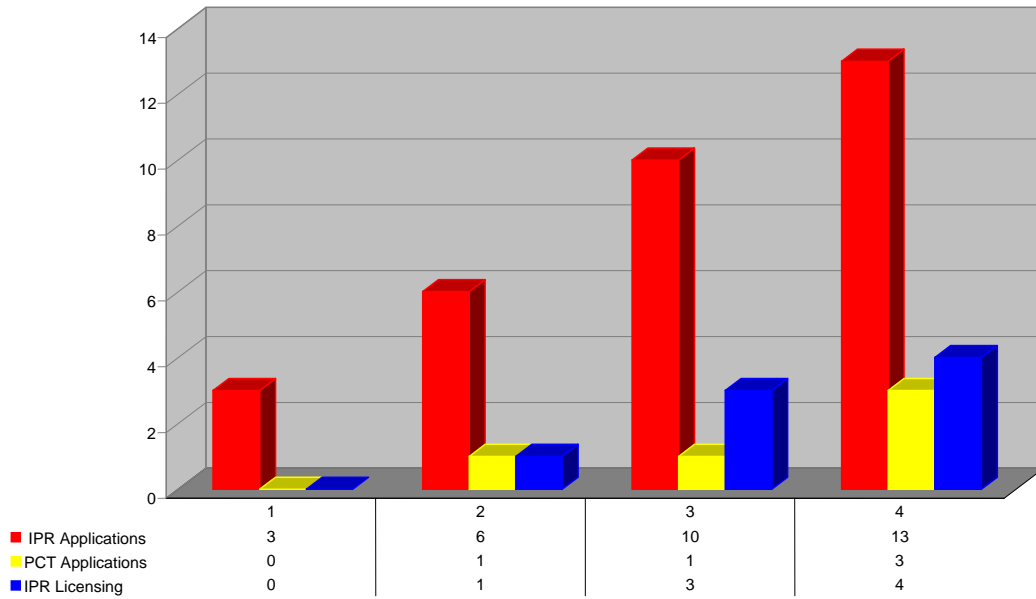
In 2002 **UCAR©TRIP methodology** (derived from TRIP© methodology) was established in the processes regarding identification, evaluation, protection and transfer of research results.

Within the general framework of the UCAR©TRIP methodology, one of the steps set out is the evaluation of results from the point of view of their degree of innovation and market potential, and recommendations on patent applications or efforts to be made regarding commercial activities. Carrying out such evaluation entails analysis of the invention's potential which appears in a document entitled *Informe de Potencial de la Innovación* (Innovation Potential Report), for which the Science Park uses the TIME methodology.

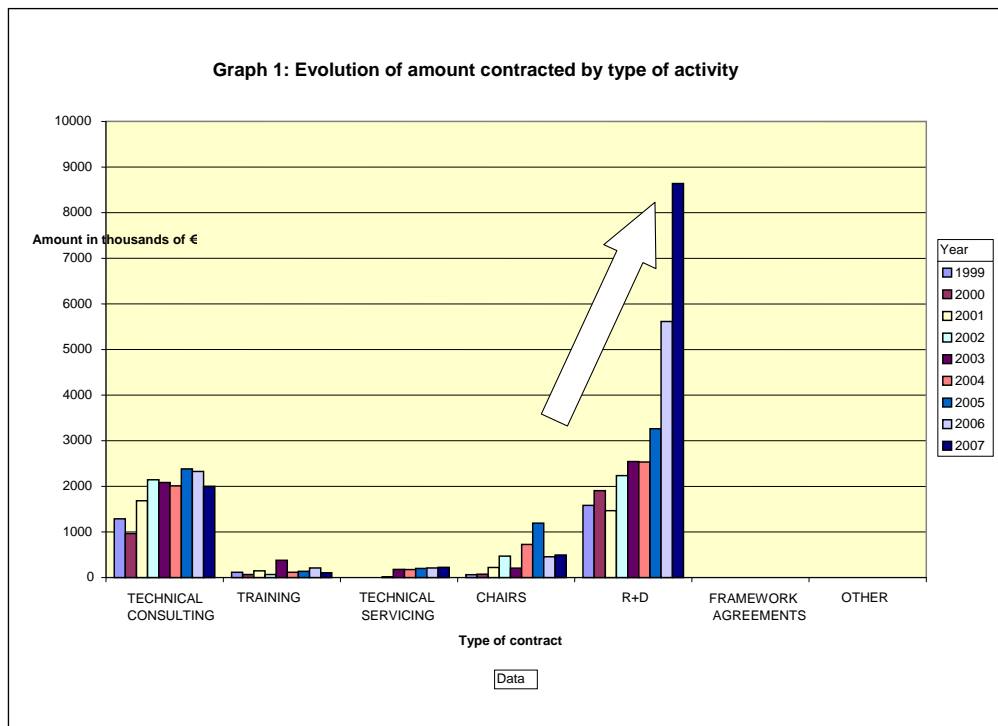
Previously, in 2004, in collaboration with other universities the "Project for the Creation of a Network of Evaluators for Research Results Innovation Potential", RedVALOR (*Proyecto de Creación de una Red de Evaluadores de Potencia de Innovación de Resultados de Investigación*), was developed.

A new project funded by the Ministry of Science and Innovation (Project ORIÓN) is currently being carried out in cooperation, aimed at implanting the MTT model for technology transfer. As a consequence of application of the work methodology, the results obtained in the IPR as well as in the technological offer portfolio are the following:

Evolution of IPR data and Forecast for 2009



Graph 1: Evolution of amount contracted by type of activity



### Creation of Technology-Based Companies Program

The Science Park Program for Company Creation and its Business Incubator are effective and tested instruments for generating the ideal environment to stimulate entrepreneurial capabilities and promoting and facilitating the creation of technology and science based companies—start-ups and spin-offs-. Furthermore, this

program guarantees the companies' subsequent business development, and has been established in Universidad Carlos III as a mechanism to augment and extend channels for commercializing University generated technologies and knowledge

In May, 2002 systematic activity to stimulate and promote entrepreneurial culture was initiated, such as support for entrepreneurs and businesspersons. In accordance with the general objectives of the Science Park, its aims are to:

- Stimulate technological innovation.
- Stimulate entrepreneurial ability within that environment.
- Foment and facilitate the creation and development of science and technology based companies – start-ups and spin-offs – by offering services specialized in information, assessment and assistance.
- Facilitate a mechanism for research results transfer and commercialization of research results for Universidad Carlos III researchers.
- Broaden the research agenda of research groups with cooperative research projects with science and technology-based companies.
- Enable students to carry out internships and final projects within the pre-company and science and technology-based company projects.

The Business Incubator is a member of various national and international networks specialized in matters fomenting an entrepreneur spirit, company creation, technology transfer, and innovation management. Recently, the Business Incubator became a member of the new Technology-Based Company Work Group in the OTRI (Office of Knowledge Transfer) Network. The companies and company projects in the Company Creation program can be observed below:

<b>Pre-Incubation Companies</b>	<b>Incubation Companies</b>	<b>Companies (Post-Incubation)</b>
Daureos	Intecdom Soluciones Domóticas, S.L.	Intelis Solutions, S.A.L.
Diviresca	Nethalis Soluciones S.L.	Gamma Solutions, S.L.
Go Optimizaciones Fotovoltáicas	Arquimea Ingeniería S.L.	Logistec, S.L.
EUDAP, Ingeniería y Servicios	Expace On Board Systems, S.L.	Progresion, S.L.

Pre-Incubation Companies	Incubation Companies	Companies (Post-Incubation)
H2O Solutions	Avantronic Innova, S.L.	Ingeniería Viescas, S.L.
Avanzis - Ingeniería pequeños proyectos	Advantia Plus, S.L.	
	Sensia, S.L.	
	ICEMM	
	Akcelware, S.L.	
	Ergodomus, S.L.	
	Flavia Aeronautica y Sistemas, S.L	
	Clustermind	
	Sun2Market	
	Capital Certainty	
	Betatick, S.L.	

In addition, there are eight company projects currently being evaluated for business opportunities.

### **Centers for Innovative Technology (CIT's)**

The growing complexity of the demand for business technology is an impetus for the University to be prepared to confront the needs of these companies. University structure does not favor transversality in research as it is organized around departments and research groups in a clearly vertical fashion and hence, it is necessary to create instruments which facilitate encounters between the different complex technologies and the reality of today's market; its aim is to approach complex technological demands and find solutions for the world at large, and for the business sector in particular. In addition, "Campus Carlos III" has the added advantage of having within its fields of research the following areas: Engineering (Industrial, Information Science and Telecommunications), Law and Social Science, Library Science and Documentation, Journalism and Audiovisual Communication, and Humanities, thereby enabling it to respond to the needs of society in a integral fashion.

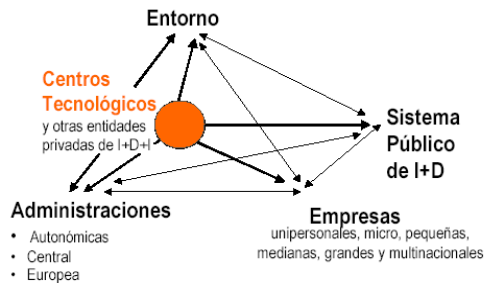
Through its Science Park, “Campus Carlos III” establishes different plans of actions and instruments to carry out these plans. The work methodology to define these plans of action is as follows:

- A study of University capabilities: Creation of a University Technology and Knowledge Map, thereby studying, classifying and structuring the University’s technology and knowledge offer.
- Market needs analysis: a study by sector of the technological demands of the market through multiple mechanisms including technological surveillance and market study, white papers, market knowledge by Science Park personnel, ad hoc studies, etc.
- Mesh supply/demand with the creation of an area of University competence within the sector.
- With this work methodology numerous market sectors have been identified in which University knowledge and technology give them competitive positions. At the present the defined areas are:
  - Disability and dependence
  - Aerospace and security
  - Spanish Center for Subtitling and Closed-captioning
  - Sustainability (undergoing study)

New areas for future study are continuously being evaluated.

In addition, instruments must be created which allow the different agents to function in an integrated manner. Instruments which enable this joint action are the Centers for Innovative Technology and Joint Centers, which offer a unifying structure for the distinct agents of innovation. Among their activities is the creation of a common information space which allows them to identify the specific needs of companies and adjust their offer of services. This common space should be understood as the result of an interactive learning process in which not only the companies participate, but other agents in this environment as well, such as universities and public centers of research together with public administrations.





( FEDIT Report 2001)

**Technological Centers – Surroundings** - **Public R+D System** – **Businesses** (single-proprietor, micro, small, medium and multinational) – **Administrations** (Autonomous, Central, European)

In addition to the transfer of technology, bringing the knowledge generated by the university closer to the technology needs of a company (Joint Center) or to a specific center (Centers of Innovative Technology) offers individuals with specific talents a channel for challenging professional development. To this end, the University has created the following centers whose primary objective is attracting and retaining talent:

- **Center for the Integration of Aerospace Systems EADS-UC3M:** this is a joint area of work with EADS/ UC3M, companies and other social agents to bolster the processes of innovation, generation and transfer of knowledge and technology within the aerospace sector. There are 35 research groups carrying out these activities. Further information can be found at:

[http://www.uc3m.es/portal/page/portal/investigacion/parque\\_cientifico/centros\\_idi/Sistemas\\_Aeroespaciales\\_EADS\\_UC3M](http://www.uc3m.es/portal/page/portal/investigacion/parque_cientifico/centros_idi/Sistemas_Aeroespaciales_EADS_UC3M)

- **Center for Technology for Disability and Dependence:** The Center for Innovative Technology for Disability and Dependence is a Technology Platform for joint activity between: University, public administration, the Company and associations of special needs persons or persons in a situation of dependence, which search for and develop technical aids, services and innovative technological services, with the aim of improving situations of dependence of the disabled or the elderly. These lines of R+D+i incorporate 15 University groups and institutes. Further information can be found at:

[http://www.uc3m.es/portal/page/portal/investigacion/parque\\_cientifico/centros\\_idi/discapacidad\\_dependencia](http://www.uc3m.es/portal/page/portal/investigacion/parque_cientifico/centros_idi/discapacidad_dependencia)

- **Spanish Center for Subtitling and Closed-captioning:** The CESyA is a center of the *Real Patronato sobre Discapacidad* (The Royal Board on Disability), Ministry of Health and Social Policy, whose interdisciplinary Project is to enhance accessibility in the audiovisual media through subtitling and captioning services, training in

assistive technology, and support systems and services for the disabled.

<http://www.cesya.es/>

## 4. Reinforcement mechanisms and the Transfer Function

### Internationalization

The development of new technologies has brought about a new type of relationship between scientific knowledge and productive activity, as well as other factors such as the speed and continuous nature of the changes, from a supply and demand viewpoint, internationalization and the globalization of economies, the new forms of control and management in the face of situations of uncertainty, thereby forming a new context of global action, in which knowledge production and management is essential.

Aspects vital for this approach of knowledge production are: commercialization of research results, the massive development of higher learning centers, the importance of humanities in knowledge production, and taking into consideration the effect of globalization in this area, given that knowledge as well the flow of information are key resources in the global economy. Within the foregoing scenario the following plans for action are set out:

- Collaboration with agents and networks for the establishment of joint policies aimed at the protection, evaluation and internationalization of patents.
- Holding meeting and workshops aimed at the internationalization of technology supply and demand of “Campus Carlos III”
- Internationalization of the Centers of Innovative Technology and Technology-based Companies from the University Business Incubator.
- Increasing the social capital of technology-based companies linked to the Science Park, with the aim of broadening access for start-up technology based companies to markets, technologies, sources of funding, and services. The final aim is for technology-based companies to increase the amount of contracts for R+D projects.
- Actions to enhance dissemination and interrelation to foment activities and the use of international networks and clusters which currently form part of the University, and are listed at the end of this chapter.

### Marketing

Marketing the Science Park began in 2004, with the aim of offering a strategic perspective to the actions for technology and innovation transfer, giving support and interdisciplinary service to the aforementioned areas of the Science Park: commercial results of research, creation of Technology-Based Companies and University Innovation Centers.

## **Internal Professional Training**

The Science Park personnel serve as the interface for the internal and external clients (the researchers and companies) with the rest of the actors and interested parties (the stakeholders) in the knowledge transfer process.

The Science Park must have a highly specialized technical content (industrial or intellectual property, technological surveillance, strategic market, seed capital, stock portfolio management, etc.). Thus, its personnel too must have a high level of scientific and technological training, and the Science Park must take care not to lose its human resources and knowledge. Functions such as marketing the activities of the University, economic analysis of the existing or potential technology-based companies, all so important for the evolution of the technology transfer activities, are not easily controlled.

The foregoing highlights the importance of the internal and external training courses and plans to ensure the training and continuing education of those who make up the Science Park.

## **Technological Surveillance**

The short and medium term objective is to observe trends in science, technology, and the economy, as well as within society with the aim of identifying emergent technologies that are most likely to produce the most economic and social benefit.

The Science Park offers specialized surveillance services for the different business sectors. Its aims are:

1. Utilization of surveillance activity in “Materials and Nano-Materials” as a means to identify and resolve critical problems of companies and the sector in the materials area through the following actions:

- Identification of research assets
- Analysis and review of scientific-technical information
- Identification of existing technologies on the market
- Identification of technology trends
- Analysis of the aspects of the materials and nano-materials market

2. Creation of a context for collaboration between researchers and companies which offer links for cooperation in carrying out joint activities. As a result of said

collaboration, offering services that increase companies' technical capacities, materialized through the following activities:

- Presentation of R+D research proposals
- Signing agreements
- Transfer and technology contracts
- Technology services contracts
- Training services

3. Creation of a culture of service within public research institutions.

4. Increase the competitiveness level of the Autonomous Community of Madrid.

### **Providing advanced services for companies**

Today's economy is based on knowledge as a key factor in the generation of value process. Knowledge is the asset which must be managed, administered and controlled. Notwithstanding, given the fact that trust is a principal factor in the relation between the two players carrying out R + D, it is important that companies have easy access to the University through a single channel, thereby eliminating barriers between industry and academia and thus achieving a two-fold objective: serving as a catalyst and offering support for other issues peripheral to R+D but necessary for innovation and company success. The activities are carried out from the area of services in the Science Park which can be classified according to the area of the company:

Technological:

- Access to R+D groups
- Access to Scientific Infrastructure
- Search for technology-business-consortium partners
- Surveillance and forecasting
- Technology maps
- Innovation Management
- Management of tangibles
- Channeling assessment in Intellectual and Industrial Property and Patents

- Assessment for new Science and Technology Parks in their creation and development of transfer activities.

#### Financial

- Obtaining funding
- Support in drawing up proposals and projects for public bids
- Economic Impact of R+D+i: tax deductions and tax breaks
- Market, Human resources and others
- New competitive intelligence markets
- General professional training, tailored to specific needs
- Access to technological personnel
- Image Assessment and Corporate Social Responsibility

#### **Membership in networks and clusters**

Among the most efficient structures for fomenting innovation are networks which bring together all of the agents who promote innovation. Along these lines, Universidad Carlos III participates through the Science Park in the following Networks:

- Red de Parques y Clusters de la Comunidad de Madrid (Networks of Parks and Clusters in the Madrid Autonomous Community)
- APTE-Asociación de Parques Científicos y Tecnológicos de España (Spanish Science and Technology Parks Association)
- IASP (International Association of Science Parks)
- Fondo Capital Semilla Uninvest
- CRUE Network
- Red Valori para la valorización de resultados de investigación (Network for the valorization of research results)
- Sistema Madri+d
- Gate2Growth (Initiative of the European Commission consisting in establishing a Pan-European network and services which link innovation and company )
- Incubator Forum (Pan-European Network of technology-based incubators)
- Proton Europe (Pan-European Network for cooperation and dissemination of good practice in apprenticeships)

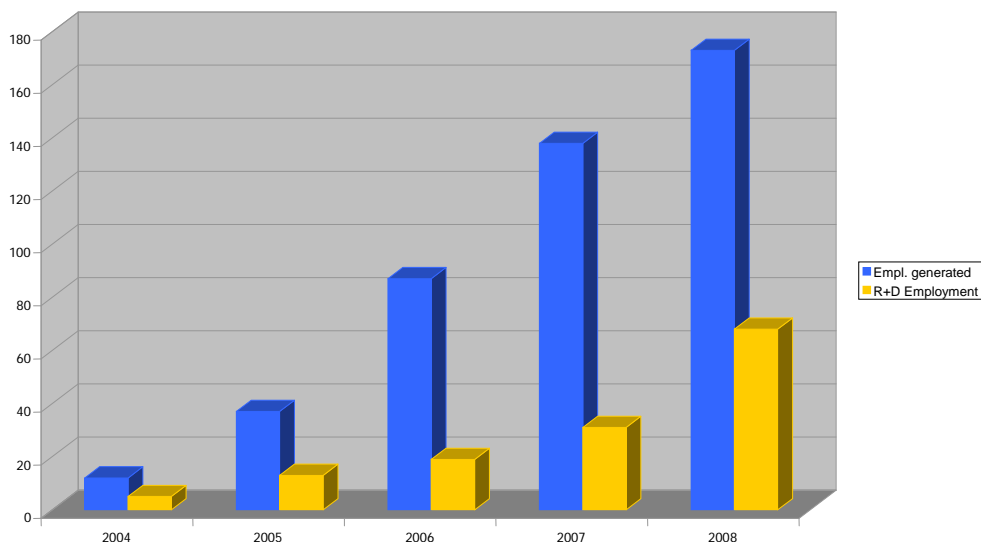
- Security and trust cluster of the Autonomous Region of Madrid
- Aeronautic Cluster of the Autonomous Community de Madrid (in application process)
- European Enterprise Network

### Generation of induced employment

One of the principal objectives of the Science Park of the “Campus Carlos III” is generation of high value added employment. This policy will enable it to contribute to industrial and economic development through technology transfer. The most important indicator to evaluate achievement of this goal is the number of jobs generated by the Park itself.

Among the key instruments for creating new employment are the technology-based companies, as spin-offs or start-ups. Since launching the creation program for technology-based companies at the University in 2002, and with the availability of physical infrastructure for housing companies since 2004, Carlos III has supported more than 34 companies. At present there are 6 licensed businesses, 15 receiving incubation services and six in pre-incubation. The following Table presents the accumulated data for the creation of net employment in specific jobs in R+D. The number of jobs generated at the University in 2008 rose to 186, with 62 individuals employed in R+ D activities.

EMPLOYMENT GENERATED BY BUSINESS INCUBATOR



Among the important instruments for the creation of stable employment are the Joint Centers and Centers for Innovative Technology which have their own legal status. Despite the fact that they have been in existence for a shorter period of time than the Business Incubator (the Center for Innovative Technology for Disability and Dependence was created in 2006, and in 2008, the Joint Center EADS/UC3M was created) the two centers have been able to generate temporary jobs, which are in the process of becoming permanent positions.

Further information regarding the program of technology-based company creation can be found at:

[http://www.uc3m.es/portal/page/portal/investigacion/parque\\_cientifico/vivero\\_empresas](http://www.uc3m.es/portal/page/portal/investigacion/parque_cientifico/vivero_empresas)







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