THE SITUATION OF CATALAN PUBLIC UNIVERSITIES IN THE EUROPEAN RESEARCH AREA

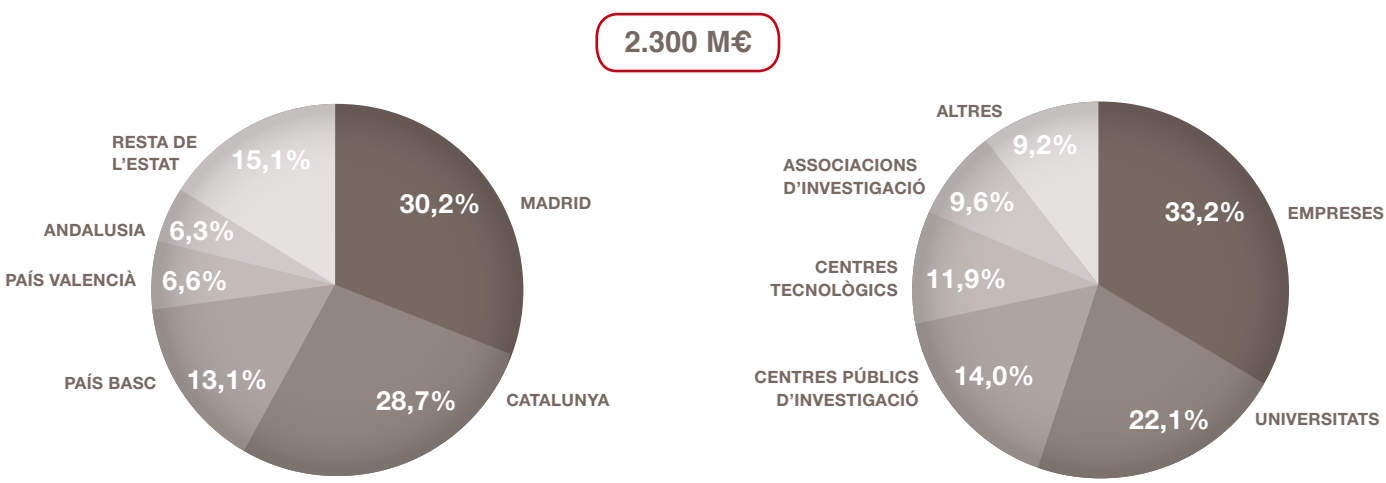
A comparative study of the ability of Catalan public universities to obtain European funds for their Research, Development and Innovation

INTRODUCTION

The European Union's Seventh Framework Programme for Research and Technological Development

The 7th Framework Programme (FP7) is the European Union's (EU) main instrument for funding research, technological development and innovation projects to which it assigned a 50,521 million euro budget for the 2007-2013 period. Figure 1 shows the provisional results of Spanish participation in the FP7, corresponding to the 2007-12 period, which was published in the Centre per al Desenvolupament Tecnològic i Industrial (Centre for Technological and Industrial Development), the CDTI, in December 2012.

Figure 1. Funding received from the FP7 by territorial distribution and type of institution

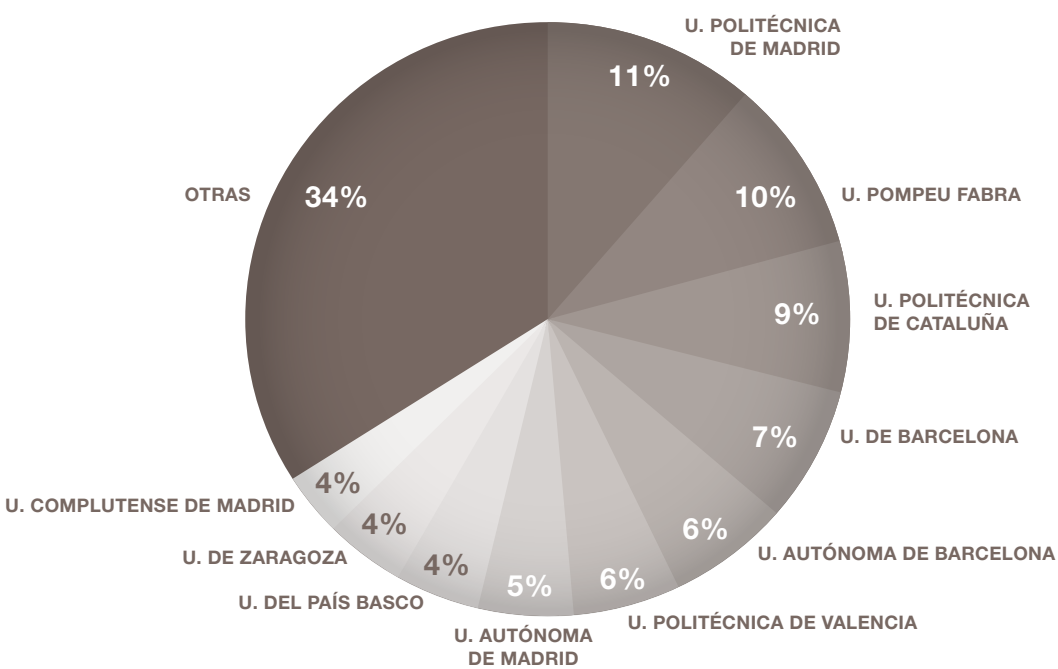


Source: CDTI, provisional results for 2007-2012.

The following considerations can be extracted from the results of the Spanish participation:

a) Territorial distribution: Catalonia obtained 28.7% of all the funding, representing 1.3% of the total budget of the Framework Programme. Catalonia, Madrid and the Basque Country account for 72% of the funds obtained.
b) Funding: the institutions of Spain obtained funding of €2,300m —8.3% of the budget assigned for the EU-27— which involved an overall investment of €3,300m in research, development and innovation activities.
c) Position in Europe: these results place Spain in fifth position with regard to funding obtained, behind Germany, the United Kingdom, France and Italy. During this period, 2,155 institutions —1,363 companies— have participated in 4,553 funded activities.
d) Leadership: in the FP7, the project leadership rate of Spanish institutions is 10.4%, ahead of the 6.3% in the FP6 (2002-06).
e) Return: the state universities obtained 22.1% of all the funding obtained in Spain. With regard to the 25 institutions that received most funding, we would highlight the presence of 12 public universities, four of which are Catalan (Polytechnic University of Catalonia (UPC), Pompeu Fabra University (UPF), Autonomous University of Barcelona (UAB), University of Barcelona (UB)). The four universities obtained 32% of the funding obtained by Spanish universities, 7% of the funding that Spain received.

Figure 2. Percentage of individual return in comparison with the total return of Spanish universities[1]. (2007-2012)



Source: Ministerio de Economía y Competitividad. Gobierno de España.

[1] *Launch of "El Plan de Incentivación a la Participación española en H2020" by María Luisa Poncela, General Secretary of Science, Technology and Innovation (June 2003).*

European Research Council (ERC)

During 2012, the fifth edition of the calls for proposals was completed, offered by the European Research Council (ERC) to attract and retain the best researchers in different modalities:

a) Starting Grants (SG) offering support to young researchers who wish to set up or consolidate an independent research team, which gave grants to 536 researchers and which will receive a maximum grant of €1.5m to carry out a project over a five-year period. Of the people given the grants, 29 work in Spanish institutions, 14 of whom are in Catalan universities and research centres.
b) Advanced Grants (AG), for established senior researchers, were given to 302 researchers and envisage maximum funding of up to €2.5m for the five years that the projects last. Of these, 15 work in Spain, nine of whom are in Catalonia —four in universities and five in research centres.

Since 2007, when these grants started, 3,407 researchers have been given grants, 193 in Spain, 97 of whom were in Catalonia (50%). Of these 97 researchers —58 SGs and 39 AGs— 52 work in CERCA centres run by the Generalitat of Catalonia, 37 in universities, five in Catalan CSIC centres (Spanish National Research Council) and three in large infrastructures and scientific parks. Of the 97 researchers, 39 (40%) have ICREA (Catalan Institution for Research and Advanced Studies) contracts.

Horizon 2020

The European Commission works on specifying the package of measures for promoting research, innovation and competitiveness in Europe, which will constitute the framework programme for research and innovation for the 2014-20 period: Horizon 2020. For the first time, it brings together all the EU research and innovation programmes in a single programme. The strategy to meet the objectives of the programme is structured on three priorities: science excellence, industrial leadership and social challenges. When writing this part (July 2013) the European Parliament had not yet approved the setting for the EU funding for the 2014-20 period, on which the funding of the plan depends.

RESULTS OF THE PARTICIPATION OF CATALAN UNIVERSITIES IN FP7

Development from the 6th to the 7th framework programme

Though still waiting to know the results of the latest calls for proposals of the 7th Framework Programme, table 1 below shows a significant increase in the success of Catalan universities in obtaining resources with regard to FP6. The universities have multiplied the funding of their projects by 2.5 and have almost tripled the number of project coordination.

Table 1. Comparison of the participation of Catalan universities, between FP6 and FP7

	FP6	FP7 [1]
No. of projects funded	441	**724**
Projects co-ordinated (no.)	33	**84**
Projects co-ordinated (%)	7,5%	**11,6%**
Total funding	94.900.624	**239.448.271**
% Funding (vs. total FP funding) [2]	0,50%	**0,50%**

(1) Data on 30 June 2013

(2) Total budget of FP6: €19,113 m; total budget of PM7: €50.521 m

Source: Catalan Public Universities.

Table 2. Participation of Catalan universities by FP7 programmes

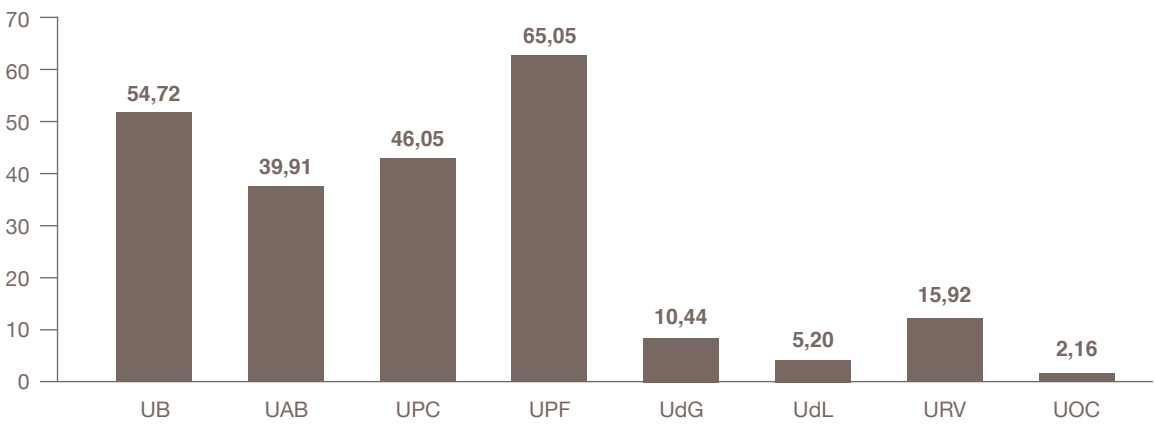
FP7 programmes		Proposals submitted	Projects approved	Of which coordinated	EC funding	
Cooperation		2,135	356	53	€ 116,128,56	48%
Capacities		181	75	7	€ 13,386,821	6%
Ideas	Individuals	556	45	0	€ 63,403,808	27%
	Synergy	26	0	0	-	0%
	PoC	5	0	0	-	0%
People	Individuals	507	133	0	€ 20,977,084	9%
	ITN	206	36	4	€ 14,222,232	6%
	IRSES	23	28	8	€ 2,776,170	1%
	IAPP	18	11	1	€ 2,889,783	1%
	NIGHT	7	7	7	€ 107,945	0%
Others	Euratom	17	9	0	€ 1,044,449	0%
	CIP	25	9	2	€ 1,575,732	1%
	PPP/ PPI	11	3	0	€ 798,334	0%
	ERA-NETs	10	10	2	€ 2,137,346	1%
TOTALS		**3,709**	**722**	**84**	**€ 239,448,271**	

Source: Catalan Public Universities.

Catalan universities mainly participate in collaborative projects in the "Cooperation" programme, from which they obtain almost 50% of the funding for their projects, although we should particularly mention the success obtained in the "People" programme, both with regard to its network activities as well as, and specifically, to individual actions. We should also point out the ability to obtain funding from the "Ideas" programme, through the "Individuals" call for proposals, in which the researchers submit their individual research project, which is of a highly notable scientific excellence. We should also mention that many of these researchers are at the ICREA (Catalan Institution for Research and Advanced Studies), as we mentioned in the introduction to this document.

Comparison between Catalan universities

Figure 3. Total resources obtained from the FP7 for each Catalan university (in millions of €)

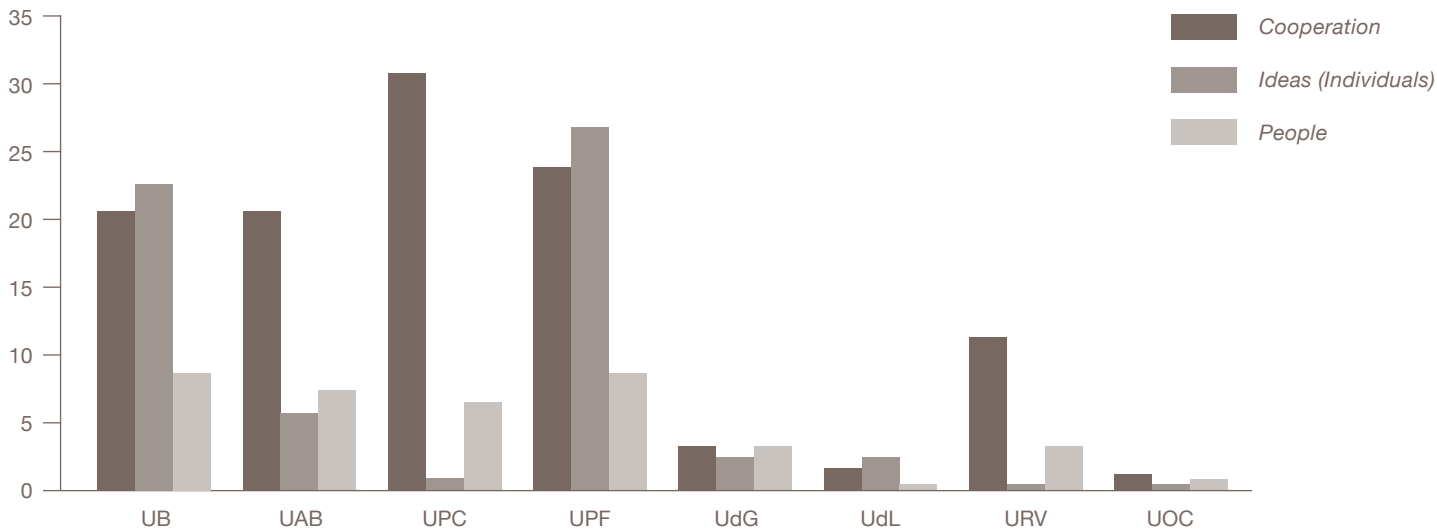


Source: Catalan Public Universities.

Figure 3 shows the distribution of European funds from the FP7 obtained by the different Catalan universities, corresponding to their amount. However, the exception can be seen in the UPF which is notable for its ability to raise funds in the Ideas Programme (Individuals), in which it even exceeds its capacity to raise funds in the Cooperation programme.

Figure 4 shows a breakdown of the FP7 programmes and it can be seen how there is inequality in the behaviour of different universities, depending on where they focus the efforts of their researchers.

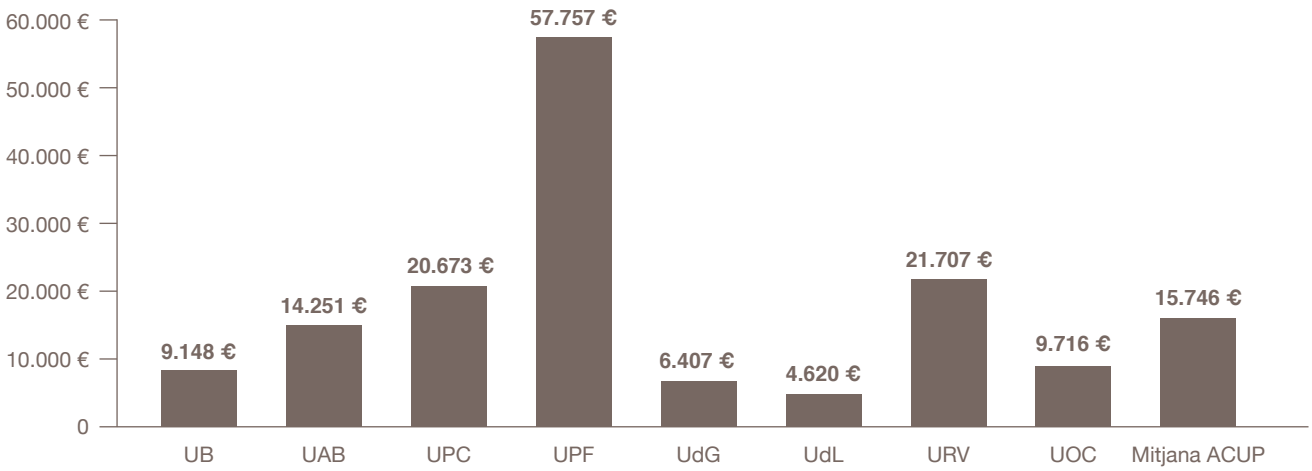
Figure 4. Total resources obtained from the FP7 for each Catalan university, from the three most important programmes: Cooperation, Ideas (Individuals) and People (in millions of €)



Source: Catalan Public Universities.

If we look at the resources obtained in comparison with the full-time teaching staff with doctorates at universities, the UPF (€57,756) and the URV (€21,706) are those that show a greater average ability to obtain resources.

Figure 5. Resources obtained from the FP7 – "Cooperation" Programme (up until 2012) per number of full-time teaching staff with doctorates (in 2011)

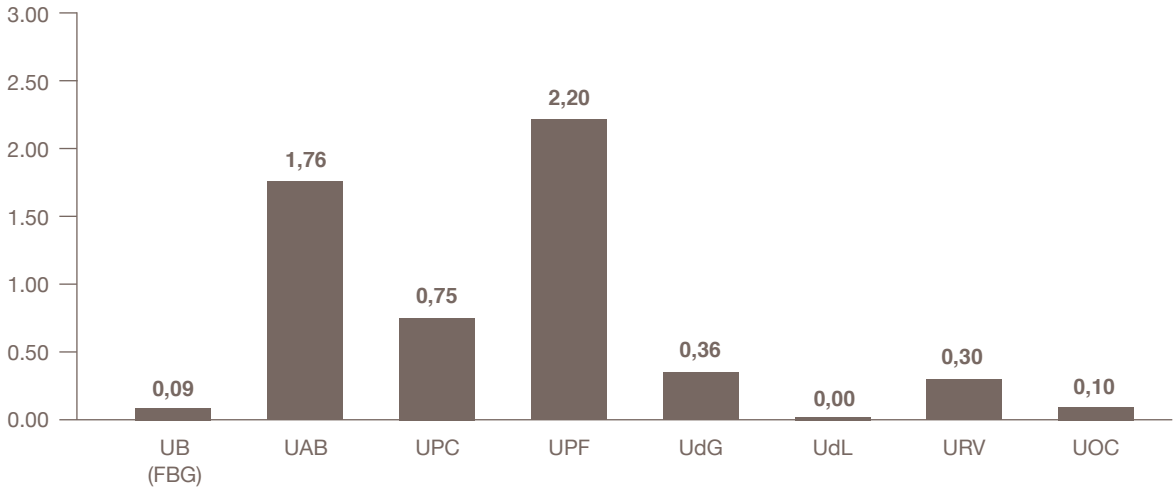


Source: Catalan Public Universities.

Other programmes outside the FP7

Catalan universities also receive funds from programmes such as Euratom, PPPs, CIP and ERA-NET, to a total sum of €13.7m, corresponding to 178 projects (21 coordinated).

Figure 6. Resources obtained from other programmes (CIP, PPP, Euratom, ERA-NET) (up until 2012) per number of full-time teaching staff with doctorates (in 2011) (in millions of €)



Source: Catalan Public Universities.

SUCCESS STORIES FROM CATALAN UNIVERSITIES

UNIVERSITY OF BARCELONA

Title of the Project	The use of racial anti-discrimination laws. Gender and citizenship in a multicultural context		
Acronym	Genderace		
Start date	February 2008	**Duration**	2,5 years

The GendeRace project deals with the reality of multiple discrimination from the experience of individuals, explored from what is suffered, organised as such, reported and dealt with legally, examining the use and the influx of anti-discriminatory laws in the comparative European framework. Under the conceptual paradigm of intersectionality, the research addresses questions such as how the categories of gender and racism interact in the context in which these discriminatory realities take place; how strategies of resistance are constructed and altered; or up to what point the legal framework of the member states recognises intersectionality in the reality of multiple discrimination. With an innovative methodology that blends the anthropological tradition of ethnography and the analysis of legal cases, 260 interviews are explored in depth as well as 924 cases of reports for gender discrimination and racism in six European countries. The empirical results show the differences in the interpretations of the legal system and how reports from men and women are dealt with, according to their origin. At the same time, it exposes how the multiple dimension of discrimination is essential in experience, but not sufficiently recognised by the legal and institutional frameworks, adjusted to a single, rigid category of male and female. However, beyond the conceptual contribution, the success of the research lies in its direct contribution to social practice. The GendeRace report made up the evidence of the "third-party interveners" in the case of Beauty Solomon against Spain in the European Court of Human Rights, which ended with the first sentence for multiple discrimination against the state, condemned to compensate the victim and to transpose the directives.

Scientific coordination: *Dra. Olga Jubany, Universitat de Barcelona.*
Partners: *ULB-Bélgica, MDX- Reino Unido, IMIR-Bulgaria, TUB- Alemania, Mälmo U-Suecia.*

SUCCESS STORIES FROM CATALAN UNIVERSITIES

AUTONOMOUS UNIVERSITY OF BARCELONA

Title of the Project	People for Ecosystem-based Governance in Assessing Sustainable development of Ocean and coast		
Acronym	PEGASO		
Start date	01/02/2010	**Duration**	48 months

PEGASO is a collaborative project that seeks to help Mediterranean countries put into practice the Protocol for Integrated Coastal Zone Management (ICZM) in the Mediterranean and explore its applicability to the Black Sea. The main objectives of PEGASO are to identify the instruments needed, and build the capacity for implementing the principles of ICZM Protocol in order to help countries put it into practice. PEGASO is working with policy makers, scientists and planners to develop a range of tools and new approaches to achieve sustainable regional coastal planning and management.

The core of PEGASO is the development of an ICZM Governance Platform that is used to share data and information to bridge science and decision-making, test sustainability tools developed by PEGASO through case studies and build a common understanding on priority issues and institutional perspectives. The methodology is organised according to 6 different packages with various key tangible outputs:

- *The development of an ICZM Governance Platform as a bridge between scientists and end users (administration bodies, managers).*
- *A Spatial Data Infrastructure of coastal and marine zones in the Mediterranean and Black Sea aimed at better informed decision-making at all levels.*
- *Technical and methodological multi-scale tools for the coastal zones to provide guidance on management strategies and option scenarios.*
- *An integrated regional assessment of the Black and Mediterranean Seas to allow partners to identify both threats to regional seas and effective management responses.*
- *Training material on ICZM to build and enhance capacity among stakeholders and facilitate the implementation of the Protocol.*

PEGASO is a collaborative project coordinated by the UAB and involving 25 institutions and organizations around the Mediterranean and Black Sea. It receives a EU contribution of €6,999,004.56, of which €1,095,647.99 are allocated to the UAB.

SUCCESS STORIES FROM CATALAN UNIVERSITIES

POLYTECHNIC UNIVERSITY OF CATALONIA

Title of the Project	Femtocell-based netwoRk Enhancement by intErference managEment and coorDination of infOrmation for seaMless connectivity		
Acronym	FREEDOM		
Start date	01/01/2010	**Duration**	24 months

*Currently, femtocells and macrocells are seen as isolated networks, competing for the resources available in the common spectrum band, at the cost of injecting interference into the whole system. The FREEDOM project will face key technical and industrial concerns about the foreseen mid-term massive deployment of femto*cells by adopting a new approach based on cooperative/coordination paradigms, enabled by the limited ISP backhaul link.*

The project will not disregard the approach of isolated networks because it is met when there is not enough backhaul link connecting the femtocells and macrocell. In order to guarantee a strong focus and efficiency, FREEDOM will focus on advanced interference-aware cooperative PHY techniques; improvement of the control plane procedures for seamless connectivity and system-level and hardware feasibility evaluation of the proposed femto-based network architecture.

Continuation of the FP7 project co-ordinated by the UPC: Rocket (ICT-2007.1.1-215282) and predecessor of the project co-ordinated by the UPC: Tropic (ICT-2011.1.1-318784)

SUCCESS STORIES FROM CATALAN UNIVERSITIES

POMPEU FABRA UNIVERSITY

Title of the Project	Programa de movilidad transnacional para investigadores/as postdoctorales de la Universitat Pompeu Fabra		
Acronym	UPFellows		
Start date	01/05/2013	**Duration**	60 months

The objective of UPFellows is to promote recruiting talent and the transnational mobility of postdoctoral researchers who show internationally proven levels of excellence with the potential to become leaders at a worldwide level in their corresponding field of research and who are clearly outstanding due to their scientific career and the quality of their research and of their publications.

To achieve this, the UPF offers an attractive three-year professional development programme which combines a competitive salary with a highly stimulating scientific environment in which the person selected will have the opportunity to extend their professional horizon and to collaborate with leading research groups.

UPFellows has a budget of €5.5m and receives funding from the EU of €2.2m (40%) from the FP7 COFUND programme for an offer of 24 places.

The process involves the publication of open, competitive calls for proposals and setting up an evaluation process with the constitution of a selection committee and assigning remote assessors. All the information is available on the programme website: www.upf.edu/upfellows

SUCCESS STORIES FROM CATALAN UNIVERSITIES

UNIVERSITY OF GIRONA

Title of the Project	"International Research Exchange for Biomedical Devices Design and prototyping" "Climate Change and Inland Seas: Phenomena, Feedbacks, and Uncertainties. The Physical Science Basis" "Chemical Bonding and Aromaticity in Novel Inorganic and Organic Clusters"		
Acronym	IREBID, CLIMSEAS, CANIOC		
Start date	May 2010	**Duration**	4 years

The University of Girona coordinates three projects in the IRSES programme, which promote the exchange of research and technical staff between European research organisations and countries outside the EU. These three projects are IREBID, CLIMSEAS and CANIOC.

The IREBID project promotes a network which has the aim of creating and reinforcing synergies between the fields of medicine and engineering to develop new technological solutions in the health area. The project has set up new communication channels between doctors and engineers that have allowed problems to be detected and effective, innovative solutions to be found for the development of new, more efficient, economical and safe biomedical products. Notable results include the development of new prostheses and implants, new medical devices and new simulation models.

The CLIMSEAS project has allowed the creation of a network for exchanging expertise in the climate change area and the anthropogenic impact in regions with inland water bodies. The main area of study has been the central area of Europe and Asia (the Black Sea, the Caspian Sea and the Aral Sea). At the same time, Lake Vistula, Lake Balaton and different marginal seas in the Arctic Ocean in which the evidences of the climate change are highly significant, together with the Catalan coast and its reservoirs, particularly that of Boadella.

The CANIOC project coordinates an international network of experts to define new metal nanostructures with specific chemical properties. Using computational methods, the project studies the aromaticity and chemical bonds in metal and semi-metal clusters that could have as yet unimagined properties, such as intense nonlinear optic properties with catalytic efficiency, for use as possible drugs and in the future development of the electronics industry.

Website:

http://irebid.udg.edu/
www.udg.edu/climseas
http://stark.udg.edu/~davidh/CANIOC/v2/index.html

SUCCESS STORIES FROM CATALAN UNIVERSITIES

UNIVERSITY OF LLEIDA

Title of the Project	*Obtaining bio-fortified cereals with a high vitamin content*		
Acronym	Bioforce		
Start date	01/02/2010	**Duration**	5 years

The MW 37 millet variety is white, in other words, it hardly accumulates any of the so-called carotenoid pigments. These kinds of pigments contain provitamin A, lycopene and lutein, all three of which are essential for our health. In developed countries their consumption is not a problem as they are found in most foods (carrots, tomatoes and vegetables in general). In order to compensate for this shortage in the white millet mainly consumed in developing countries, we decided to introduce five genes of other organisms that have the ability to produce these compounds. Once the plants had regenerated, the initial form of identifying the products was the colouring obtained in the seeds and, through HPLC analysis, we confirmed the new compounds accumulated. To show the safety of these seeds, we carried out food trials on mice destined to this kind of experiment and we showed that there was no significant difference between the animals that had consumed the control cereal with those who had consumed the vitamin-enriched cereal. In parallel experiments, we included this multivitamin millet in the diet of chickens destined for meat production. The food these animals were given resulted in a change in the colour of their meat, which saved having to put additives in their feed. We are currently registering this variety under the name of Carolight in the national seed register. Finally, these plants will be analysed in greater depth to evaluate their nutritive qualities and their potential to help to alleviate nutritional deficits in developing countries.

Figure: Transversal section of seeds enriched with vitamins (the three top ones) and control seeds.

SUCCESS STORIES FROM CATALAN UNIVERSITIES

ROVIRA I VIRGILI UNIVERSITY

Title of the Project	Open Service Platform for the Next Generation of Personal Clouds		
Acronym	CLOUDSPACES		
Start date	01/10/2012	**Duration**	36 months

Currently, most users have their data spread across different devices and applications but in the near future their digital lives will be stored on a cloud that can be accessed from anywhere using any means. The CloudSpaces project is promoting this paradigm shift from a model based on applications to a model focused on individuals that allows users to retake control of their information. In this way they can decide where their data is stored and how applications and users access this information.

The aim of the project is to create the Personal Cloud of the future. This will be achieved through advanced research into distributed systems centred on the individual user, data sharing systems that guarantee privacy, and open interoperable services. The Personal Cloud concept thus aims to create a cloud storage system that allows users to synchronize their data from any device. Furthermore, this service will allow them to share their data easily with other users.

The CloudSpaces project is funded by the European Commission as part of the 7th Framework Programme coordinated by the URV and involving the École Politecnique Fedérale de Laussane, the Institut Eurecom and the companies Canonical Limited, eyeOS and TISSAT. Coordinator: Dr Pedro García of the Department of Computer Engineering and Mathematics of the URV. General budget: €4,011,303.

Website: http://www.cloudspaces.eu/

SUCCESS STORIES FROM CATALAN UNIVERSITIES

OPEN UNIVERSITY OF CATALONIA

Title of the Project	Adaptive Learning via Intuitive/Interactive, Collaborative and Emotional systems		
Acronym	ALICE		
Start date	01/06/2010	**Duration**	26 months

The general objective of ALICE is to build an innovative adaptive environment for e-learning combining personalization, collaboration and simulation aspects with an affective/emotional based approach, able to contribute towards overcoming the existing limitations of current e-learning systems and content. In particular, current over-emphasis on cost-effectiveness has meant that content is often not as strong as it needs to be and this deficiency has contributed to a lack of user engagement and some high attrition rates. To this end, the proposed environment is to be interactive, challenging and context aware, whilst realising learners' demands for empowerment, social identity and authentic learning experiences.

The defined system will be able to effectively involve learners in educational, cultural and informative activities in two specific contexts: university instruction (with particular emphasis on scientific topics) and training about emergency and civil defence (e.g., the behaviour to be used at a personal and collective level under the threat of a big risk, whether a natural event like earthquake, or a criminal one like a terrorist attack).

The ALICE starting point will be an existing e-Learning platform called IWT developed exploiting experiences and expertise in several EC projects. ALICE results will be experimented on real users in real learning and training situations in order to evaluate the impact of the innovative features offered.

ALICE is a project co-funded by the European Commission under the 7th Framework Programme. (ICT-2009.4.2, Theme Technology-Enhanced Learning, Grant no. 257639). Collaborative project with 5 European institutions from Italy, Austria, UK and Spain. General project coordinator: Saverio Salerno (CRMPA, Italy). Project coordinator at the UOC: Santi Caballé. Overall funds: €1,800,000. UOC funds: €224,000. Project web site: http://www.aliceproject.eu/