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# International campus for touristic sustainability and advanced research

## Innocampus Programme

The University of the Balearic Islands

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## List of abbreviations

<b>Abbreviation</b>	Definition
AENOR	Spanish Standardisation and Certification Association
AUIP	Postgraduate Iberian American University Association
BIT	The Balearic Islands Technological Innovation
CAEB	Federation of Business Associations of the Balearic Islands
CAIB	Autonomous Community of the Balearic Islands
CAM	The "Caja de Ahorros del Mediterráneo" savings bank
ссоо	Spanish Trade Union
CDTI	Industrial Technological Development Centre
CEI	International Campus of Excellence
CGV	Value Management Centre
CICYT	Inter-Ministerial Science and Technology Commission
CIDTUR	Touristic Research, Development and Innovation Centre
CIMAV	Advanced Materials Research Centre
CIMERA	International Advanced Respiratory Medical Centre
CINDA	Inter-University Development Centre
CONICET	Spanish Scientific and Technical Research Council
CRE	Economic Research Centre
CRUE	Conference of Rectors of Spanish Universities
CSIC	Higher Scientific Research Centre
CTI	Information Technology Centre
CyD	Knowledge and Development Foundation
EAB	External Advisory Board
EBT	Spin-Off Company
EGSG	European Graduate Studies Group
EGTC	European groupings of territorial cooperation
EHEA	The European Higher Education Area
ENAC	The Spanish Accreditation Institution
EPA	Environmental Protection Agency
ERDF	European Regional Development Fund
ESF	European Social Fund
EU	The European Union
EUA	European University Association
FHL	Food and Health Line
FP	Professional Training
FUEIB	University-Company Foundation of the Balearic Islands
G9	Group G9 of Spanish Universities (the only public universities in their
	Autonomous Community)
GAV	Gross Added Value
h	Scientific research impact ranking (Hirsch h index)
13	Programme of Stimulus of the Incorporation and Intensification of Research
	Activity
IAC3	Institute of Applied Computing with Community Code





IAIF Industrial and Financial Analysis Institute

IBREA Advanced Research Institute of the Balearic Islands (Institut Balear de Recerca

Avançada)

ICAR International Campus for Advanced Research
ICT Information and Communication Technology

ICTES International Campus for Touristic and Environmental Sustainability

ICTS Scientific and Technical Infrastructures
IEO The Spanish Oceanographic Institute
IFCA The Physics Institute of Cantabria

**IFISC** Institute for Cross-Disciplinary Physics and Complex Systems

**IMEDEA** Mediterranean Institute for Advanced Studies

INIA Spanish Agrarian and Food Research and Technology Institute

**IRPF** Personal Income Tax

ISI Institute for Scientific Information

IUNICS University Health Science Research Institute
IVIE Economic Research Institute of Valencia

JCR Journal Citation Report

Laser Interferometer Gravitational-Wave Observatory

MICINN Ministry for Science and Innovation

NOAA National Oceanic and Atmospheric Administration

OSR Research Support Office

OTRI Research Results Transfer Office

PAML Physics and Applied Mathematics Line

Administration and Services Staff

PB Project Board

PCT Patent Cooperation Treaty
PDA Personal Digital Assistant
PDI Teaching and Research Staff

**PFUR** Peoples' Friendship University of Russia

PMO Project Management Office

**PNAS** Proceedings of the National Academy of Sciences

PRL Physical Review Letters

**R&D&I** Research, development and innovation

SCT Scientific and Technical Services
SME Small and Medium Company

SOCIB Coastal Observation System of the Balearic Islands
SWOT Strengths, Weaknesses, Opportunities and Threats

TV-IP Internet Protocol

**UCM** Complutense University of Madrid

UdG University of Girona
UdL University of Lleida
UGT Spanish Trade Union

UIB The University of the Balearic Islands
UIMP International Menéndez-Pelayo University

UNESCO United Nations Educational, Scientific, and Cultural Organization

UNLP National University of La Plata
UPDV Perpiñán Via Domitia University
UPMC Pierre et Marie Curie University

VAT Value Added Tax





## 1. Introduction: Global proposal within the scope of the International Campus of Excellence

#### The Balearic Islands

- GDP: 115% compared with EU-27
  - o INE 2006
- Contribution of the tourist sector to the regional GAV: 41%
  - White book of tourism, 2009
- 21% of Spanish hotel beds

Strategic situation

The strategic location of the Autonomous Community of the Balearic Islands (CAIB) in the western Mediterranean, its exceptional communication facilities with the rest of Europe and its accredited experience in the field of tourism, make the Balearic Islands a natural meeting point for the EU, Spain and the Mediterranean that implies the ideal framework to promote development of innovation in the field of touristic and environmental sustainability, positioning the UIB on the map of great international scientific collaborations, especially in those areas in which it has acquired and consolidated

prestige that is recognised on an international level.

#### Multi-insular character

The multi-insular character of the community and the UIB campus itself has promoted the development of communications, in particular through the use of ICT for teaching and for communication in general, generating a policy of full exploitation of these technologies.

#### **Economic impact of the UIB on its surroundings**

The five autonomous communities with the most hotel places. Summer 2005

	Hotel plac	es	Establishmen	ts
		Monthly		Monthly
		average	<b>%</b> *	average
The Balearic Islands	21,4%	313,714	8.0	1,250
Catalonia	17,8%	260,830	14.7	2,300
Andalusia	16,4%	239,818	15.8	2,459
The Canary Islands	10,7%	157,280	2.9	445
The Community of	8,0%	116,793	6.7	1,050
Valencia				

Figure 1 Hotel places by Autonomous Community. Source: The Spanish Statistics Institute (INE)

Since its foundation, the University of the Balearic Islands has acted as a mobilising element, contributing improvement of Autonomous Community's social and economic parameters. The social and economic impact of the UIB on its environment has been determined by its capacity to generate higher education degrees, resulting in a rate jobs higher of and

employment than for people with a lower level of education, the development of research and development programmes, which also contribute to an increase in the technological capital and entrepreneurial capacity for creating wealth and jobs.

Its impact has been analysed by the Economic Research Institute of Valencia (IVIE) in the period from 1977 to 2007. The results of the study show that nearly 7% of the average personnel of the human capital in the population of working age have been generated directly by the UIB in their training process. The training acquired by these students equip them to





earn higher income throughout their working lives and the results show that the output generated by this aspect is almost €700,000,000 per annum. The greater possibilities to find a job in the market by the graduates from the UIB increases the employment rate by almost one percentage point (0.9) in the Balearic Islands and reduces the unemployment rate by 0.3 percentage points, in other words without the UIB there would be 3700 less people working in the Balearic Islands.

The UIB contributes a great deal to research, being responsible for 47.5% of the whole expenditure in the autonomous community. Since 1997, R&D work has generated technological capital of 0.5 percentage points, which, along with the 0.4 due to the impact of its graduates' work quality and quantity shows that the UIB has contributed to the growth of the Balearic Islands by 0.9 percentage points over the last ten years. In other words, 31% of the whole average growth of the economy in the Autonomous Community over the last ten years is directly or indirectly due to its public university.

It should also be pointed out that the UIB has created 14 spin-off companies since 2000, which has generated about fifty jobs.

If we also bear in mind the increase in tax revenue due to higher taxation of the more highly skilled people because of their increased earnings, the simulations show that the UIB indirectly contributes to increasing revenue from personal income tax and VAT in the Balearic Islands by €228,470,000 per annum, therefore the UIB returns €3.7 to society for each Euro the public authorities spend on financing it.

#### a. Vision and Mission

Based on the International Campus of Excellence model (CEI), as an engine for sustainable social and economic development, stemming from educational and research excellence and promoting innovation through new technologies, the CEI global project **vision** can be summarised as the following: **making the CAIB an international reference in touristic innovation and sustainability and a connection node for important scientific collaborations in <b>pre-existing fields of excellence.** 

This approach is implemented by means of a virtuous circle or continuous integrating model of innovation and development:





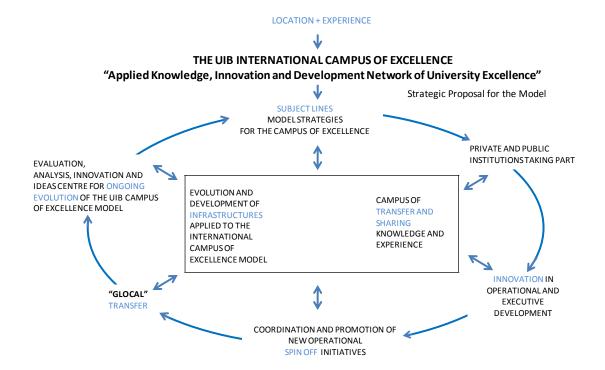


Figure 2 The CEI-UIB approach: a virtuous circle

The **mission** can be defined as promoting, stimulating and coordinating the members taking part in the strategic group - including the PRES-PM universities (see section 1.3), UdG, UdL, UPVD and Paris VI, the Government of the Balearic Islands and 47 private and public institutions and companies— in the training, research, innovation and transfer actions that contribute to achieving this **vision**, after proposing a series of strategic targets. It should be pointed out that there is a commitment for mutual support between the UdG, for its Girona Campus of Water Project, H2G, and the UIB, for its International Campus for Touristic Sustainability and Advanced Research (1).

Within the scope of the Innocampus call, this project provides funding for various core aspects of the research and innovation lines included in the CEI project.

## b. The campus model and SWOT

## i. The Campus Model

The proposed conversion to International Campus of Excellence arises from a university model based on training and research of excellence, that strongly encourages innovation through new technologies, increasing in this way the social and economic impact of the UIB on its surroundings, and becoming singular, within the Spanish and European university framework, for its specialization in innovation and touristic and environmental sustainability.

In this CEI model, the university becomes a development force for the CAIB along with institutions, companies and other social and economic players; promoting and supporting





training, innovation, research and transfer of knowledge within the scope of a sustainable economic model.

### ii. SWOT Analysis

In this section, we provide an analysis by means of a technical SWOT of the starting position of the CEI regarding the vision described above. For such purpose, we analyse its strengths and weaknesses, deeming these as structural or internal, and its opportunities and threats, considered as external factors to the CEI.

#### Strengths

The experience of the Balearic Islands in **advanced ICT** implies a strength. Three aspects contribute to this experience:

- The UIB has developed knowledge and technology for distance education, due to the multi-insular nature of the territory to be covered.
- The Balearic health complex is a leader in Spain in applying ICT. Examples of this are the *Son Llàtzer* hospital, collaborator in the IUNICS research institute projects and one of the first paperless hospitals in Spain; and the implementation of the electronic medical prescription
- Along with the expansion of hotel chains and other companies operating in the tourist sector, the companies of applied ICT in this sector have achieved from considerable growth in the last few years.

The **competitive price** of university education at the UIB means that students from other regions can enrol, especially for master and doctoral courses, attracted by the educational quality and the **environmental surroundings**.

The **scientific prestige** of the CEI research groups, once again along with the environmental appeal, aid in recruiting international talent. It should be highlighted that most of the members of some groups are researchers from other countries.

The **strategic location** of the Balearic Islands, in the centre of the western Mediterranean, and the excellent communication facilities with the whole of Europe through Palma airport, provide international connections for the CEI.

#### Weaknesses

The research groups have fragile structures. Although the CEI groups are actually leaders in their respective fields, as analysed in section 2.g, they are usually small, which often means they must rely on the leadership of one or very few scientists. Hence, the continuity of such groups is at risk. Temporary employment contracts prevent consolidation of the changeover to the new generations of researchers and thus the situation becomes even more serious.

The **low level of funding for Balearic R&D&I** - 0.29%, very much lower than the Spanish and European average - makes it difficult to attract high-quality students and teaching and research staff.





**Its insular nature**. Although the location of the UIB is strategic for the CAIB in its international relations, its insular structure becomes a handicap within the scope of national relations. Research groups, joint degrees, inter-university alliances, etc., come up against operational and economic difficulties, not only to set them up but also for interaction with the partners in other universities.

The UIB is the **only university in the Balearic Islands** – member of the G9 – and this implies certain social responsibilities that have somewhat of an influence on the specialisation capacity of the CEI.

#### **Opportunities**

The Palma Beach pilot project, which is part of the aggregation of the CEI, along with the singular technological platforms CIDTUR and SOCIB located in ParcBit near the campus, and the National Professional Tourism Training Reference Centre, located on campus, are all opportunities.

The **CEI** is multi-insular, which, on the one hand, is a disadvantage for its capacity to obtain resources, whereas on the other hand, this multi-insular nature is reflected in an inexcusable social need and an opportunity to develop a technologically more advanced educational model.

The promotion of the **ParcBit technological park**, next to the UIB, by the Balearic government offers interesting opportunities to combine the high research quality at the UIB with the recognised enterprising spirit of Balearic society.

The change in the teaching model sponsored by the **EHEA** implies an opportunity for the CEI. Its average size and relative short history means it can be more flexibly adapted to the EHEA and thus obtain a certain competitive edge for attracting high quality students.

The **exportation of touristic know-how**, at an international level, can be used as a launch pad for the educational, research and ICT lines related to the tourist sector and thus benefit such exportation. TurisTEC<sup>1</sup>, which participates in the project, has defined this process as a third level to access foreign markets, which is supported at the first level by the very well-known Balearic tourist capacity, and at the second level by the foreign expansion of the main Balearic tourist companies at the international level. In other words, the **worldwide expansion of the Balearic hotel chains** offers a framework within which Balearic ICT providers, whose main customers are these chains, have easy access to international markets in a simultaneous way to the expansion of their customers. We should emphasize the involvement of these players in the CEI: the participation document was signed by the Balearic Hotel Chain Association (*Agrupación de Cadenas Hoteleras de Baleares*), **Sol Melià**, **Barcelo Hotels**, **Grupo Riu** and the Hotel Business Associations of Majorca, Minorca, Ibiza and Formentera (*Federaciones Empresariales Hoteleras de Majorca, Menorca, Ibiza y Formentera*); their involvement being structured through initiatives such as the Sol-Melià Chair.

The attraction of the islands as a place to live may help in headhunting talent. The considerable **international promotion** of the islands as a tourist destination could help

<sup>1</sup> http://www.turistec.org/





improve the perception of the Balearic Islands as an attractive centre for business people and specialised workers. The CEI has a crucial role to play in this international promotion.

The **Spanish economic situation**, in recession or stagnation, which seem to threaten to last longer than in the countries around us, implies – somewhat paradoxically – an opportunity for those regions, among which the Balearic Islands stand out, whose economy is strongly dependent on foreign markets. The economic recovery of the Balearic Islands depends, to a large extent, on the development of the German and British economies, where the situation at the moment is much better than in Spain. This difference may enable headhunting talent from other more economically depressed areas in Spain.

The **change in the productive model**<sup>2</sup> from one focused on promoting construction until recently, towards creative industries based on training, research and production of contents, positions the university right in the centre of this new model. This project is backed by large technological companies, such as Deimos Space, Atos Origin, Thales, DxO or Turistec; telecommunications companies, such as Telefónica; energy companies, such as Endesa or Sampol; and biotechnological companies, such as Danone or Puleva Biotech.

#### **Threats**

The technological change, in particular the trend towards increasing **distance teaching** using new technologies in the Internet sector, implies a potential threat to the capacity of CEI to recruit local talent, because part of this talent could seek solutions outside of the Balearic Islands. The significant growth in the number of students taking courses through distance universities in the last few years clearly shows this trend.

Due to its social and economic structure, the Balearic society **places less value on research** than other regions around us. Emigration of specialised labour has considerably increased, since the economy cannot currently offer jobs to all the people trained in higher education.

The high rate of students **dropping out** must be added to this emigration of specialised labour, precisely due to this social economic structure as such, which encourages young people to get jobs at an early age.

**International research groups** operating in the same fields as the main CEI-UIB groups are in many cases **larger** than the groups in the Balearic Islands. This has an impact on obtaining financing resources through competitive projects in which size is considered an advantage.

The nominative transfer to the UIB from the CAIB has decreased by 4.4% in the academic year 2009/2010 compared with the previous one. Bearing in mind there was already a low level of financing compared with that of universities of a similar size<sup>3</sup>, this reduction is a factor that may threaten the achievement of the CEI-UIB objectives.

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<sup>&</sup>lt;sup>2</sup> Draft bill of sustainable economy: http://www.economiasostenible.gob.es/ley-de-economiasostenible/

<sup>&</sup>lt;sup>3</sup> The data from the Spanish Universities in figures (CRUE, 2008) show that universities of about 9,000 students have a similar budget as the UIB (95 million), compared with the 15,688 students at the UIB in the academic year 2010/2011. Considering this from another standpoint, universities with a similar number of students have a very much higher budget.





#### **SWOT**

#### **STRENGTHS:**

- ADVANCED ICT in Tourism, Health and Education
- COMPETITIVE PRICES
- SCIENTIFIC PRESTIGE
- STRATEGIC LOCATION
- ENVIRONMENTAL SURROUNDINGS

#### **WEAKNESSES:**

- FRAGILE structure of the research groups
- R&D&I FINANCING
- Insular nature
- ONLY UNIVERSITY in the Balearic Islands.

Figure 3 SWOT Analysis

#### **OPPORTUNITIES:**

- PALMA BEACH project, SOCIB and CIDTUR. Spanish Professional Tourism Training Reference Centre
- MULTI-INSULAR Campus
- PARCBIT
- FHFA
- Exportation of KNOW-HOW IN TOURISM
- INTERNATIONAL PROMOTION
- MACRO-ECONOMIC SITUATION
- CHANGE IN PRODUCTIVE MODEL

#### THREATS:

- DISTANCE EDUCATION
- LOW VALUE PLACED ON R&D
- SIZE of R&D groups
- DROP OUTS taking job offers
- LESS FUNDING

## iii. Summary of participants

Barceló:

Employees: 28,000Turn-over: €1,697 M

Sol-Melià:

o Employees: 34,000o Turn-over: €1,279 M

• Riu:

o Employees: 7,000o Turn-over: €459 M

two French and two other Spanish universities.

The project International Campus of Excellence for Touristic Sustainability and Advanced Research is a UIB project for the Balearic Islands' community born with the commitment of the Balearic Islands Government, to which 47 political, scientific and business institutions adhere (see section 2.8), including some of the largest hotel chains in the world: Barceló, Sol-Melià, Riu, etc., as well as large European and international companies, such as Telefónica or Santander, Atos Origin and Thales, and that has the internationalisation leverage of the cross-border Pole formed by the UIB along with







Figure 4 Institutions and companies related to the CEI by category





### c. Summary of strategic objectives and justification

### i. Strategic objectives

The strategic targets of this project, coinciding with the main targets of the CEI, are as follows:

- SO1. To increase the commitment for innovation and development of Touristic and Environmental Sustainability, strategic sectors for the Balearic Islands community, promoting exportation of know-how within the scope of sustainable tourism.
- SO2. To promote the Pyrenees and Mediterranean Cross-Border Research and Higher Education Pole (PRES-PM) along with the Universities of Perpignan-Via Domitia, Girona, Lleida and the University Pierre et Marie Curie-Paris VI through the Oceanographic Observatory of Banyuls Sur Mer. This pole is a crucial tool for international headhunting, in particular in the key fields of touristic and environmental sustainability (for which a joint master's degree is being prepared) and in advanced research (the physics and applied mathematics and food and health lines). In this respect, it is very important to highlight the support and participation of the international hotel chains based in the Balearic Islands in the targets of the Pole: Sol-Melià, Barceló or Riu, and large technological companies, such as Deimos Space, Atos Origin, Thales, DxO or Turistec; telecommunication companies, such as Telefónica; energy companies, such as Endesa or Sampol; or biotechnological companies, such as Danone or Puleva Biotech.
- SO3. To increase the presence on the map of large international scientific collaborations with high quality contributions that bring basic and applied research to levels of excellence, attracting talent and resources and consolidating the fields in which the UIB has been accredited as having international prestige.
- SO4. To convert the multi-insular campus into a centre for attracting scientific, professional and teaching talent, as well as competent post-graduate students.

In order to identify the fields in which the mission is to be developed, the following strategic focus areas are defined in the CEI project, to which the present Innocampus project refers, and that correspond to the subject areas of specialisation:

- International Campus for Touristic and Environmental Sustainability (or ICTES)
- International Campus for Advanced Research (or ICAR)
  - Physics and Applied Mathematics line PAML
  - Food and Health line FHL





Each of these strategic fields has its own targets and indicators. These indicators provide a view of the current situation in each case, and enable later assessment of the impact of the strategies developed in each field within the framework of the various improvement lines. The human resources on which these strategic fields are based are the research institutes and the competitive research groups, see Table 1, whose publications in the last 5 years are positioned, as far as the impact factor is concerned, within the first quartile of the ISI journals of the relevant field (see **Error! Reference source not found.**).

Competitive Research Groups, as accredited by the Regional Ministry of Economy, Finance and Innovation of the Balearic Islands.

#### Level 4 groups. Groups of excellence

Physical and coastal oceanography (UIB)

Analysis of marine ecosystems (UIB)

Renewable marine resources and the environment (UIB)

Respiratory diseases (UIB)

Molecular and cellular biomedicine (UIB)

Plant biology in Mediterranean conditions (UIB)

Interdisciplinary physics (UIB)

Renal lithiasis and bio-mineralization (UIB)

#### Level 3 groups.

Community nutrition and oxidative stress (UIB)

Supra-molecular chemistry (UIB)

Infection and immunity (UIB)

Analytical chemistry, automation and the environment (UIB)

Atomic, molecular and nuclear physics (UIB)

Meteorology (UIB)

Solar physics (UIB)

Biochemistry, molecular biology, nutrition and nutrigenomic biotechnology (UIB)

#### Level 2 groups.

Clinical neuropsychology (UIB)

Molecular microbiology and bacterial pathogenesis (Caubet-CIMERA Foundation) (UIB)

Human genetics (UIB)

Relativity and gravitation (UIB)

Electronic technology (UIB)

Material physics (UIB)

Human evolution and cognition (UIB)

Energy metabolism and nutrition (UIB)

#### Level 1 groups.

Economic analysis of tourism impact group (UIB)

Systems, robotics and vision (UIB)

Cardiovascular research group of the Balearic Islands (Mateu Orfila Foundation)

Neuro-dynamics and clinical psychology (UIB)

Educational technology group (UIB)

Biological foundations of conduct and mental disorders (UIB)

GIFES (UIB)

Immunology (Son Dureta Hospital)

Microbiology (UIB)

Molecular reactivity and pharmaceutical design (UIB)

Architecture and IT system and communications use (UIB)

Fuzzy logic and merging information (UIB)

Food engineering (UIB)

Telematic engineering (UIB)

Bioorganic and bioinorganic chemistry(UIB)

Table 1 Competitive research groups<sup>4</sup>

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<sup>&</sup>lt;sup>4</sup> Res. 18501, the Official Gazette of the Balearic Islands (BOIB) 150 of 24 October 2006

ISI Subjects	Numb er		npact actor	Average Impact Factor	IF ·	first quartile (5years)		irst third Syears )
ASTRONOMY & ASTROPHYSICS	1 11	16	487	7 4.	19	3.23	2	2.547
CHEMISTRY, ANALYTICAL		51	480		17	2.72	_	2.441
PHYSICS, MULTIDISCIPLINARY	_	2	422		13	2.13	$\rightarrow$	1.663
MULTIDISCIPLINARYSCIENCES	- 2	20	274	1 13	1,7	1.85	1	1.182
PLANT SCIENCES		18	135	5 2.	81	2.2	:6	1.982
CHEMISTRY, MULTIDISCIPLIN AR	Y 2	27	126	3 4.	86	2.93	7	1.814
OPTICS	_	10	100	2	.5	1.88	11	1.704
PHYSICS, CONDENSED MATTER	3	37	98	3 2.	84	2.06	2	1.688
BEHAVIOR AL SCIENCES	1	17	80	) 4	1.7	3.72	:6	3,424
GEOSCIENCES,							$\neg$	
MULTIDISCIPLINARY		24	68		83	2.34	$\overline{}$	1.968
MATHEMATICS, APPLIED	-   2	29	4	1 1.	41	1.3	5	0.798
BIOCHEMISTRY & MOLECULAR							_	
BIOLOGY	_	99	368		7 <u>1</u> 25	4.21	$\rightarrow$	3.402
MICROBIOLOGY	——	4	24	3.	25	3.50	13	3.045
ENGINEERING, ELECTRICAL& ELECTRONIC	7	ro	124	1.1	77	2.27	'з	1.773
MATERIALS SCIENCE,								
MULTIDISCIPLINARY		55	105		.9	2.06	_	1.731
PHYSICS, FLUIDS & PLASMAS	_	52	96		84	2.94	_	1.182
ENVIRON MENTAL SCIENCES	-	18	116		41	2.51	_	234
ECOLOGY	12	20	330	2.	75	3.72	:6	2,98
MARINE & FRESHWATER BIOLOGY	9	98	147		.5	2.36	11	2.125
NEUROSCIENCES	(	88	157	7 2	2.3		4	3 .556
CHEMISTRY, PHYSICAL	- 6	37	163	3 2.	43	3.5	8	2.801
ENDOCRINOLOGY & METABOLIS		16	168		85	4.53	_	3.69
OCEANOGRAPHY		36	76	5 2,	08	2.48	2	2 .345
METEOROLOGY & AT MOSPHERI SCIENCES	- 1	29	59	9 2.	03	3.02	6	2.864
NUTRITION & DIETETICS	1 2	27	64	1 2.	37	3.23	3	2.964
P HYSIOLO GY	2	26	88	3 3.	38	3.83	8	3.459
GENETICS & HEREDITY		22	70	3.	18	4.06	2	3 .548
BIOTECHNOLOGY & APPLIED MICROBIOLOGY	2	20	5	1 2.	55	2.94	17	2.722

Table 2 Analysis by fields of the UIB publications in the period 2004-2008. 29 have been selected from the 174 ISI fields in which there are a significant number of publications. They correspond to 16% of the areas. 1567 publications have been analysed of the 2364 in the period (66%). The fields in which the average impact factor of the journals is within the first quartile of the ranking in the last 5 years are marked in green. Those in the first third are marked in yellow. They have been ordered by accumulated impact factor in each group.

A brief summary is provided below of the specific targets within the context of the strategic fields (tactical lines) and actions planned to achieve them. Their detailed description and current situation regarding research and transfer of knowledge are provided in the relevant sections.





	STRATEGIC TARGETS	TACTICAL LINES	ACTIONS		
ST1	Innovation and development in TOURISTIC AND ENVIRONMENTAL SUSTAINABILITY.		International headhunting:  O JOB CREATION  Post-doctorate  Tenure-track  Senior researcher		
ST2	Setting up the Pyrenees - Mediterranean CROSS- BORDER RESEARCH AND HIGHER EDUCATION POLE (PRES-PM).	EXPORTING KNOW-HOW IN TOURISTIC SUSTAINABILITY  CROSS-BORDER RESEARCH AND HIGHER EDUCATION POLE (PRES-PM).	<ul> <li>SCHOLARSHIPS         <ul> <li>Further education</li> <li>Personal training</li> <li>Researcher</li> </ul> </li> <li>Visitors' programme</li> <li>Senior researchers</li> <li>Transfer experts</li> </ul>		
ST3	CONSOLIDATION AND INTERNATIONALISATION of the research fields with accredited INTERNATIONAL PRESTIGE.	INTERNATIONAL DOCTORAL SCHOOL:  Sustainability (PRES-PM - CSIC)  Advanced physics (Max-Planck - CSIC)  ACCREDITED HEALTH INSTITUTE (translational research in the biomedical field)	Projects:  TRANSFIERE: RSO-RRTO extension.  INNOVA: University-Company Laboratory.  INNOILLES: Transfer of technology and university entrepreneurial culture.  UNIVALUE: Setting up a company to appraise research results (G9		
ST4	CONVERTING the multi- insular Campus into a POLE OF TALENT ATTRACTION.	INIA-CAIB-UIB INSTITUTE (agroenvironmental and water economy).  IMPROVEMENT IN RESEARCH FUNDING  BALEARIC ADVANCED RESEARCH INSTITUTE (IBREA)	group).  APOYO: Recruiting skilled technical staff.  AVANZA: Postgraduate Study Centre, centralising headhunting and the doctoral school centre  Programmes:  COLABORA: Promotion of innovation.  Collaboration agreements and contracts with other institutions.  RESET: Incentive for setting up companies.  SPIN-OFF INTERNATIONALISATION.		

Table 3 Summary of the targets and actions within the Innocampus and Campus of Excellence framework

## ii. Type of action

The present application deals with the following types of projects included within the Innocampus programme:

• Technological innovation programmes and actions aimed at transferring knowledge and research results to society and the business community.





- Programmes aimed at promoting creation of spin-off companies, with an international scope, based on research results.
- Actions aimed at headhunting researchers of excellence at an international level, both at post-doctoral and pre-doctoral levels.
- The launch of mechanisms to ensure that the universities are international leaders in their strategic fields of action.

### iii. Framework in which the project is based

The present project is part of the Strategic Plan presented in the call for the International Campus of Excellence programme, order EDU/1069/2010 of the Ministry of Education, and has been selected by the technical commission to be presented to obtain a CEI categorisation (CEI10/00005 project).

## iv. Project justification

	Assessable aspects	Key Elements	Description
Α	Opportunity and international excellence of the science and innovation action project.	See section 1.c for a summary and sections 2.d and 2.e	Index of strategic targets in science and innovation to be achieved and the main actions planned for such purpose. The aims and impact of the science and innovation projects presented. Up to a maximum of 14 points.

	Assessable aspects	Key Elements	Description
В	Expected results and feasibility of the project for promoting international excellence in Science and Innovation	<ul> <li>Results and improvement of indicators: see section 2.f for the progress of the indicators and the summary in section 4.</li> <li>Development methodology: see section 3.</li> <li>Co-financing: see section 5.d</li> <li>Return on community funding: currently 10 projects underway (2 coordinated), with a return of €1,000 per lecturer.</li> <li>The spin-offs to be set up and the headhunting plans result in about 100 jobs being created.</li> <li>Companies set up: see Figure 22 and explanatory text.</li> </ul>	The expected results from the programme. Improvement of indicators. Improvement of quality indices. Improvement of quality, productivity and excellence in science and innovation. Development methodology and project monitoring. Co-financing provided by the institution or other institutions for project development. Assessment of feasibility to obtain the expected results, returns on community investment, job creation, private investment, companies set up. Up to a maximum of 14 points.
С	Levels of excellence in science and innovation of the participating institutions	See section 4 for a summary of indicators and sections 2.a and 2.f, which describe the basic situation in research and innovation excellence.  The following relative positions within the framework of Spanish universities are to be highlighted:  4 <sup>th</sup> place in the ranking of ISI articles per PDI  1 <sup>st</sup> place in the ranking of articles per doctor  2 <sup>nd</sup> place in international co-authorship publications  41 patents in portfolio, 18 transferred.	Referring to each of those that imply strategic participation. It will be based on the evaluation of recent indicator data, expressed as ratios of productivity, quality and excellence. The productivity, quality and excellence ratios in research may include: important publications each year, six year tenure for staff, annual funds obtained in European calls, coordination of European and international projects. The productivity, quality and excellence ratios in innovation may include: annual income from industrial and intellectual property, spin-offs created per year, patent applications and awarded patents each year, contributions to international regulations per year. The ratios of science and innovation must be expressed by taking the institution's number of permanent lecturers as a denominator. Other relevant indicators of Science and Innovation. Up to a maximum of 19 points.

	Assessable aspects	Key Elements	Description
D	Previous capacity and programme presented to headhunt researchers and technological specialists	<ul> <li>Programme I3 to recruit researchers</li> <li>11 (of 26) doctoral degrees with a quality award<sup>5</sup></li> <li>Pyrenees-Mediterranean Cross-Border Research and Higher Education Pole (PRES-PM). Other networks and alliances: see section 2.i.</li> <li>Santander and Telefónica scholarships</li> <li>CAIB scholarships</li> <li>UIB scholarships</li> </ul>	Strategic policies to recruit top researchers and degree of success to date, resources and means used to achieve this objective in the programme, existence of international and/or business-based doctoral and master's degree programmes with quality award, international networks and alliances, availability of funds to offer positions in the programmes. Knowledge-intensive job creation. Up to a maximum of 10 points.

<sup>5</sup> See CEI project report.

	Assessable aspects	Key Elements	Description
E	International leadership	<ul> <li>10 European projects (2 coordinated)</li> <li>500 permanent lecturers</li> <li>IFISC-IAC3- Max Planck network</li> <li>NUGO excellence network</li> <li>Only Spanish node in LIGO</li> <li>48% of ISI publications in co-authorship with international institutions</li> <li>Programme to promote research (internationalisation)</li> <li>International strategies: PRES-PM, international doctoral school</li> <li>ICTS (SOCIB, CIDTUR)</li> <li>International assessment committees: Framework programmes, various European universities (e.g. Fundação do Ministério de Ciência and Tecnologia of Portugal, German scientific council - DFG), ARTEMIS (joint undertaking), ITU<sup>6</sup>, IFIP<sup>7</sup>, various publishing boards (e.g. Systematic and Applied Microbiology), roadmap of the European Space Agency, executive committees of GEO, LIGO, etc.</li> </ul>	Number and quality of recent participation in European and international projects, especially if acting as coordinator, resulting from alliances with other international institutions, membership on programme committees and publishing boards of the most important conferences and journals in the sector, positions in international bodies and assessment committees. Involvement and leadership in JTIs and national and European technological platforms, if any, involvement in national or international spin-offs. Additional funds to achieve the programme targets. All of this will be taken into account in the form of quality, productivity and excellence ratios regarding the number of permanent lecturers in the institution. International strategies to improve these aspects. Up to a maximum of 9 points.

 <sup>&</sup>lt;sup>6</sup> International Telecommunications Unit
 <sup>7</sup> International FEDERation for Information Processing (Vice-President)

	Assessable aspects	Key Elements	Description
F	Governance commitments aimed at Science and Innovation	<ul> <li>UIB scholarships</li> <li>Visitors' programme</li> <li>Congress Organising Programme</li> <li>SUDOE Innovation Project</li> <li>RESET Programme</li> <li>Setting up UNIVALUE</li> <li>Representative of the rector for innovation</li> <li>Centralised support services: RSO (research), RRTO-FUEIB (transfer), SCT (scientific and technical services)</li> <li>Technological developers programme</li> <li>CAIB supplement for research excellence</li> <li>Headhunting programmes</li> </ul>	University governance policies to guarantee prioritisation of quality and excellence, particularly regarding science and innovation. Internal plans for objectively sharing resources, based on quality and excellence indicators regarding researchers' work. Internal incentive plans and programmes to promote actions of excellence in science and innovation. Own resources and university strategies to achieve the proposed targets: human resources and policies, equipment and areas, budgets, royalties, etc., existence of scientific and/or international industrial committees that inspire and assess programme strategy, actions and target quality controls, use of centralised services supporting research for work that requires innovative technologies and infrastructures, with capacity to be offered externally. Up to a maximum of 10 points.
G	Capacity to innovate and share knowledge and research results with society	<ul> <li>Transfer: collaboration with TIRME and MACInsular; CCStar project; 14 spinoffs; 8 pharmaceutical products being developed.</li> <li>University-Company Foundation, tecnologiauib.com website</li> <li>ParcBit technological park, next to the UIB campus.</li> <li>Business Incubator in ParcBit</li> <li>Micro credits</li> <li>Monitoring business internationalisation</li> </ul>	Results of sharing the knowledge generated from the R&D&I programmes. Strategies for setting up spin-offs (seed funds, tenders, services, etc.) and their results over the last few years. Projects to improve transfer and assessment structures, especially in cooperation with other institutions, including head hunting, training and improvement of staff. Existence of a scientific or technological park in the area in question with targets similar to those in the proposed programme, use of business incubators, technological centres and centres supporting innovation, etc. Scientific and technological services to support R&D&I. Highly skilled job creation. Up to a maximum of 19 points.

	Assessable aspects	Key Elements	Description
Н	Gender indicators	<ul> <li>Office for equal opportunities between men and women (since 2007)</li> <li>The Equality Policies Commission was set up in April 2008 by the Board of Directors of the UIB, making use of the authority vested in it by the university by-laws.</li> <li>Gender Violence Chair (2006)</li> <li>University Master's Degree in equality policies and prevention of gender violence<sup>8</sup></li> <li>The positions of rector, manager and ombudsperson are all held by women</li> <li>Promotion of participation in commissions</li> </ul>	University policies towards implementation of the General Act of Parliament 3/2007 of 22 March, for effective equality between men and women. Plans focused on gender equality on governing bodies and the different types of commissions, aimed at reducing discrimination against minorities. Up to a maximum of 5 points.

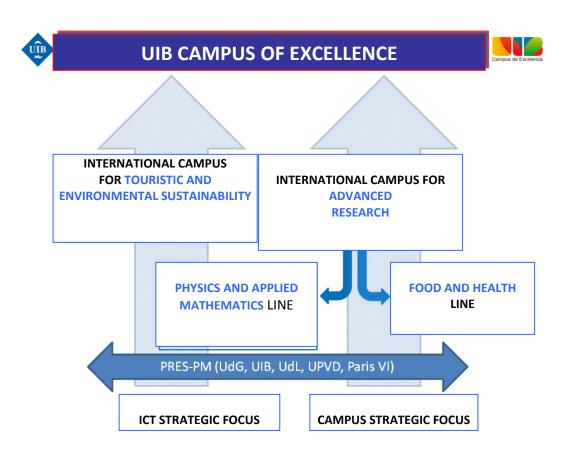
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<sup>&</sup>lt;sup>8</sup> The general aim is to offer training that will enable future graduates to work with equal policies and/or prevent gender violence within the current legislative framework (defined by the Measures for Integral Protection from Gender Violence Act and the Effective Equal Opportunities Act) offering them the necessary conceptual tools and methodologies for this purpose. An expert in equality policies is a professional who designs, manages, coordinates, mobilises, implements, handles and assesses plans, programmes, projects and campaigns focused on achieving equal opportunities in different professional fields and sectors. The aim of the proposed degree is to train professionals to be experts in these fields.





## 2. The Innocampus project within the scope of the CEI



## a. Current situation and prognosis

The UIB is the only university in the Autonomous Community of the Balearic Islands (CAIB) and is its main research body. Proof of the above is that the UIB is responsible for 47.5% of the Autonomous Community's expenditure on research and generates 80% of the scientific production (in ISI journals) in the Balearic Islands.





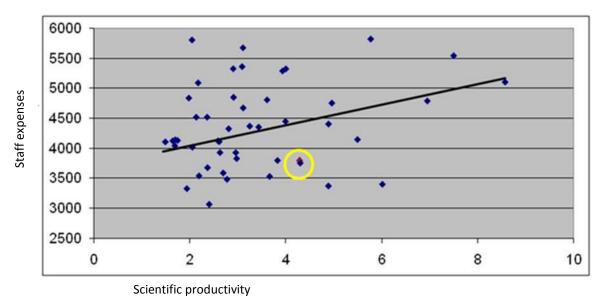


Figure 5 This graph shows the expenditure in Euros on staff per number of students for Spanish universities, which varies between €3000 and €6000 per student, compared with the number of publications per permanent PDI. This data is obtained from the 2009 SCImago report and Spanish Universities in Figures from 2008. The position of the UIB is represented by the red dot and it shows the high, above average, scientific productivity compared with the financing received (below average).

With 18 departments, 5 Institutes and 130 research groups, the UIB is committed to quality research and to sharing the knowledge obtained from this research with society. This commitment is backed by results, highlighting the efficiency of research (see Figure 5).

**UIB** research excellence:

4<sup>th</sup> place in the ranking for ISI articles per PDI

2<sup>nd</sup> place in internationally co-authorship publications

3<sup>rd</sup> place in research effort

According to the CyD2008 report, the UIB is fourth among Spanish universities in terms of articles published in journals included in the JCR per permanent lecturer. A large number of these publications are written in collaboration with researchers from foreign institutions, which, according to the *Research in* collaboration in Spanish universities (2000-2004) report, puts us in second place in terms of the number of publications in co-authorship with international institutions. It is also worth mentioning our position with regards to obtaining funds in competitive calls: we are in third place in terms of research effort (average percentage of approved projects per staff **lecturer)**, according to the COTEC2006 report: Spanish Technology and Innovation. The aforementioned figures are the result of the

intense work and commitment to research of our teaching and research staff, most of whom are recognised through being granted *research bonuses*. This has meant that we are in the **top quartile of Spanish public universities in terms of the percentage of staff lecturers with** 





**recognised research bonuses**, according to a study carried out by researchers at the University of Granada (G. Buela-Casal et al., *Psicothema* 22 (2010) 171). According to this study, the University of the Balearic Islands was also above average in terms of registered and exploited patents per permanent lecturer in the 2002-2008 period.

Due to its location, the University of the Balearic Islands participates in and collaborates with most of the Balearic institutions involved in research and knowledge transfer. It is one of the sponsors of the two Science and Technology Parks (ParcBit Desenvolupament S.A. in Majorca and BIT Minorca), the Caubet-CIMERA Foundation and the Board of Directors of the special facilities of national reference: CIDTUR<sup>9</sup> and SOCIB<sup>10</sup> (in process).

The UIB is the node for the CEI and Innocampus projects and it is already actively collaborating with the members of the strategic group, some of which are involved in post-graduate training processes. In particular, it collaborates with the CSIC through its two joint institutes, the Mediterranean Advanced Studies Institute (IMEDEA<sup>11</sup>) and the Interdisciplinary Physics and Complex Systems Institute (IFISC<sup>12</sup>), along with the associated unit of Human Cognition and Evolution and the Spanish Oceanography Institute (IEO<sup>13</sup>). Many of the researchers of the latter's Centre in the Balearic Islands are collaborators with the Biology Department, actively participating in various competitive groups of the UIB and the IMEDEA, as well as in the Master's in Marine Ecology and the Master's in Analysis, Planning and Management of Coastal Areas.

The UIB, in collaboration with the University-Company Foundation of the Balearic Islands, has designed the *tecnologiauib.com* website, which neatly organises the UIB's technological offers, highlighting the services available to businesses and the transfer of technology.



In order to continue improving the quality of research on the campus, this project aims to consolidate and strengthen the research fields in which the university and other institutions taking part in the CEI project have proven and recognised competence and in which they have accredited international prestige. These are fields such as Physics and Applied Mathematics,

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<sup>&</sup>lt;sup>9</sup> Touristic Research, Development and Innovation Centre Foundation

<sup>&</sup>lt;sup>10</sup> Coastal Observation System of the Balearic Islands

<sup>11</sup> http://imedea.uib.es

<sup>12</sup> http://ifisc.uib.es/

<sup>13</sup> http://www.ba.ieo.es





Food and Health and others of strategic importance to the Community, such as Tourism and the Environment, in which the scientific work also includes important transfer actions. The final objective is to convert the campus into an international centre of reference for research and innovation in the aforementioned fields. This goal will be reinforced by setting up the PRES-PM Cross-Border Pole with the Universities of Gerona, Lerida, Perpignan Via Domita and Paris VI.

#### **b. ICTES**

The aim of ICTES is to promote research in the fields of Touristic and Environmental Sustainability through various consolidated UIB groups and a number of Institutes and Research Centres, such as the Mediterranean Advanced Studies Institute (IMEDEA), the Economic Research Centre (CRE), the Spanish Oceanography Institute and the singular facilities SOCIB and CIDTUR along with the recently created INIA-CAIB-UIB agro-environmental research and water economy institute<sup>14</sup>. The PRES-PM Cross-Border Pole will certainly reinforce the international scope of headhunting and exporting know-how.

The Mediterranean Advanced Studies Institute (IMEDEA) has 4 research lines:

- 1. Ecology, Evolution and Systematics in Islands
- 2. Structure, Dynamics and Functioning of Marine Systems
- 3. Physics and Technology of the Oceanic Coastal System: Observation, Forecasts and Interactions
- 4. Global Change Research

The institute has 81 researchers, 30 of whom are staff members and collaborate in the Physics and the Advanced Microbiology master's degrees, both of which are doctoral courses with a quality award, as well as in the Analysis, Planning and Management of Coastal Areas master's degree. The institute is involved in 105 current research projects (17 from the EU) and obtained revenue of more than €6 million in 2009. In 2008 it published 150 ISI articles. One of its research professors, Prof. Carlos Duarte, directs the Global Change master's degree taught at the UIB (UIMP-CSIC with the collaboration of the UIB). Prof. Duarte was awarded the 2007 Alejandro Malaspina national research prize and the Rey Jaime I Environmental Protection prize, and is in charge of a supplementary research line related to the role of oceans and their impact on the coastline. Prof. Joaquín Tintoré, who was awarded the Alejandro Malaspina national research prize in 2003, directs an integral and interdisciplinary research line regarding

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<sup>&</sup>lt;sup>14</sup> BOE-A-2010-2859, Decision of 15 December 2009, adopted by the Spanish Institute of Farming and Food Investigation and Technology, in which the collaboration agreement signed between the Autonomous Community of the Balearic Islands and the University of the Balearic Islands for setting up the Agro-Environmental Research and Water Economics Institute was published.





the coastal area and the environment and is currently the director of the singular technology platform SOCIB. The UIB collaborates in the main scientific focus areas of IMEDEA<sup>15</sup>.

The *Economic Research Centre (CRE)* is a research institute of the UIB, in collaboration with the savings bank "SA NOSTRA" Caja de Baleares, and plays an active role at a regional level by promoting and cooperating in various projects financed by the VI Programme of the EU, the CICYT and the Autonomous Government, as well as in research agreements with public and private institutions related to specific aspects and issues of the Balearic Islands' economy.

Since it was founded in 2001, the CRE has played a key role in the archipelago by reporting on the evolution of the Balearic macro-economy and closely monitoring the determining factors for regional welfare. It focuses on guaranteeing long-term economic growth, promoting competitive tourism and ensuring environmental sustainability.

Its research line, focussed on regional, touristic and environmental economics, has been reported in articles published in important journals on an international level, such as *Journal of Environmental Economics and Management*.

Similarly, the CRE offers a possibility of taking part in training actions taking place within the framework of the *UNESCO business management and the environment* chair, and it also takes part in the Tourism Economics and the Environment master's degree, which is part of the doctoral course with the same name with a quality award. In 2008 it participated in 7 projects, two of which were European, and published 14 articles.

The *competitive research groups* that have research lines within the ICTES framework are as follows:

- a) The physics and coastal oceanography group
- b) Marine ecosystems analysis
- c) Renewable marine resources and the environment
- d) Analytical chemistry, automation and the environment
- e) Plant biology in Mediterranean conditions
- f) Meteorology
- g) Microbiology
- h) Economic analysis of the impact of tourism

#### The research covers:

Land and maritime areas

<sup>&</sup>lt;sup>15</sup> Understanding the processes of global change, biodiversity and evolution; improvement of knowledge in aspects of insular biodiversity; direct and indirect impact caused by human activities, for the purpose of contributing to development of management systems designed for the ecosystem.





- The coastal area, through SOCIB in collaboration with the Information Technologies Centre (CTI) of the UIB
- Heritage
- Innovation needed in the sector, through CIDTUR
- And their economic impact, through the CRE

It is worth mentioning the collaboration of UIB researchers with those from the University of Gerona and the Banyuls Sur Mer Observatory (Paris VI University) in the field of maritime studies and the study of coastal areas, with whom a series of scientific meetings, already initiated, has been planned.

Moreover, the combination of the aforementioned research groups and centres has formed a critical mass of multidisciplinary research with great potential and higher capacity for internationalisation and transfer of the knowledge generated. This implies an important guarantee for correctly performing and achieving the campus project presented hereby.

The research capacity of these groups and centres is supplemented by the participation in the CEI project of important companies and business groups from the fields of tourism, the environment and energy. These are part of the strategic aggregation and in some cases these collaborations have been in place for a long time. The participation of these businesses in the project provides the approach and experience of the business sector and we consider it to be absolutely essential for certain fields of strategic importance in our Community, such as Tourism and the Environment.

There are various transfer actions within the scope of the ICTES, such as the following:

- As previously mentioned, the UIB participates in the national pilot project for the regeneration of mature touristic areas, located on Palma Beach.
- The UIB is also carrying out the environmental monitoring plan of the Majorca Island Council. Within this context, TIRME and MACInsular are reference companies in the waste treatment field.
- The CCStaR PROJECT, which is a prototype solar-panel developed by the UIB's Building and Energy Management Engineering Group with the economic support of ParcBit, the companies in the tourist sector, especially the Sol-Melià group, and the UIB home automation laboratory, in collaboration with SAMPOL S.A. These are examples of transfer which will certainly become stronger by setting up new spinoffs.





The essential role played by ICT in the transfer of technology to the tourism sector is also worth noting, as it is proven by the collaboration with the TurisTEC cluster. In this respect, we should mention that the Information Technology Centre is currently being expanded, using the subsidy obtained from the 2008 Campus of Excellence call.

The Government of the Autonomous Community of the Balearic Islands is involved in this objective through its 2009-2012 Science, Technology and Innovation Plan. The business sector also assists in launching innovative, competitive and differentiating projects through the BALEARS.T cluster, a cooperation platform between the private sector and the public authorities. The UIB is part of this platform, which also includes companies and institutions, such as Sol-Meliá, Barceló, Sigittur, TurisTEC, Hotetur, Sampol and TUI. The aim is to make the Balearic Islands a pioneer in the field of touristic technology and to convert them into an international reference point for touristic innovation through the singular technological platform CIDTUR, with which UIB collaborates in most of its strategic points<sup>16</sup>. One of its ultimate goals consists of exporting its accumulated know-how in sustainable tourism.

As a consequence of all the foregoing and for the purpose of promoting and encouraging implementation of innovation in the touristic sector through progressive involvement in R&D&I work, based on obtaining a mid- and long-term competitive edge, and bearing in mind the transversal nature of tourism, which affects numerous research fields and various technological sectors, and the challenges faced by the touristic sector in the new century, ICTES prioritises its research towards the following:

#### *Touristic competitiveness*

Due to the fact that the main aim of ICTES is maintaining and increasing competition in the touristic sector, based on innovation and sustainability, it endeavours to reinforce and promote research on the determining factors for changes in the sector. More specifically the following:

- 1. Economic analysis of tourism
- 2. New forms of business and tourist development
- 3. The determining factors of touristic competitiveness
- 4. New trends in markets with outbound tourism
- 5. New consumers. Innovation in tourist products
- 6. New tourist policies

7. Development and review of the techniques used to assess the economic impact of tourism

<sup>&</sup>lt;sup>16</sup> Tourism courses, distribution platform, mobility services, excellence in service through training, reference models in the key processes of the value chain and route optimisation.





#### Social research applied to tourism

Since innovation is considered a key goal in order to take advantage of touristic potential when developing new businesses and as a driving force for social change, it is important to obtain results from research taking into account the following:

- 1. Social, demographic and leisure trends
- 2. Corporate Social Responsibility in the tourist sector
- 3. Development and review of the techniques for assessing the social impact of tourism
- 4. Funding systems for performing environmental actions, especially the financial mechanisms to provide greater benefits to the private sector: tax exemptions, ecological rates, etc.

#### Planning and management of tourist destinations

An aim towards integral and holistic touristic planning, which can ensure a competitive touristic market is compatible with the regulatory measures determining a reference framework for decision-making, requires the following:

- 1. The use of geographical information systems in touristic planning
- 2. The design and assessment of touristic planning models and integral management of tourist destinations, with a special emphasis on the integral management of coastal areas
- 3. The design of urban planning in tourist destination areas so that the resulting city planning implies lower environmental costs.
- 4. The development and review of techniques for assessing the environmental impact of tourism

#### Tourism and the environment

By moving forward in adopting formulae that make touristic development compatible with environmental preservation by controlling and internalising the interactions occurring within the touristic system in order to ultimately guarantee the capacity to meet the needs of the resident population and tourists without compromising the welfare of future generations, implies a need to promote research that takes into account the following:

- 1. Development of models to assess the destination's load capacity
- 2. Use of environmental management systems both in private establishments and public facilities
- 3. Use of systems to increase energy efficiency, especially in destinations and tourist products and, in particular: more efficient transport systems and research into improving equipment and supplies to establishments
- 4. Installation of waste management devices and water saving systems.





## Adaptation to climate change

Implementing good practices for respectful interaction with the environment means that measures must be adopted that are compatible with the Kyoto Protocol in order to prepare strategies for the future of the touristic sector. Within this context, the actions would be as follows:

- 1. Assessment of the role of the current climate in the Spanish touristic system and the impact that would be caused by climate change in the most vulnerable destinations and tourist products, including different scales
- 2. Mapping with Geographical Information Systems and their application in detecting vulnerable areas
- 3. Development of indicator systems that show the climate change-tourism relation in order to measure and detect it.
- 4. Development of a management model to optimise the main measures for adapting to climate change and the impact on tourism policies.
- 5. Analysis methods to perceive demand in the case of climate change, its impact and the sector's measures for adaptation
- 6. Analysis methods of the costs for the adaptation methods and the impact on the public and private sectors and the prices of tourist products
- 7. Research on the relation between touristic planning and the resources subject to climate change (water, air and microclimate)
- 8. Research on instruments to finance the measures to adapt to climate change
- 9. Research on the contribution of the touristic sector to greenhouse gas emission.

#### *Management of tourist companies*

Closely related to the previous line of action and for a better and greater comprehension of the technological development in management of touristic companies, basic knowledge is required that can be used to help design and determine policies for promoting innovation.

The following actions are available for this purpose:

- 1. Innovation in the design, management and marketing of tourist products
- 2. Technological environmental equipment in tourist companies and facilities
- 3. Research projects in energy facilities (solar power, wind power), equipment, transport, etc.
- 4. Innovation in technologies to optimise the efficient use of basic resources (water, energy, etc.)
- 5. Instruments to support the technological development of tourist companies and facilities
- 6. Bioclimatic architecture (interior and exterior, including gardens and the design of new materials)
- 7. Virtual reality facilities applied to the tourist sector
- 8. Robotics and home automation applied to the tourist sector
- 9. Technological development and advanced solutions included in tourist companies and facilities.





## Management of tourist information

The use and development of new information technology must be promoted to help in providing services and developing touristic activities, i.e.:

- 1. Tourist information inter-operational systems. The transfer of competence for tourist issues and the importance of this sector in our country results in large volumes of information that must be standardised in order to allow it to be exchanged and consolidated.
- 2. Systems for syndication of tourist information between mobile devices. The increasing management and use capacity of mobile devices (telephones, PDAs, portable video consoles, etc.) along with the promotion of wireless technology, open up a new range of possibilities to the tourist sector.
- 3. IPTV. The promotion of IPTV technology and Digital Terrestrial Television for broadcasting local and national tourist heritage.
- 4. Including tourist content in the spatial information institutions.
- 5. A portable group management system that allows information to be compiled and volumes of visitors to be managed.

# c. ICAR

The International Campus for Advanced Research (ICAR) brings together the researchers of the UIB and its research institutes that conduct internationally recognised research of excellence along two lines: The Physics and Applied Mathematics Line – PAML, and the Food and Health Line – FHL. The PRES-PM Cross-Border Pole will certainly promote the attraction of talent and this will be carried out through the doctoral school and the IBREA programme.

#### i. PAML

The Physics and Applied Mathematics research line is based on the scientific capacity of two research institutes: The Institute for Cross-Disciplinary Physics and Complex Systems (IFISC), a joint UIB-CSIC institute, and the Institute of Applied Computing with Community Code (IAC3), an institute of the UIB, which, along with other competitive groups in the fields of Physics and Mathematics, provide a solid base of scientific skills applicable to the multiple fields in which they stand out internationally due to their parameters of excellence.





The IFISC's basic line of research is complex systems: Statistical and Non-Linear Physics, with specific applications in the following fields:

- 1. Quantum physics: photons, electrons and information
- 2. Non-linear optics
- 3. Fluids, bio-fluids and geophysical fluid dynamics
- 4. Biological and non-linear physics
- 5. Dynamics and collective social phenomena

The common denominator of the IAC3 Institute is the research of excellence in the development of advanced numerical codes for simulation of partial differential equation systems. These codes are shared by the various groups and are especially applicable to the following fields:

- 1. Health (physiological simulations)
- 2. Virtual or geo-referenced 3D environments (with applications in tourism)
- 3. Astrophysics
- 4. Relativity
- 5. Image Processing

The *IFISC* is the only CSIC institute involved in developing complex systems and it is an international reference for multidisciplinary and strategic research in the Non-Linear Physics and Complex Systems field. This means its researchers can work on emerging problems by transferring methods and knowledge from different fields. The inter-disciplinary approach to different problems is reinforced by its collaboration with the associated Human Evolution and Cognition unit.

The quality of the IFISC's researchers is proven by the 343 articles published in JCR journals in the period between 2003 and 2009. Among these, 1 Nature, 9 Proceedings of the National Academy of Sciences (PNAS), 29 Physical Review Letters (PRL) and 1 Science should be highlighted. The amount of research funding obtained during the same period was approximately €5 million, 30% of which came from the EU. Proof of its capacity to attract international talent is the fact that 53% of those taking doctoral degrees and 70% of the post-doctorate researchers are not Spanish and that, from 2003 to 2009, 41 scientists from other countries remained at the centre for periods longer than one month.

The IFISC also has important computing infrastructures. Its Nuredduna computer cluster will soon be enlarged by the CSIC, which means that the institute will become part of the GRID-CSIC, coordinated by the Physics Institute of Cantabria (IFCA), and through this the researchers will be able to use 8000 CPUs with a storage capacity of 1000 TB. In July 2009, the opening of the University Institutes Building, backed by funding from the ERDF and the UIB, meant its facilities could be enlarged. The UIB is involved in the IFISC's strategic research lines: quantum





physics; non-linear optics and optoelectronic device dynamics; fluid, bio-fluid and geophysical fluid dynamics; biological physics and non-linear phenomena in ecology and physiology; dynamics and collective phenomena in social systems. The IFISC is involved in research lines, such as tumoral process modelling, brain activity and neuronal mechanisms, which provide connections between the research of the PAML and the FHL.

The *IAC3 Institute*, which has 16 staff researchers and 4 contracted researchers, 3 post-doctorate researchers and 8 research fellows, aims for excellence in research. It is the only Spanish participant in the LIGO project for detecting gravitational waves<sup>17</sup>, the results of which were published in Nature in 2009, a journal that has also published articles by the Astrophysics (Solar Physics) group, another member of the IAC3 Institute. As proof of the quality of the research conducted at the IAC3, in 2009 the institute was working on 15 projects and there were 6 contracts, among which we should highlight various European projects, 2 Consolider projects and 2 agreements linked to CENIT projects of the CDTI (Ministry of Industry) and 40 articles were published in prestigious internationally recognised journals.

The extensive research capacity resulting from the combination of the two institutes is supplemented by the IAC3 institute's capacity to transfer knowledge at an international level. This has resulted in two patents being granted and in collaborations with large companies in the aerospace, information technology and image processing sectors, such as Deimos Space, Atos-Origin, DxO<sup>18</sup> (France) and Thales Alenia Space<sup>19</sup> (France). The link should also be mentioned between PAML and the FHL, which was created due to the research line related to applying simulation techniques in healthcare. The IAC3 participates, in collaboration with clinical centres and research bodies, in a CENIT cardiovascular remodelling project that combines leading research in physics, mathematics, cardiology and patient data acquisition. This line is based on an emerging area of convergence between physics, mathematics and medicine and is strongly supported by the European Commission with the name *Virtual Physiological Human*<sup>20</sup>.

Moreover, the PAML also has links with research on tourism through the CENIT Virtual Spain project (IAC3), which combines simulation technologies, satellite data, urban planning models and augmented reality applications for tourism.

The research lines are being completed along with those of the following competitive and excellence research groups:

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<sup>17</sup> http://www.ligo.org

<sup>18</sup> http://www.dxo.com

<sup>19</sup> http://www.thalesgroup.com

<sup>&</sup>lt;sup>20</sup> http://www.vph-noe.eu/vph-projects





- a) Architecture and Behaviour of IT and Communication Systems
- b) Atomic, Molecular and Nuclear Physics
- c) Physics of Materials
- d) Inter-Disciplinary Physics
- e) Solar Physics
- f) Telematic Engineering
- g) Fuzzy Logic and Information Fusion
- h) Relativity and Gravitation
- i) Systems, Robotics and Vision (SRV)
- j) Electronic Technology

# ii. FHL

The food and health research line is based on the scientific capacity of the University Research into Health Sciences Institute (IUNICS), the International Advanced Respiratory Medical Centre (CIMERA) and various competitive groups of the UIB (Community Nutrition and Oxidative Stress and Agrifood Engineering). Its strong point is translational research and innovation in the health and food field.

**IUNICS** is a joint Institute of the UIB in collaboration with the Regional Ministry of Health and Consumers. Some of its 30 research groups are based in the Institute Building of the UIB Campus and the rest work in the *Son Dureta* and *Son Llàtzer* hospitals. Its main objective is to promote and help obtain biomedical knowledge in order to transfer it to standard clinical practice.

The main research lines of the IUNICS are as follows:

- 1. Infectious and Immunological Diseases
- 2. Renal and Cardiovascular Diseases
- 3. Neurosciences
- 4. Nutrition
- 5. Oncohematology

In 2008, its project and contract budget was €3,000,000 and it has published 140 international articles (339 in the three-year period between 2007 and 2009). The translational research that has been conducted since it was founded has led to 14 patents being registered, all of which have been transferred to the productive sector, 4 spin-off companies being set up that, although they are located in ParcBit, have signed collaboration agreements so that they can use some of the UIB's facilities, and a portfolio of 8 pharmaceutical products currently being developed.

The CIMERA centre conducts research in the fields:





1. Respiratory diseases (pathogens, diagnostics and treatment)

The research lines are completed with those of the following competitive and excellence research groups:

- a) Biochemistry, Molecular Biology, Nutrition and Biotechnology-Nutrigenomics
- b) The Biological Foundations of Conduct and Mental Disorders
- c) Human Genetics
- d) Infection and Immunity
- e) Food Engineering
- f) Molecular and Cellular Biomedical Laboratory
- g) Renal Lithiasis and Bio-Mineralization
- h) Energetic Metabolism and Nutrition
- i) Neurodynamics and Clinical Psychology
- j) Clinical Neuropsychology
- k) Community Nutrition and Oxidative Stress
- I) Bioinorganic and Bioorganic Chemistry
- m) Molecular Reactivity and Pharmaceutical Design
- n) Supramolecular Chemistry

Similarly, the work done in these fields by other groups of excellence that are not included in these institutes has to be mentioned, in particular those related to the Nutrigenomics field, such as the group of Prof. Andreu Palou, who coordinates the BIOCLAMS European project, participates in 2 of the 8 platforms of the nutrigenomics network of excellence (NUGO), in 3 agreements of the 2010 Ingenio Initiative and in 2 of the CENIT programmes with PULEVA-BIOTECH and BIOIBERICA.

The soon to be opened *Son Espases* hospital, with an investment of €35 million per year for the next 29 years, which will become a reference hospital in the Autonomous Community, along with the future implementation of a degree in Medicine and the planned new healthcare research centre, all prove the strategic interest of the health and food research line for our Community. In this respect, the collaboration of the various groups and centres mentioned above implies a suitable basis for improving training and research along this line, and recruitment of foreign researchers to help in the internationalisation of the existing biotechnology companies.

# d. Objectives

The UIB aims to achieve its consolidation as a reference institution at an international level in those areas of basic and applied research in which it is has accredited prestige. It also aims to





promote the link between research and teaching, especially at a postgraduate level, to therefore become a centre that attracts professional, scientific and teaching talent and the best post-graduate students. However, the UIB does not only aim to contribute to the acquisition of new knowledge but also, through its transfer, to the improvement of the quality of life and economic and social progress. The UIB therefore firmly supports transferring the knowledge it generates, especially in the fields of strategic interest to the Community of the Balearic Islands, such as Touristic and Environmental Sustainability. It does this with the goal of becoming an innovating force in contributing to the progress and improvement of social welfare.

The tactical methods used to achieve these strategic objectives are as follows:

- 1. **Improvement of research funding (ICTES, ICAR)**, by increasing the total budget earmarked for research and development and the revenue generated by research work (competitive projects, agreements and contracts).
- 2. **Recruitment of international experts (ICTES, ICAR)** in all the fields relevant to this project, through tenure track, senior and post-doctorate researcher positions and transfer visitor policies. These experts are to constitute the basis for the future IBREA, in terms of human resources, see section 5.
- 3. Setting up an International Post-graduate Centre, to house the international doctoral school (see point 5) and manage the headhunting programme, including the IBREA seed, using existing master's training courses: Global Change (CSIC-UIMP with UIB participation); Science and Chemical Technology (with an associated Ph D degree holding the quality award); Analysis, Planning and Management of Coastal Areas; Touristic Management and Planning; Marine Ecology (in collaboration with the IEO); and the Tourism Economics and the Environment (with an associated Ph D degree holding the quality award).
- 4. Headhunting international students (ICTES, ICAR), especially post-graduates, using a policy of scholarships managed by the UIB. In the last two years, the UIB has managed scholarships that are co-funded by the Banco Santander and Telefónica S.A. and are reserved for Latin American students wishing to carry out post-graduate studies linked to doctoral degrees with a quality award.
- 5. Setting up an International Doctoral School (ICAR PAML), with one research line within the framework of the PRES-PM and another in collaboration with the Max Planck Institute and CSIC. This will consolidate the existing relationship between the IFISC and the Max Planck Institute in Dresden, which has resulted in regular joint workshops being held, as well as that of the IAC3 with the Max Planck Institute of Hanover (GEO project) and the LIGO project for detecting gravitational waves, in which





the Relativity group of the IAC3 is the only Spanish group taking part. This school will become the seed of the IBREA, an institute planned within the framework of the Balearic Government's Science and Technology Plan.

- Investment in health research infrastructure (ICAR PAML), which will include an
  accredited healthcare institute to strengthen translational research in the biomedical
  field.
- 7. **Development of a Cross-Border Research and Higher Education Pole (ICTES-ICAR),** with the Universities of Gerona, Lerida, Pierre et Marie Curie Paris VI and Perpignan Via-Domitia (PRES-PM). Setting up the International Doctoral School mentioned in point 5 is included within the framework of this group.
- 8. Increased commitment to innovation and development (ICTES, ICAR), favouring patent generation, entrepreneurship and spin-offs being set up, reinforcing existing programmes such as the RESET programme and promoting internationalisation to achieve this.
- Development of an experimental centre in Majorca of the National Farming and Food Research and Technology Institute (INIA) with a strategic project related to the efficient use of water for irrigation.

# e. Proposed actions

Within the framework of the CEI application, the following basic actions are planned to achieve the aforementioned objectives. These directly lead to improvement in the quality of research and knowledge transfer and they are aimed at directly or indirectly strengthening this through the Innocampus project:

- 1. **The AVANZA Project:** A Postgraduate Studies Centre that will house the doctoral school and manage the headhunting programme, as the seed of the IBREA, which will be carried out jointly with the Government of the Balearic Islands.
- 2. **The TRANSFIERE Project:** Expansion of the Rectory to house the Research Support Office and the Research Results Transfer Office of the University-Company Foundation.
- 3. **The INNOVA Laboratory** for the use of the biomedical spin-offs and the SMEs from different sectors.
- 4. **An accredited healthcare institute** to strengthen translational research in the biomedical field.





- 5. **The COLABORA Programme** to promote collaboration agreements and contracts with other authorities.
- 6. **The ENTORNO Programme** for promoting innovation through collaboration with private institutions.
- 7. **The INNOILLES Project** for encouraging technology transfer and University entrepreneurship.
- 8. The RESET Programme to provide an incentive to set up spin-offs.
- 9. **The spin-off internationalisation programme.** The UIB and the FUEIB, in collaboration with San Francisco University, help in creating commercial relationships between companies and investors from the United States, using spin-offs from the Balearic Islands as a gateway to Silicon Valley.
- 10. **Headhunting international talent**, in terms of professionals/researchers and students (especially post-graduates), through reinforcing existing policies (post-doctorate researcher positions, scholarships for research staff training and post-graduate scholarships for international students) and implementation of new headhunting programmes<sup>21</sup> (creating tenure-track and senior researcher positions). This recruitment will be used as a founding element for the IBREA research force. The visiting lecturer programme will be intensified and extended to visitors specialising in transfer.
- 11. **The APOYO Project**: recruitment of qualified technical staff both for the scientific infrastructures (SCT) and the Research Support Office (OTRI).

The following section contains detailed information on each of the aforementioned actions as well as other work that could be included within the project framework and that will also, due to their transversal character, result in improving research and transfer quality.

# f. Indicators

This section consider various aspects related to research quality and knowledge transfer. As an executive summary, the indicators specified in the Innocampus programme are presented in section 4.

The detailed description of the indicators, their current value, objectives and evolution throughout the 5-year plan are provided below.

<sup>&</sup>lt;sup>21</sup> These recruitments will be subject to a strict quality filter: new researchers must have a CV which exceeds the average of the group they will join, in terms of research indicators.





## Involvement of teaching and research staff (PDI) in research work

PDI participation is very high and has increased in recent years. 72% of the PDI is currently involved in research projects financed by public and competitive programmes and 87% are members of research groups. These percentages have remained constant in recent years. A similar proportion of PDI staff has been recognized with at least one research bonus. It is worth highlighting that, with regards to the latter indicator, our University is sixth out of all Spanish public universities, according to a recent study conducted by researchers at the University of Granada<sup>22</sup>.

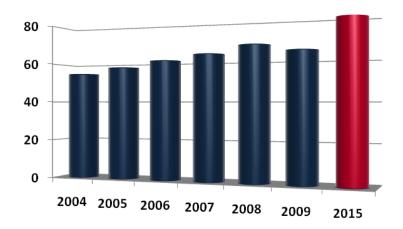


Figure 6 Percentage of full-time PDI doctors with recognised research lines.

The UIB has researchers of excellence in different fields, most of whom teach in the Ph D degrees with Quality Award and in the university's official master's degrees. Staff from the different university institutes and from some institutions outside of the UIB also actively participate in post-graduate and doctoral work. It is hence planned that master's degrees linked to the development of the singular infrastructures SOCIB and CIDTUR will be offered and these institutions will participate in them. One such case is the Master's in Analysis, Planning and Management of Coastal Areas, which has been offered since the 2009-2010 academic year and includes the participation of SOCIB, and another is the Master's in Tourism Economics and the Environment, which has been offered since the 2006-2007 academic year and in which CIDTUR closely collaborates.

Indicator	Current Value	2015 Objective
Percentage of full-time PDI doctors with recognised research bonuses	64.8	75

 $<sup>^{22}</sup>$  G. Buela-Casal et al., Psicothema 2009. Vol. 21, no. 2, pages 309-317

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Number of research bonuses	1.5	1.8
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#### Strategies:

- Encouraging professional development and mobility of teaching and research staff.
- Encouraging and promoting international scientific cooperation among staff.
- Improving policies for promotion based on excellence and effort.
- Recognition and compensation of excellence in research (by incentives).
- Recruiting high quality teaching and research staff.
- Creating conditions and searching for opportunities to encourage and promote high quality research.

#### Contracted and trainee researchers

In order to strengthen the existing research lines and endeavour to open new ones which, in turn, will lead to an increase in training offers, especially in doctoral studies, the UIB has been participating in various public programmes (Ramón y Cajal, Juan de la Cierva, etc.) to recruit technical support and research staff.

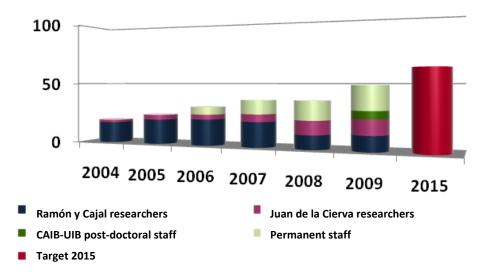


Figure 7 Evolution in the number of Ramón y Cajal and Juan de la Cierva researchers





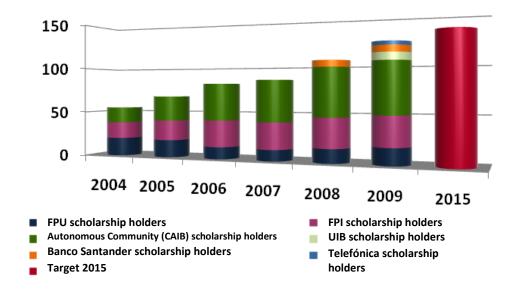


Figure 8 Evolution in the number of trainee research staff members

The number of research staff members is also increasing through scholarships and technical support staff positions announced for research projects and agreements, along with the aforementioned scholarships. In 2009, 107 collaboration scholarships were offered and 145 technical support workers were contracted.

With regards to the above, since the first recruitments, we have always ensured that the post-doctorate researchers contracted through competitive calls, such as those mentioned, teach the courses in doctoral studies. The experience obtained during these years has proven that recruitment of these researchers has contributed to increasing both the quality and quantity of the research work at our university, hence helping to make it more competitive.

It is worth mentioning that all the researchers recruited through the Ramón y Cajal programme who have completed their 5-year tenure-track period have already been recruited through public calls as contract Ph D lecturers within the Programme of Stimulus of the Incorporation and Intensification of Research Activity (I3). In this way 14 new prestigious researchers have been recruited by the UIB so far and our aim is to contract those that are recruited in the future. Similarly, our objective is to be able to include 4 tenure-track contracts per year over the next 5 years through the Advanced Research Institute of the Balearic Islands (IBREA), planned in the Balearic Island Science and Innovation Plan and the embryo of which will be generated in the future doctoral school.

Indicator	Current Value	2015 Objective
Number of post-doctorate fellows recruited (postdocs, Juan de la Cierva, Ramón y Cajal) and stabilised contracts	49 (10% of PDI staff)	A 25% increase in contracted research staff and progressive stabilisation of these staff members





Number of trainee research staff scholarships	124 (equivalent to one scholarship per 12 post- graduate students)	A 10% increase in the number of trainee research staff scholarships and contracts
Number of post-graduate scholarships for international students	11	An increase of 2 scholarships per year

#### Strategies:

- Maintaining and strengthening our policy for headhunting international experts by creating postdoctoral, tenure-track and senior researcher positions.
- An increase in the number of scholarships managed by the UIB to ensure recruitment of the best national and international students.
- Encouraging research staff mobility and their scientific collaboration with prestigious research centres at both a national and international level.
- Creation of the IBREA, the embryo of which will be generated within the international doctoral school and that will be used to channel part of the headhunting policy.

# Research budget

The UIB's total annual budget for the year 2010 is €95,319,345.11 of which 46.61% is earmarked for research and development, a percentage that has remained constant in recent years. Our objective is to increase this to 55%.

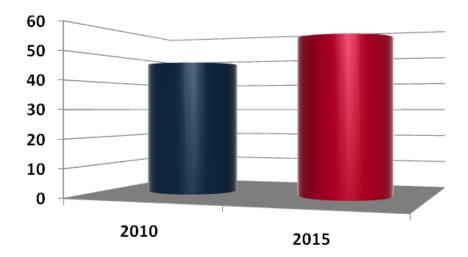


Figure 9 Percentage of the UIB budget earmarked for research





The UIB also has its own research aid programme: the Research Promotion programme<sup>23</sup>, which last year spent €1.3 million to fund various programmes – stays of visiting lecturers, conference travel and attendance expenses, repair and replacement of scientific materials, acquisition of scientific equipment, etc. The aim is to increase this to €1.6 million by 2015.

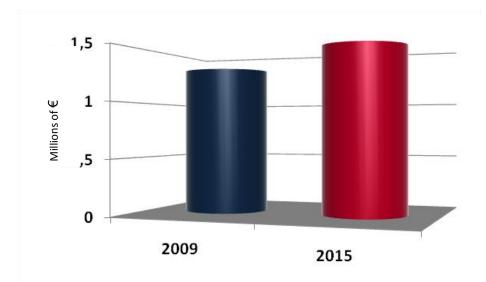


Figure 10 Resources earmarked for the Research Promotion programme, the UIB's own programme

Regarding the funds obtained through public and competitive calls, the amount of economic resources obtained in this way has increased by 54% in the last 4 years.

In 2006, the COTEC report highlighted the research effort (average percentage of approved projects per staff lecturer) by our university, which is in 3<sup>rd</sup> place in this ranking with a percentage of 62.4%. The only universities ahead of us are the Carlos III University of Madrid, with 67.7%, and the Pompeu Fabra University, which tops the ranking with 88.5%. A more recent study conducted by Buela-Casal and collaborators (Psicothema 2010. Vol. 22, no. 2, pages 171-179), positions the UIB in 9<sup>th</sup> position in terms of the number of projects compared with the number of lecturers at the university. Out of 48 Spanish public universities, we are just below Miguel Hernández University and above the University of Barcelona. Our objective is to increase this percentage to 70% by 2015.

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<sup>&</sup>lt;sup>23</sup> http://www.uib.es/ca/infsobre/serveis/oficines/osr/infoconvoc/?id\_cat=1





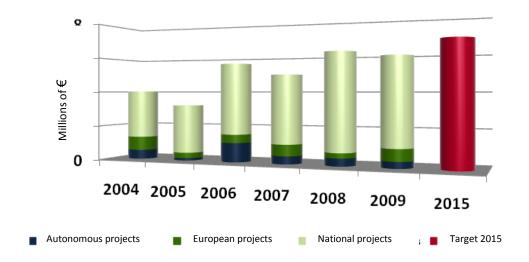


Figure 11 Evolution of revenue through competitive projects

It is also worth mentioning that the campus participates in 6 CONSOLIDER projects: ARES (Team for Advanced Research on Information Security and Privacy) CSD2007-00004, the Iberian Peninsula Metagenome CSD2007-00005, CPAN (The National Particle, Astroparticle and Nuclear Physics Centre) CSD2007-00047, the 2010 Malaspina Circumnavigation Expedition: Global change and exploration of biodiversity of the global ocean CSD2008-00077, MICROGEN (Microbial Comparative Genomics) CSD2009 00006, MULTIDARK (Multimessenger approach for dark matter detection) CSD2009 00064, as well as the ILIAS (Integrated Large Infrastructures for Astroparticle Science) European project and the CIBEROBN project. The UIB is also a founding member of the NuGO network of excellence (The European Nutrigenomics Organisation linking genomics, nutrition and health research) and is currently participating in 10 European projects, coordinating 2 of them: PHOCUS (Photonic liquid state machine based on delay-coupled systems) and BIOCLAMS (Biomarkers of robustness of metabolic homeostasis for nutrigenomics- derived health).

Indicator	Current Value	2015 Objective
Percentage of the UIB budget earmarked for research	46.41%	55%





Budget of the UIB own research support programme	€1.3 million	€ 1.6 million
Funds obtained through public and competitive calls	€5.5 million	A 10% increase in funds obtained through public and competitive tenders

### Strategies:

- Increasing our own investment in research.
- Promoting and assisting research staff in participating in competitive calls to increase R&D funds.
- Improving and expanding research infrastructures and support services.
- Promoting the development of effective and productive collaboration with private and public institutions at a local, national and international level.

## Scientific production

Scientific production has increased over the course of recent years, especially regarding publications in ISI journals. The report issued by the Industrial and Financial Analysis Institute (IAIF) of the Complutense University of Madrid (UCM) places the University of the Balearic Islands in first place in terms of the number of publications per doctor and, according to the 2008 CYD report, it is in fourth place for the number of ISI publications per permanent lecturer.

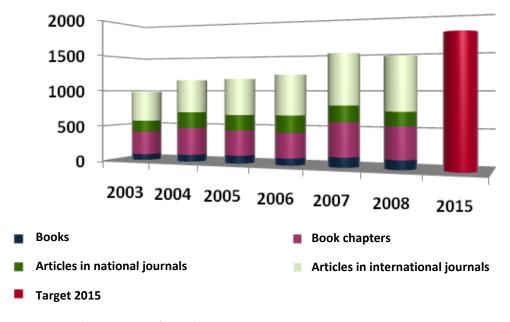


Figure 12 Evolution in scientific production





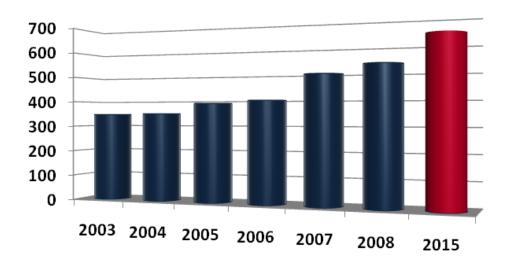


Figure 13 Evolution in the number of articles published in JCR journals

It is worth noting that a great deal of the research articles are written in collaboration with other national and foreign research institutions. In this respect, according to data from the Research in Collaboration in Spanish Universities (2000-2004) report (drawn up by the SCIMAGO research group and published by the Ministry of Education and Science), our university is in second place among the 48 Spanish public universities in the internationalisation ranking. In the period between 2000 and 2004, 41% of publications were written in collaboration with researchers from other countries (a figure that increased to **48% in 2009**<sup>24</sup>**).** This index, which provides the rate between the number of works co-authored with international institutions and the total production of each institution, offers information on the level of international participation in each Spanish university. The position of our university indicates that, along with the Pompeu Fabra University, they are the higher education institutions with the greatest amount of scientific production with international participation.

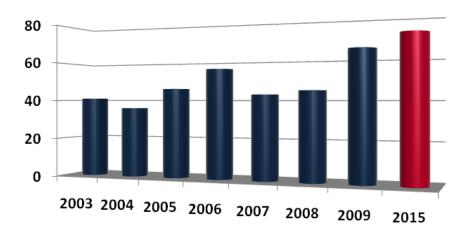


Figure 14 Evolution of the number of doctoral theses read

<sup>&</sup>lt;sup>24</sup> 2009 SCImago report





The number of doctoral theses has remained constant with slight fluctuations in recent years, however in 2009 there was an increase of 31%, an increase that we would like to maintain or even improve in the future.

Indicator	Current Value	2015 Objective
Number of articles published in JCR journals	535	A 20% increase in the number of publications in indexed journals
Number of doctoral theses	65	A 10% increase in the number of doctoral theses

#### Strategies:

- Increasing our own investment in research.
- Maintaining and strengthening our policy for headhunting international experts by creating postdoctoral, tenure-track and senior researcher positions.
- Encouraging and promoting international scientific cooperation among staff.
- Improving promotion policies based on excellence and effort.
- Recognition and compensation of excellence in research by means of incentives.

#### Research internationalisation level

As previously mentioned, our university is placed in a high position in terms of the number of publications with international institutions compared with the total scientific production. This indicates a high level of internationalisation in the research conducted by the UIB.

Additional proof of this level of internationalisation is the increase in the number of international scientific conferences and meetings organised by UIB researchers, research groups and institutes. These imply another element proving our university's external prestige. Last year, collaboration began between the IFISC and the Max Planck Institute in Dresden and this resulted in joint workshops of both institutions being held. The venue alternates between the UIB and the Max Planck Institute and the workshops are held at least twice a year. Likewise, LIGO programme meetings are regularly held at the UIB and the General Relativity Group of the IAC3 Institute is the only participating Spanish group. This group also takes part in the GEO project coordinated by the Max Planck Institute in Hanover. One of the main goals of this project is to use the existing strong relationship with the Max Planck Institute to create an International Doctoral School.

In order to promote research internationalisation, a few years ago the UIB set up a Research Promotion programme<sup>25</sup> that, by using the UIB's own budget, provides funding for results to

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 $<sup>^{25}\</sup> http://www.uib.es/ca/infsobre/serveis/oficines/osr/infoconvoc/?id\_cat=1$ 





be presented at conferences and allows short-term visits by researchers to other countries. It has an average annual budget of €400,000. Similarly, it offers funding for organising conferences and meetings, which over the last years, has resulted in the organisation of an average of 50 conferences and seminars per year, about 50% of which being at the international level. The strengthening of the recently created PRES-PM Cross-Border Pole will result in a further boost to the internationalisation process.

There is also a visiting lecturer programme within the above, that funds stays (between 3 weeks and 3 months) of doctors with recognised prestige from research institutions and centres in other countries<sup>26</sup>. Thanks to this programme there is a constant average of 39 visiting researchers every year<sup>27</sup> (at any given time the university hosts 8 visiting researchers per 100 staff lecturers) and their average stay is 2 months. The excellent results obtained from this support programme and the interest shown by various research groups in its extension to young researchers resulted in a new programme being created last year to fund brief visits of young doctors from foreign research centres and universities<sup>28</sup>. Its first call ended in June 2009.

Regarding the mobility of our researchers, in recent years an average of 30 researchers each year have carried out long-term (three months or longer) stays in foreign centres or universities.

Most of these visits are financed through competitive, regional or national funding schemes. The university also contributed to this mobility, mainly through two of its own support programmes: the programme for activities related to agreements, which finances activities carried out within the framework of agreements signed by the UIB and other universities or research centres, and the research stays in the Harvard University programme, which finances visits of between 1 and 6 months to this university.

The aim of this project is also to encourage internationalisation within post-graduate studies by promoting double degrees with other universities and European doctoral degrees. All of this will also be favoured by the setting up of the PRES-PM Cross-Border Pole.

Members of the CSIC coming from the institutes are fully integrated into UIB, participating in the Research Promotion and Internationalisation programmes with the same rights as UIB members.

Indicator	Current Value	2015 Objective
Internationalisation ranking (% of publications in co- authorship with researchers from other countries)	48%	53%
Number of foreign post-	13.9%	25%

<sup>&</sup>lt;sup>26</sup> http://www.uib.es/ca/infsobre/serveis/oficines/osr/infoconvoc/?opc=punt&id=5

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<sup>&</sup>lt;sup>27</sup> 30 in 2009

<sup>&</sup>lt;sup>28</sup> http://www.uib.es/ca/infsobre/serveis/oficines/osr/infoconvoc/?opc=punt&id=193





graduate students		
Number of visiting foreign researchers per year	39 (8% of the PDI staff)	50 (10%)

#### Strategies:

- International promotion of the campus.
- Promoting collaboration with international universities and research centres.
- Encouraging and promoting international scientific cooperation of the teaching staff and their participation in international organisations and committees.
- Promoting and assisting internationalisation of our spin-offs.
- Maintaining and strengthening our policy of attracting international experts by creating postdoctoral, tenure-track and senior researcher positions.
- Increasing the number of scholarships managed by the UIB in order to ensure recruitment of the best national and international students.
- Increasing exchange of students, professors and administration and service staff with other international universities and research centres.
- Building an international post-graduate centre and creating an international doctoral school that will make our university a reference centre for post-graduate teaching, making it more attractive to the best students.

#### *Infrastructures*

The UIB has general research support services in which a large number of dedicated staff work and it also has large research equipment that, along with the research of competitive groups, helps recruit post-doctorates.

Bearing in mind that many of the existing infrastructures at the university are unique in the Community, we promote a policy of sharing important equipment with other research centres and institutions in the Community, most of which are part of the strategic aggregation.

We also operate an assistance programme, within the Research Promotion programme, which has an average annual budget of €380,000, for the repair and replacement of scientific materials and a programme for acquiring scientific infrastructure for €350,000 per annum.

We provide the details below of some of the most important infrastructures and research support services.





#### General research support services

1. A Research Support Office (OSR, Oficina de Suport a la Recerca) 29

This is the body responsible for coordinating research and assisting researchers in all the related bureaucratic procedures. The OSR is registered as the official OTRI for the UIB and has been accredited by AENOR with ISO 9001 certification since 2007. Its structure and duties can be seen on its website.

The OSR, as the official OTRI of the UIB, has been part of the OTRI Network<sup>30</sup> since it was set up and it actively takes part in this as a member in two of its working groups: the training group (OTRI-School), with the aim of contributing to strengthening the development of its offices and professional recruitment of its staff. The main work of this group is planning, designing and implementing the OTRI Network Training Plan. The other group is the European projects group, for the purpose of contributing to improving participation of Spanish university research groups in European R&D programmes, through developing mechanisms that favour the maximum professional standards for the services offered by the OTRI in this field. The OSR also belongs to the national UGI Network (Research Management Units Network) and the European Network of Technology Transfer Offices, PROTON<sup>31</sup>. The three networks have an exchange system between the various offices in the network and this enables their staff to make training visits to other national and foreign transfer and assessment centres.

2. A Research Results Transfer Office of the University-Company Foundation (OTRI-FUEIB) 32.

This office is in charge of promoting, regarding technological innovation, the relationship between companies, the University of the Balearic Islands and other Balearic research centres. Its structure and duties are shown on its website.

The OTRI-FUEIB belongs to the University-Company Foundations Network with which it actively collaborates. Since last year, through the OSR, it has also participated in activities of the OTRI Network in which it forms part of the group for creating spin-off companies. The OTRI-FUEIB is the area of the CDTI's<sup>33</sup> PIDI Network that provides companies with personalised financing assessments for R&D&I projects and it also participates in the Uniemprendia project<sup>34</sup> for promoting the creation of spin-offs, the Value Management Centre (CGV) <sup>35</sup> and TurisTEC<sup>36</sup>.

The OSR and OTRI-FUEIB are organised in such a way that they complement each other and this is an advantage for the development of each of the interface, promotion and management research and innovation duties, so that these actions are carried out with greater coordination and efficiency by both units. From the end of the year 2000 up to now, the development of

34 http://www.uniemprendia.es

<sup>&</sup>lt;sup>29</sup> http://www.uib.es/ca/infsobre/serveis/oficines/osr/

<sup>&</sup>lt;sup>30</sup> http://www.redotriuniversidades.net

<sup>31</sup> http://www.protoneurope.org/

<sup>32</sup> http://www.fueib.net/recordcard.php?id=21

<sup>33</sup> http://www.cdti.es

<sup>35</sup> http://www.turistec.org

<sup>36</sup> http://www.turistec.org





this institutional strategy has implied evolution and specialisation of all the staff involved in the transfer of the UIB's research results.

Both offices belong to the Balearic Government's Technological Antennae Network<sup>37</sup>, in which they have led a large number of projects aimed at promoting innovation in the business sector of the Balearic Islands. Among these projects, we can highlight the **technology developers** project in which the main course of action is promoting R&D&I manager training and their being recruited by companies related to different sectors on the islands with ultimate goal of helping them improve their competitive position in the market. This project was first started in 2006 and since then it has trained 78 developers. From the 40 developers trained in 2006 and 2007, 18 were finally recruited by companies in which they were interns and about four million Euros was obtained in CDTI projects for innovation in companies. This programme will be supplemented by a summer scientist campus programme aimed at secondary school students, which started this year in the UIB within the framework of the University Orientation and Transition Programme.

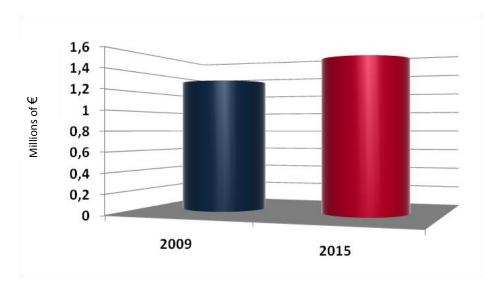


Figure 15 Resources earmarked for the Research Promotion programme, the UIB's own programme

# 3. Scientific and Technical Services<sup>38</sup>

In recent years, the UIB has carried out a great deal of work in building and fitting out new infrastructures mainly used for research. This means that it currently has a high-technology facility centre with unique features within the CAIB. This centre is centralised and available to researchers from the UIB's Scientific and Technical Services (SCT). The SCT provides support the university's own researchers and public and private institutions and individuals that request it. In fact, most of the research centres in our Community, thanks to the agreements signed with the UIB, have access to these and other university research support services. The SCT has been certified by ENAC in accordance with the EN 45001 standard and it has its own facilities and staff.

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<sup>&</sup>lt;sup>37</sup> http://www.balearsinnova.net

<sup>38</sup> http://www.uib.es/secc6/laaweb/





### 4. Information Technology Centre<sup>39</sup>

The university has also made high investments to improve its communications network and IT services: the expansion of the current Information Technology Centre began this year using the Campus of Excellence subsidy obtained in 2008 and with joint financing by the CAIB.

5. Geographical information service<sup>40</sup>

This service carries out two lines of work related to sustainable development.

#### **Other participations**

The UIB also takes part in the singular national reference infrastructures located in our Autonomous Community: The Research, Development and Innovation in Tourism Foundation (CIDTUR), in which it is a member of the Board of Directors and the Advisory Board; and the Balearic Island Coastal Observation System (SOCIB), for which the formalities are also being carried out for its participation.

The UIB also participates in the ILIAS project, through the Relativity Group which is included in the IAC3, (Integrated Large Infrastructures for Astroparticle Science), which groups together two types of large infrastructures: underground laboratories for detecting astroparticles and gravitational wave observatories.

# Transfer of knowledge

The UIB has undertaken, as crucial objectives for the work it performs, not only to provide high quality education and research but also to increase its knowledge transfer to the business sector and entrepreneurship. A sign of the current rector's team determined support to improve the results of knowledge transfer was by appointing a Rector's Representative for Innovation, a newly created position and the duties are to act as a link between the different transfer offices and to promote processes and decision-making with regards to the UIB's knowledge transfer actions.

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<sup>39</sup> http://www.cti.uib.es/

<sup>40</sup> http://www.uib.es/ca/infsobre/serveis/generals/ssigt/





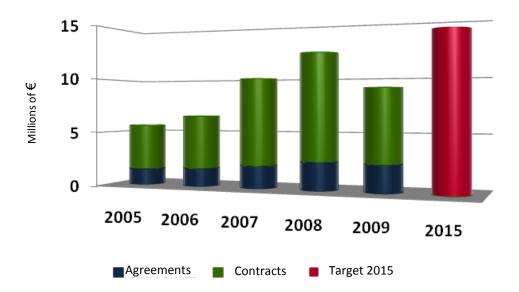


Figure 16 Revenue from contracts and agreements

The data included in the graph above showing the evolution of the financing obtained from contracts and agreements between the UIB and companies and institutions indicate a clearly upward trend. In fact, in the last ten years the funding obtained by the UIB through article 83 agreements has multiplied by 10 and currently represents 10% of its budget.

It should be mentioned that among these agreements and contracts is the agreement with the Council of Majorca and its contractor for integral waste treatment, TIRME. It was entered into with our Scientific and Technical Services along with other competitive research groups (Analytical Chemistry and Microbiology) in 1996 to apply the Environmental Technology Park's environmental monitoring plan, which deals with solid urban waste. Likewise, the UIB is responsible for the MACInsular Company's environmental monitoring plan that deals with waste from construction, demolition and tyres. Through the Atomic, Molecular and Nuclear Physics Group, along with the Analytical Chemistry Group, the UIB is also responsible for controlling environmental radioactivity on the islands, through an agreement with the Nuclear Security Council in 1991.

In this field, the UIB's commitment to Sustainable Development should be highlighted, in particular in fields related to the environment and its impact on tourism, as the main source of wealth in the Community. In this respect, we should highlight the supervision of the Global Change and its Impact in the Mediterranean Project by the research professor Prof. Carlos Duarte, awarded the Rey Jaime I prize and the Alejandro Malaspina national research prize, who directs the master's course in Global Change (UIMP-CSIC), in which UIB lecturers collaborate, given at our university. Similarly, various UIB and IMEDEA researchers participate in the Palma Beach Restoration project, issuing management recommendations for improvement of environmental quality and adaptation to global change. They study the effects of climate change on atmospheric, climatic and tourist variables as well as biodiversity and functions of the ecosystems in the area, invading species, water quality and urban ecosystems. Both collaborations are a clear example of knowledge transfer in which various regional and national institutions, including the Ministry of Tourism, are involved.





Another sign of the UIB's growing interaction with the business world is the 180% increase in the number of analyses that the companies in the area have conducted in the University's Scientific and Technical Services since 2005. The charges from these have provided revenue of about €350,000 (0.37% of the UIB's budget).

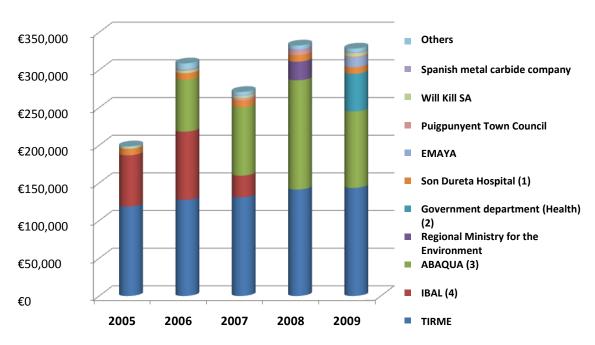


Figure 17 Fees charged to various institutions and companies by the Scientific and Technical Services during the period between 2005 and 2009

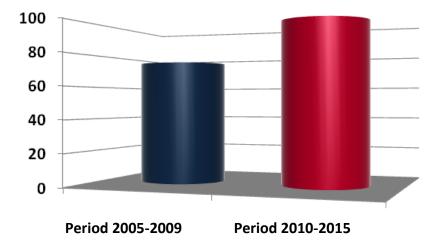


Figure 18 Percentage increase in the Scientific and Technical Services fees charged to various institutions and businesses





Likewise, the UIB also participates in 4 CENIT projects of the Ministry of Industry. Two of these are through the IAC3 Institute: Virtual Spain, with the Deimos Space company, which involves various aspects related to Touristic and Environmental Sustainability through the physics and advanced mathematics lines; and cvREMOD, with the company Atos Origin, in which the physics and advanced mathematics lines are combined with health. Participation in 2 more CENIT projects is through the Nutrigenomics group with PULEVA-BIOTECH and BIOIBERICA, which proves its capacity for transfer of technology.

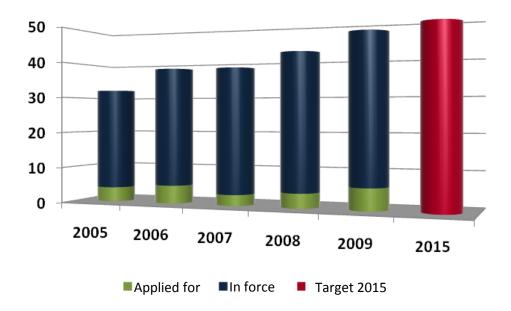


Figure 19 Evolution in the number of patents

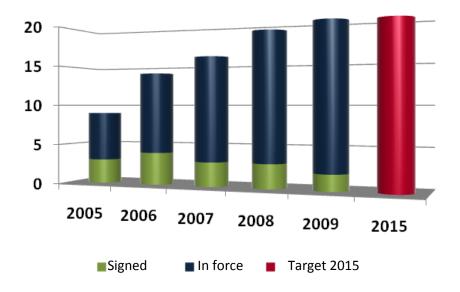


Figure 20 Evolution in the number of licences





The fields of natural resources, tourism and new technologies, along with the health sciences field have produced a portfolio of 41 patents in the last 4 years. 17 of these have an international PCT status and 18 have been licensed to the productive sector. In 2009, €90,000 was obtained from patents and while this represents a sharp increase compared with the 2005 results, it is a factor that our university aims to improve even more through this project.

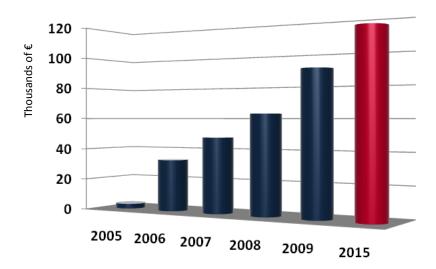


Figure 21 Evolution of revenue from licences

The number of spin-offs has also increased in recent years, reaching the current total of 14.

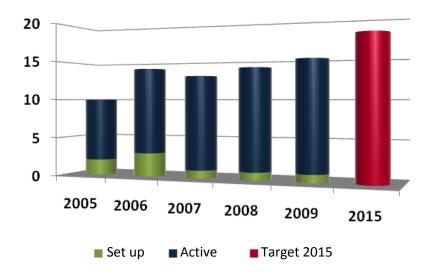


Figure 22 Evolution in the number of spin-off companies





Indicator	Current Value	2015 Objective
Income from agreements and contracts	€9.1 million	An increase of 35%
Number of CENIT projects	4	An increase of 50%
Number of patents	41	An increase of 20%
Number of licenses	18	An increase of 20%
Income from licenses	€90,000	An increase of 20%
Number of spin-off companies	14	Setting up 5 new spin-off companies

#### Strategies:

- Consolidating the UIB Technology portal with the aim of including and improving UIB collaboration and transfer to companies.
- Promoting entrepreneurship among the students and teaching and research staff.
- Encouraging and promoting collaboration and knowledge transfer to public and private companies to offer the possibility of professional development to talented people, especially students.
- Recognising and compensating participation in transfer work.
- Strengthening the training processes in innovation and knowledge transfer.
- Reinforcing our relationships with the technology park, business clusters and associations.
- Increasing the number of collaboration projects and professorships.
- Strengthening the Research Support Office and Research Results Transfer Office.
- Supporting and aiding internationalisation of spin-off companies.
- Investing in an on-campus University-Company laboratory that will be used as a meeting point between the university and the business sector.





# g. Specialisation subject areas

# i. International Campus for Touristic and Environmental Sustainability (ICTES)

Tourism and the environment imply strategic priorities for the CAIB. The ICTES was designed as a campus to meet these needs, with financial feasibility and from a standpoint of sustainability and innovation, using the results of the high quality research conducted at the UIB and CSIC in collaboration with various institutions and companies in the public and private sector. The campus model proposed for the ICTES implies a **model that specialises in touristic and environmental innovation and sustainability**. It is unique in its field and it makes the UIB and other participating institutions stand out within the context of Spanish and European universities and allows know-how in the field of sustainable tourism to be exported.

International leadership in **research** issues is especially consolidated in: the Mediterranean Institute for Advanced Studies<sup>41</sup> (IMEDEA), a joint UIB-CSIC institute; in the various UIB research groups recognised as competitive in the Balearic Government's calls; in the Economic Research Centre<sup>42</sup> (CRE), an institute of the UIB promoted by the *Sa Nostra* Balearic savings bank; and in the participating companies.

An example of innovation and effective **transfer** in this field is the national pilot project for the regeneration of mature touristic areas, located on the Palma Beach. Similarly, it also includes two singular scientific and technological facilities in the ParcBit: the Balearic Island Coastal Observation Service (SOCIB<sup>43</sup>) and the Research and Development for Tourism Centre (CIDTUR), which also form part of the proposed group. To these we must add the Spanish Oceanography Institute (IEO) and the National Farming and Food Research and Technology Institute (INIA), an experimental centre in Majorca, in collaboration with the CAIB and the UIB, the strategic project of which is being designed for the efficient use of irrigation water. All the foregoing also take part in the aggregation.

The creation of an International Doctoral School within the framework of the PRES-PM will reinforce this position.

#### Key resources

The scientific excellence and ability to attract international talent of IMEDEA, a
joint UIB-CSIC institute with 30 staff researchers and 105 current research projects
(17 of which are from the EU). The publication of 150 ISI articles in 2008 (40% up

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<sup>41</sup> http://www.imedea.uib.es

<sup>42</sup> http://www.cre.uib.es

<sup>&</sup>lt;sup>43</sup> The strategic plan of SOCIB includes the collaboration by IMEDEA and the UIB in SOCIB research work, including the role of the oceans in our climatic system, the interaction of currents and their influence on the ecosystem and the transfer of knowledge for sustainable management of coastal areas.





on 2004) and obtaining €6,140,000 from R&D projects last year. The IMEDEA has two Alejandro Malaspina national research prize winners: Prof. Carlos Duarte, who was also recently awarded the Rey Jaime I Environmental Protection prize, and Prof. Joaquín Tintoré (current director of the SOCIB).

- The CRE's capacity for economic analysis and assessment of the impact of tourism. It is a UIB research institute, sponsored by the *Sa Nostra* Balearic savings bank and it issues the Balearic Islands' annual economic and social report and the newsletter on its economic situation every four months.
- The high quality research conducted by the 8 competitive research groups, some of which are groups of excellence, such as the Plant Biology in Mediterranean Conditions Group, as part of a joint institute with the INIA, which has contributed to the recovery of traditional crops. These groups work in areas involving touristic and environmental innovation and sustainability and their capacity for transfer is clearly shown in actions such as the national pilot project for the restoration of mature tourist areas on Palma Beach and the environmental monitoring programme of the Island of Majorca Council in collaboration with TIRME.
- 3 CONSOLIDER Projects stand out within this field.
- The proven capacity for innovation of companies in the tourist sector grouped into clusters such as TurisTEC and BALEARS.T.
- The singular facilities SOCIB and CIDTUR.
- The Spanish Oceanography Institute (IEO).
- The experimental centre in Majorca of the National Agriculture, Food Research and Technology Institute (INIA).





# **ICTES** Group

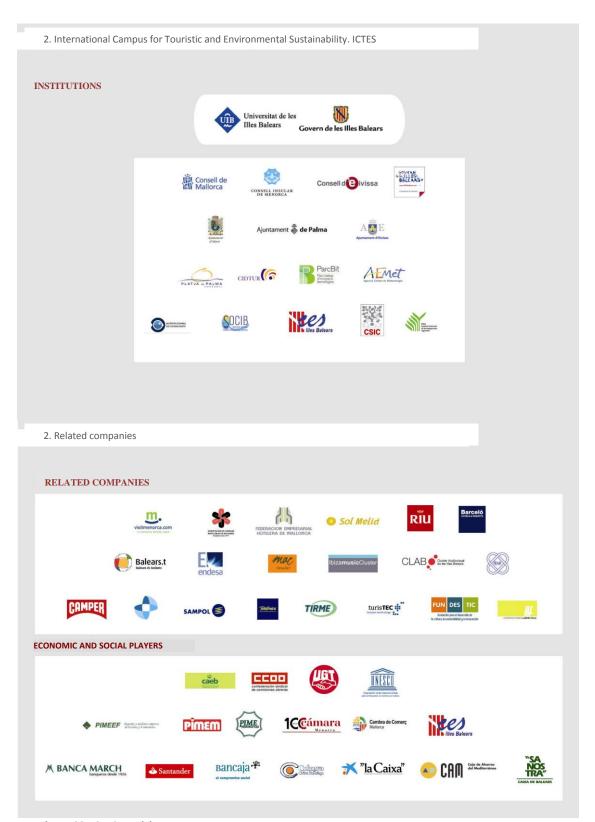


Figure 23 ICTES Participants





#### **INSTITUTIONS**

The University of the Balearic Islands (UIB)

Higher Scientific Research Council (CSIC) (2)

Research and Development for Tourism Centre (CIDTUR) (3)

Coastal Observation of the Balearic Islands Service (SOCIB) (4)

Mediterranean Institute for Advanced Studies (IMEDEA) (5)

Spanish Agriculture Research Institute (INIA) (6)

Economic Research Centre (CRE) (7)

Spanish Oceanographic Institute (IEO) (8)

TurEspaña (9)

ParcBit (10)

Bit Menorca (11)

University Company Foundation (FUEIB) (12)

G9 (13) and Monterrey Institute of Technology and Higher Education (14)

Meteorological Centre of the Balearic Islands (15)

Autonomous Government of the Balearic Islands (16)

Island Councils of Majorca, Menorca, Ibiza and Formentera (17), (18), (19), (20)

Councils of Palma, Ibiza and Alaior (21), (22), (23)

PRES-PM (Universities UdG, UdL, UPVD, Paris VI) (24)

#### **RELATED COMPANIES**

Riu (25)
Sol-Melià (26)
Barceló (27)
TurisTEC (28)
TIRME (29)
MACInsular (30)
GESA-ENDESA (31)
Sampol (32)
Camper (33)
Music Cluster (34)
Nautical Cluster (35)
Audiovisual Cluster (36)
Balearic Cluster T (37)
Telefónica (38)
Fundestic (39)
Llabrés Feliu (40)





#### **ECONOMIC AND SOCIAL PLAYERS**

CCOO Trade Union (41)
UGT Trade Union (42)
Economic and Social Council (CES) (43)
UNESCO (44)
PYME Majorca (45), Menorca (46), Eivissa-Formentera (47)
Chamber of Commerce of Majorca (48) y Menorca (49)
Hotel associations (50) (51) (52)
CAEB (Federation of Business Associations of the Balearic Islands) (53)
La Caixa (54)
Sa Nostra (55)
Banco de Santander (56)
CAM (57)
Banca March (58)
Bancaja (59)
Caixa Colonya (60)

# ii. The International Campus for Advanced Research (ICAR)

The International Campus for Advanced Research is supported by three research institutes, one of which operates jointly with the CSIC. Along with various UIB groups, they conduct high quality research of recognised international prestige in the following lines: a) Physics and Applied Mathematics and b) Food and Health.

# Physics and Applied Mathematics

This is essentially based on the scientific capacity of two research institutions:

The Interdisciplinary Institute for Cross-Disciplinary Physics and Complex Systems (IFISC), set up by the UIB and the CSIC, and the Institute of Applied Computing with Community Code (IAC3), set up by the UIB. Along with other competitive groups from the Physics and Mathematics fields, they provide a solid basis of scientific skills applicable to a wide range of areas that stand out internationally due to their parameters of excellence.

Their researchers promote knowledge transfer at an international level and in collaboration with companies such as Deimos-Space, Atos-Origin, DxO (France) and Thales Alenia Space (France).

These solid international relationships are reflected in the composition of both institutes and the research of excellence in their publications in high impact journals such as Nature, PNAS





and PRL. It should be highlighted that the researchers in these lines currently participate in 9 European projects, 4 networks, 2 European COST actions, 1 ESF project, 2 CONSOLIDER projects and 4 CENIT projects. Furthermore, an International Doctoral School is being developed in collaboration with the Max Planck Institute.

## Key resources

- The IFISC's scientific excellence and capacity to attract international talent. The aggregate *h* of the 15 staff members is 51. 53% of its doctoral students and 70% of its postdoctoral fellows are not Spanish.
- The solid relationships of both institutes with the Max Planck Institute. Since 2008, workshops have been jointly held by the Max Planck Institute in Dresden and the IFISC and researcher exchanges have taken place between the IAC3 and the Max Planck Institutes in Potsdam and Hanover (through the GEO project). Similarly, the IAC3 has the only Spanish group that participates in the LIGO project for detecting gravitational waves.
- The IAC3's capacity for knowledge transfer at an international level, which is reflected in its collaborative projects with DxO (France) and Thales Alenia Space (France).
- The potential of its IT infrastructures and, in particular, the IFISC's Nuredduna Cluster and its extension to the GRID-CSIC.
- The promotion of collaboration with the PRES-PM universities in this field.

The ICAR-PAML Group







Figure 24 The PAML group

#### **INSTITUTIONS**

The Higher Scientific Research Council (CSIC)

IFISC (61)

Max Planck Institute in Dresden (MPIPKS) (62), Potsdam and Hanover (63)

CIDTUR (3)

SOCIB (4)

The Autonomous Government of the Balearic Islands (64)

ParcBit (10) and Bit Menorca (11)

The Meteorological Centre of the Balearic Islands (15)

IEO (65)

**FUEIB (66)** 

G9 (13) and Monterrey Institute of Technology and Higher Education (14)

Island Councils of Majorca, Menorca, Ibiza and Formentera (17), (18), (19), (20)

Councils of Palma, Ibiza and Alaior (21), (22), (23)

PRES-PM (Universities UdG, UdL, UPVD, Paris VI) (24)

#### **RELATED COMPANIES**

DeimosSpace (67)

Atos-Origin (68)

DxO (France) (69)





nales Alenia Space (France) (70)
usic Cluster (34)
udiovisual Cluster (36)
amper (33)
elefónica (38)
undestic (39)
ndesa (31)
abrés Feliu (40)
ampol (32)

#### **ECONOMIC AND SOCIAL PLAYERS**

CES (43)
SME Majorca (45), Menorca (46), Eivissa-Formentera (47)
Chamber of Commerce of Majorca (48) and Menorca (49)
CAEB (Federation of Business Associations of the Balearic Islands (53)
La Caixa (54)
Sa Nostra (55)
Banco de Santander (56)
CAM (57)
Banca March (58)
Bancaja (59)
Caixa Colonya (60)

# The Food and Health Research Line (IUNICS, Biochemistry, Microbiology, Agri-food)

Based on the Food and Health research line, an important group has been formed in which the University Health Sciences Research Institute (IUNICS), the *Son Dureta* and *Son Llàtzer* university hospitals, the CIMERA (CSIC—CAIB) research centre and the BIOBAL cluster of innovative biotechnology businesses take part.

The food and health research line plays a basic role in the interaction with the territorial environment, its objective being to create a cluster that brings together all the high quality research of the healthcare system that also has a clear relation with eating habits. One of the objectives is to extend the pilot programme of the Renal Lithiasis and Bio-mineralization group to the Balearic Island hospital network and this, along with the company KEYRON, will allow patients to obtain an on-line diagnosis.

Its strength essentially lies in the translational research of the 30 research groups of the IUNICS, in which researchers from the UIB and the university hospitals participate. These are the groups that, along with other competitive groups in the Nutrition and Chemistry field, have contributed to setting up the greatest number of businesses by the UIB. The objective of the





forthcoming opening of the *Son Espases* hospital and the future inclusion of a degree in Medicine is to set up an accredited healthcare research institute.

#### Key resources

- The research potential of the members of the IUNICS is reflected in their 140 international publications in 2008.
- The international scope of the Nutrigenomics group of excellence, which
  coordinates the European BIOCLAMS project and participates in 2 of the 8
  platforms of the NUGO network of excellence, consisting of 23 institutions and in
  which the group is a founding member.
- Transfer of the knowledge obtained from translational research. This is reflected in the 14 patents transferred to the productive sector and the 3 spin-off companies being set up located in ParcBit.
- The collaboration with the International Advanced Respiratory Medical Centre (CIMERA), promoted by the CAIB and CSIC.
- The forthcoming opening of the *Son Espases* Hospital, which will become a university hospital of reference in the Balearic Islands.
- Promoting collaboration with the PRES-PM universities in this field.

ICAR-FHL Group







Figure 25 The FHL Group

#### **INSTITUTIONS**

CAEB (53)

The Government of the Balearic Islands (16)

Mateu Orfila Foundation (71)

CIMERA (CAIB-CSIC) (72)

IUNICS (The Son Dureta and Son Llàtzer university hospitals) (73)

Barceló Foundation (74)

**FUEIB (66)** 

ParcBit (10) and Bit Menorca (11)

G9 (13) and Monterrey Institute of Technology and Higher Education (14)

The Island Councils of Majorca, Menorca, Ibiza and Formentera (17), (18), (19), (20)

The Councils of Palma, Ibiza and Alaior (21), (22), (23)

PRES-PM (Universities UdG, UdL, UPVD, Paris VI) (24)

#### **COMPANIES**

PULEVA BIOTECH (75)

**BIOIBERICA (76)** 

DANONE (77)

BIOIB Cluster (SANIFIT, LIPOPHARMA, KEYRON) (78)





Fundestic (39)	
Telefónica (38)	
Mapfre (79)	

#### **ECONOMIC AND SOCIAL PLAYERS**

PYME Majorca (45), Menorca (46), Eivissa-Formentera (47)
Chamber of Commerce of Majorca (48) and Menorca (49)
CAEB (Federation of Business Associations of the Balearic Islands (53)
La Caixa (54)
Sa Nostra (55)
Banco de Santander (56)
CAM (57)
Banca March (58)
Bancaja (59)
Caixa Colonya (60)





# h. Proposed aggregation

The International Campus of Excellence for Touristic Sustainability and Advanced Research project was founded based on a commitment and association of the University of the Balearic Islands (UIB) with the PRES-PM and with the social and economic structure of the Balearic Islands, represented by the Government of the Balearic Islands and 47 political, scientific and business institutions and companies. This is evidenced by the document signed at the Government of the Balearic Islands seat on 3 March 2010 (16). The aim of the agreement and its supporters is to create, from the current university collaborations, a new scenario in which common synergies promote the conversion of the UIB's multi-island campus into a headhunting centre for touristic sustainability and advanced research (see list of participants in section 7).

The project's objectives coincide with those of the 2009-2012 Balearic Islands Plan for Science, Technology and Innovation and the Insular Councils of Majorca (17), Menorca (18) and Ibiza (19), the Town Councils of Palma (21), Ibiza (22) and Alaior (23), where our campus headquarters are located, have also been included. It is worth mentioning the participation of the Secretary of State for Tourism (80) as it proves recognition that sustainable tourism is one of the Spanish Government's strategic focuses for the Balearic Islands. It strengthens the UIB's participation, through the IMEDEA Institute and other competitive groups, in the use of the pilot project for restoring Palma Beach (81) as a model to export to other mature touristic areas.

The strategic nature of the scientific participation has a guaranteed international dimension through the creation of the Pyrenees-Mediterranean Research and Higher Education Pole (PRES-PM) with the UIB and the Universities of Perpignan Via Domitia, Pierre et Marie Curie-Paris VI (Banyuls Oceanography Observatory), Gerona and Lerida (24). The strategic research lines of this *Cross-Border Pole* of universities from a geographical area that shares common history and culture will not only reinforce the international aspect of our campus but also our teaching and research potential, especially in the fields of touristic sustainability and advanced research lines. The Vives Universities Network will act as an associated partner in the consortium. Within this framework, an international doctoral school will be opened, determining a link with the target of touristic sustainability.

The scientific quality of the aggregation is also marked by the close collaboration with the Higher Scientific Research Council (CSIC), through two joint institutes: the Mediterranean Advanced Studies Institute (IMEDEA) (5), the Institute for Cross-Disciplinary Physics and Complex Systems (IFISC) (61) and the associated Human Evolution and Cognition (EvoCog) Unit. They actively participate in the international post-graduate centre and the doctoral school project along with the Max Planck Institute. The Spanish Oceanography Institute (IEO) (8) and the National Meteorology Agency (15) can be added to the group. Therefore, the scientific participation project consists of five universities, one of which, Paris VI, is 47<sup>th</sup> in the Shanghai Academic Ranking of World Universities, thus ensuring that talent will be attracted for internationally referenced post-graduate training linked to scientific work and innovation of excellence.





This solid academic consortium has a clear aim towards sharing knowledge and innovation through the two singular scientific platforms of the Balearic Islands: the Tourism Research and Development Centre (CIDTUR) (3) and the Balearic Island Coastal Observation Service (SOCIB) (4). As shown in the attached documents, both institutions closely collaborate with the UIB in the research lines outlined in this project. Likewise, the universities included in the PRES-PM, along with the Vives Universities Network, are also preparing the SUDOE INNOVATION project (24) the main objectives of which are transfer of technology, assessment of academic research, awareness-raising and promoting innovation, setting up companies and recruiting doctors. Within this project, the UIB will carry out the *Audit labo* sub-project consisting of detecting assessable projects. In order to achieve this, an audit will be conducted by a specialised firm of all the laboratories of the associated universities. The result will be a list of projects for setting up companies, transfer of technology to companies, registration of patents/know-how and possible collaboration/association projects. Similarly, the UIB will also hold an annual forum with the companies and will award a prize to the best project for setting up a company.

The essential support of the group is provided by the Government of the Balearic Islands. Its participation is due to the R&D&I policies of the Autonomous Community being the same as project objectives and this is reflected not only in the nominative transfer of funds and investment in the UIB but through various agreements to finance the construction of buildings, institutional chairs, the recruitment of talent through pre-doctoral scholarship programmes, post-doctorate contracts, co-financing of Ramón y Cajal programmes and researcher contracts finalising the I3 programme (82).

The collaboration in innovation and regional development also shows up in the coordinated actions of the University-Company Foundation (FUEIB) and the Government. This has created various programmes: the technology developers programme, the research assessment programme (66), the RESET programme for encouraging an entrepreneurship and the setting up spin-off companies programme. These actions take place in the business incubator of the Balearic Technological Innovation Park (ParcBit) and the Bit Menorca Centre, both of which are located near the Palma and Alaior university campuses and with which the UIB has signed specific collaboration agreements to promote and develop innovation and transfer work related to the campus of excellence project (10) (11). Another objective of this project is to expand and internationalise the research assessment programme by setting up the UNIVALUE company with the G9 group of universities (13).

The link between the university and ParcBit reinforces the existence of the fourteen spin-off companies that were set up by the UIB and whose incubation and development took place at the aforementioned park. The government support to set up business clusters, such as Turismo.T, which includes most of the large companies in the Hotel Federations and Hotel Chain Associations and with which the UIB collaborates, also guarantees global synergy with the large tourist operators that, through CIDTUR, have been able to apply the advances of research to the field of touristic sustainability (3). It should be noted that the large hotel chains maintain successful collaboration relationships with the UIB. An example of this is the *Sol-Melià* chair in Tourist Studies (26).

In this respect, it is also worth mentioning the successful collaboration with the Playa de Palma Consortium (83), which is mainly operated by the Mediterranean Institute for Advanced





Studies (UIB-CSIC) and various competitive groups of the UIB. This has resulted in exporting a model for the regeneration of mature touristic areas to other areas of Spain.

The transversal line of the CEI project, Information Technology and Communications (ICT), has resulted in spin-off companies being set up and has compensated the limitations of a multi-island campus, by using virtual teaching and a video conference system. This e-learning tool has also promoted the virtual campus shared by the G9 universities group, in which about 6000 students will take part this year. This experience has also allowed the UIB to participate in the audiovisual cluster. One of this project's objectives is to make a qualitative change by creating a UIB Web TV Channel, virtual classrooms and e-labs and this will enable us to optimise space on the campus with a potential to greatly increase the visibility of the UIB. All of this should result in a greater level of integration in Balearic society and the start of a change to an economy based on ICT and knowledge. The relationship with the Monterrey Institute of Technology and Higher Education (14) will be a determining factor in this qualitative leap. Our relationship with the TurisTEC cluster (28) will also increase innovation in the ICT field in the tourist sector.

The collaboration of the Government of the Balearic Islands is also essential in the food and health advanced research line. The *University Research into Health Sciences Institute* (IUNICS) was created through an agreement with the regional Ministry of Health and Consumers, which is a member, along with the UIB, in the IUNICS Governing Board (73). It is an institute with 30 research groups, many of which are located in the Islands' hospitals of reference (*Son Dureta* and *Son Llàtzer*), and which includes, along with the *Caubet-CIMERA Foundation* (Government of the Balearic Islands-CSIC) most of the Balearic competitive research in the field of health. The UIB is also one of the patrons of the *Caubet-CIMERA Foundation*, which basically conducts translational research in the respiratory field (72). Both centres are the seed from which a future accredited university institute will be created and the forthcoming opening of the *Son Espases* Hospital will certainly contribute to its development. The translational aspect of the research conducted in this field is reflected in the CENIT project with *Puleva Biotech* (84) and in the collaboration of the nutrition groups with *Bioibérica* and *Danone*. Likewise, setting up three spin-off companies in this field has led to a successful relationship with the *BIOIB* cluster, which is the Balearic Biotechnology Companies Association (78).

In the Physics and Applied Mathematics advanced research line, in addition to the collaboration with the CSIC, the PRES-PM universities and the involvement of Telefónica R&D, plays an essential role the collaboration with the Max Planck Institute (63), with which an International Doctoral School will be developed, and the agreements with Atos Origin, Deimos Space, DxO (France) and Thales Alenia Space (France).

These groupings, along with the PRES-PM universities, the companies and institutions detailed in section 2.7, the institutions that signed the framework agreement with the Government of the Balearic Islands and the people of the Balearic Islands, are guaranteed to convert the UIB's multi-island campus into a centre for recruitment of talent.

The aforementioned project's objective is to turn the UIB's multi-island campus into a training and research centre of excellence by decidedly promoting innovation through new technologies, especially in the fields of tourism and the environment.





### i. Alliances and networks

The geographic location and the multi-island nature of the CAIB, and therefore the UIB, have lead to the development of communications on two levels: on the one hand, through the use of ICT in teaching and communication in general and, on the other hand, at an institutional level by promoting participation in university networks and seeking the creation of links and alliances with other institutions, thus transforming a potential weakness into an opportunity for strength.

#### **Current situation**

The UIB participates in various networks of universities and institutions related to higher education and research, both at national and international level:

- a) CRUE: The Spanish University Rectors Conference.
- b) The G9 group: an association of 9 Spanish public universities, each of them unique in their respective autonomous communities. One of the planned actions in this CEI-UIB project is the UNIVALUE project consisting of setting up a company for assessing research results, within the framework of the G9 group.
- c) INTUR: an inter-university tourism post-graduate network, created in 2007 and consisting of 14 Spanish universities with post-graduate courses on the subject of tourism. In March 2010, the 19<sup>th</sup> meeting of the INTUR network was held at the UIB and its objective was to promote new academic cooperation projects between the network's universities within the fields of graduate and post-graduate tourism courses. The UIB offers a master's in Tourism Management and Planning. This master's degree is included within the scope of such network, which is one of the ICTES's teaching resources in this project.
- d) The Vives Network: formed by 20 universities from Catalonia, the Region of Valencia, the Balearic Islands, northern Catalonia and Andorra, and based on common geographical, historical, cultural and linguistic links.
- e) Universia: a university cooperation network between Spanish and Portuguese speaking institutions.
- f) AUIP: the Ibero-American Post-Graduate University Association.
- g) CINDA: the Inter-University Development Centre, an association composed of important universities from Europe and Latin America.
- h) The ORION Association: a network of universities and NGOs operating in Latin America, the Caribbean and Europe.
- i) EUA: The European University Association.
- j) EGS: The European Graduate School.
- k) Group Université Euro-méditerranée-Théthys: a new concept of international cooperation based on sharing knowledge and skills among the participating universities, all of which are located in the Euro-Mediterranean region.

Moreover, the UIB also participates in the **Averroes** programme, a project financed by the European Commission within the framework of the **Erasmus Mundus External Cooperation Window**, the objective of which is to reinforce the cooperation between higher education institutions in the European Union and the Maghreb. This is achieved by mobility of graduate and post-graduate students, as well as teachers, researchers and administration and service staff. A total of 11 European and 9 Maghreb universities participate in this programme.





In recent years, the establishment of **double degrees** in master's and doctorates has been promoted along with agreements for co-tutoring by researchers from foreign institutions in doctoral theses. There are currently two double degrees:

- Double doctoral degree: Ph D in Science and Chemical Technology (UIB) and the Ph D in Science and Environmental Technology from the Advanced Materials Research Centre (CIMAV, Mexico).
- Double master's degree: Master's Degree in Cultural Heritage: Research and Management (UIB) and Master's Degree in Arts and Humanities and History from the Friends of the People University in Russia (PFUR).

#### **Improvement actions**

Based on the foregoing, there is a series of actions (some of which are already taking place) that we intend to carry out within the framework of the CEI-UIB project and that are in line with the project's objectives.

- 1) Setting up a Cross-Border Research and Higher Education Pole (PRES) within the framework of the Euro-Mediterranean region, with the Universities of Paris VI (through the Banyuls Oceanography Institute) and Perpignan-Via Domitia in France; and the Spanish universities of Lerida, Gerona and the UIB. The Environment and Tourism are among the priority lines for research and higher education (see constitution protocol, (24)).
- 2) Setting up an International Doctoral School with two key research lines:
  - Environmental Sustainability, within the framework of the PRES (see previous paragraph).
  - Physics and Applied Mathematics, in collaboration with the Max Planck Institute (see Memorandum of Understanding (63) signed by the UIB and the Hanover branch of such institute).
- 3) Participation in Erasmus Mundus programmes:
  - Partnership Programme: Europe-Argentina, lead by the Pierre et Marie Curie (Paris VI) University, which will allow the mobility of doctoral students, post-doctorate students and PDI in the fields of Agriculture, Engineering, Technology, Geography, Geology, Mathematics, IT and Natural Sciences.
- 4) Participation in the TEMPUS programmes:
  - Déveloper l'Employabilité dans les Filières d'Ingénierie (DEFI-Averroes), led by the University of Montpelier
- 5) Participation in the SUDOE Innovation Project, within the SUDOE Programme, a programme for Territorial Cooperation in Southeast Europe promoting regional development through co-financing trans-national projects using the ERDF. This project is included within the framework of the PRES (see point 1 of this section) and it is dedicated to transferring technology, innovation and professional recruitment of doctors.





# 3. Methodology and work plan

The methodology to be used for implementing the Innocampus project will be based on the same governance structures and methods as for the Campus of Excellence project in general.

## a. Management structures and procedures

### i. Governance structure and decision processes

Project governance will be divided in three levels:

- On a strategic level, an External Advisory Board (EAB)
- On a tactical level, a Project Board (PB)
- On an operational level, the Project Management Office (PMO)

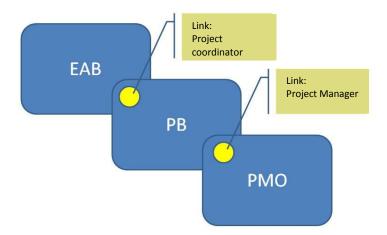


Figure 26 Project governance diagram

The EAB will be composed of international experts covering the strategic focus areas that are the CEI targets: Tourism and Sustainability, Physics and Applied Mathematics and Food and Health, the members initially proposed to form the EAB are as follows:

 Dr. Nancy Bockstael: Ph D in Economic Resources from Rhode Island University; Professor in the Agriculture Department of the University of Maryland since 1988.
 She has been: President of the Association of Environmental and Resource Economists (USA); member of the Economic Assessment Committee of the Environmental Protection Agency (EPA); member of the National Oceanic and





Atmospheric Administration (NOAA); and honorary member of the American Agricultural Economics Association. She is Doctor Honoris Causa of the UIB.

- Dr. Ángel Plastino: Ph D in Physics, Professor of the La Plata National University (UNLP), currently emeritus; Senior Researcher of the CONICET; Rector of the UNLP (1986-1992); President of the Scientific Research Commission in the province of Buenos Aires (1983-1987); Founding Director of the La Plata Physics Institute (CONICET-UNLP) from 1998 to 2008; he was the most quoted Argentinean researcher from 1997 to 2007 and has been a guest lecturer at various European and American universities.
- Dr. Gilbert Béréziat: Doctor in Medicine from the University of Paris; Professor of Biochemistry and Molecular Biology; Head of this speciality in the Sant Antoine Hospital of Paris; former President of the Paris VI – Pierre et Marie Curie University (UPMC) from 2001 to 2006; Vice-President of International Relations of the UPMC until 2010; currently the advisor of the President of the Paris II University and the President of the Sorbonne.
- Dr. Felicià Fuster i Jaume: Industrial Engineer from the University of Barcelona; he
  was Managing Director of the GESA electricity company and President of the
  company ENDESA; he was President of the External Advisory Group for Fusion; he
  is President of the Social Board of the UIB and Doctor Honoris Causa at the UIB;
  awarded the "Gran Cruz de la Orden de Isabel la Católica" and the National Prize
  for Industrial Engineering; currently President of the Advisory Board of ENDESA in
  the Balearic Islands.
- Dr. Enrique Tortosa Martorell: Ph D in Chemistry at the University of Valencia; he
  has developed his scientific career at the CSIC, where he was Director of the
  Institute for Agro-Chemistry and Food Technology (IATA) of Valencia and head of
  the CSIC in the Community of Valencia. He was: Vice-president of the CSIC;
  Director of the Mediterranean Institute for Advanced Studies; member and
  consultant of the General Secretary for the National R&D Plan; Managing Director
  of R&D&I of the Government of the Balearic Islands; and Managing Director of the
  Spanish Oceanographic Institute.

#### The role of the EAB is to:

- To exercise a general advisory role with regard to the rest of the project governance structure
- To provide a profile for the strategic lines of the CEI project
- To assess the interim results from the standpoints of education, research and transfer
- To make recommendations on adjustments due to deviations or improvement actions

The rector of the UIB, Dr. Montserrat Casas, will act as coordinator of the EAB and as a link with the rest of the administrative structure of the project.

The PB will be composed of the following:

- Project coordinator: the rector of the UIB, Dr. Montserrat Casas
- Innovation and transfer manager: the rector's representative for innovation, Dr.
   Víctor Cerdà
- Research manager: Deputy rector for research, Dr. Jordi Lalucat





- Manager of educational improvement and adaptation to the EHEA: Deputy Director of the Postgraduate Studies Centre, Dr. Jaume Carot
- Head of Campus transformation: Head of the Environmental Management and Sustainability Office, Mr. Jaume Munar
- The rector's representative for new technologies, Dr. Carlos Juiz, covering the transversal use of ITC
- The CEI project manager: Dr. Antoni Arbona, from the technical team of the rector's office.

The PB will be the highest decision-making authority for the project and will be chaired by the project coordinator. The PB secretary is the project manager, who will be in charge of preparing the agenda for the meetings, drawing up the relevant minutes and notifying the decisions taken at the PB meetings on an operational level within the framework of the PMO. The PB will take note of all the recommendations and reports issued by the EAB to determine the working guidelines. Decisions will be taken by consensus and in the case of conflict the decision will be taken by the coordinator.

The PMO will be composed of the following:

- The project manager, Dr. Antoni Arbona, as administrative project management coordinator and link between the operational and tactical levels.
- The head of financial management: the assistant manager of the UIB, Dr. Antònia Fullana
- Two members of the UIB administrative and services staff for administrative support

The PMO will handle the day-to-day work involved in the project, monitoring deadlines, progress in carrying out actions, accounting and financial control, drawing up technical and economic reports, contacts with the public authorities, organising audits, monitoring the quality of results, controlling transfer and regularly reporting the project's progress to the PB.

# ii. Communication within and between committees

The EAB will hold meetings once a year during the CEI project. Conference calls will be held twice a year. These meetings will be the framework for discussions related to strategy adjustments, assessment of results and recommendations. EAB members will also be contacted individually via email or telephone for specific issues related to their field of experience.

The PB will normally hold a meeting once a month and also whenever considered necessary by the Rector. The link between the EAB and the PB will be the Rector and the Project Manager will be the link between the Rector and the PMO.





### b. Governance of the PRES-PM

The PRES-PM framework agreement pre-structures the possibility of creating a legal, EGTC-type (European Territorial Cooperation Group) tool with the founding universities and the other associated members, in order to help achieve the European Territorial Cooperative objectives. The members of this group undertake to share their skills to serve the greatest number of common objectives.

The PRES-PM will have a Board of Directors, which will be composed of the founding public universities that signed the framework agreement, which will have the majority of votes, and a group of associated institutions, which may join the PRES-PM subject to the unanimous votes in favour by the founding members. The board may appoint a managing director who will be specifically contracted to perform these duties.

The five rectors or presidents of the founding universities will be the members of the Board of Directors, along with the representatives of the associated members, in accordance with the distribution defined in the internal regulations.

The duty of the Board of Directors is to define the priority points in terms of research, training and transfer and to annually approve the proposals for projects submitted by the Scientific Board.

The PRES-PM will be chaired by a rector or president and this post will be renewed each year.

The Scientific Board will be composed of scientific staff appointed by the founding members and approved by the Board of Directors. The duties of this Board will be to propose projects that meet the criteria of excellence for the priorities defined by the Board of Directors. The running of the different boards will be defined by the internal regulations.

### c. Milestones

The following table lists the project's milestones, including the planned start and finish dates and a summarised description.

Target	Date	Description
AVANZA1	Dec 2010	Expenses undertaken for AVANZA project and building tender
AVANZA2	Dec 2011	Completion of first construction stage in the AVANZA project
		building
INNOVA1	Dec 2010	Completion of the INNOVA project plan
INNOVA2	Dec 2011	Completion of first building construction stage
UNIVAL1	Dec 2010	UNIVALUE company set up
UNIVAL2	Dec 2011	First round of capitalisation completed
TRANSFIERE1	Dec 2010	Drawing up the building project for the TRANSFIERE project
TRANSFIERE2	Dec 2011	Completion of first building construction stage
INNOILLES1	Jun 2011	1 spin-off company set up
INNOILLES2	Dec 2011	3 spin-off companies set up
INNOILLES3	Dec 2010	20 new technology developers trained





INNOILLES4	Dec 2011	40 new technology developers trained
INNOILLES5	Dec 2010	5 innovation units created in companies
INNOILLES6	Dec 2011	10 innovation units created in companies

**Table 4 Project Milestones** 

# d. Schedule

The project schedule is shown in Table 6: Project budget.

# e. Description of Buildings and Equipment

The descriptions of the works, building features, main uses and details of equipment are described in section 5.





# 4. Summary of indicators, benefits and dissemination plan

The following table provides the indicators requested in the Innocampus call. It shows the average in the last five years, except in the case of six-year research bonuses where the current figure is shown, as requested.

	Average UIB over 5	ICTES	FHL	PAML
Indicator	years	10.120		
Number of annual publications per permanent lecturer <sup>44</sup>	1.08	2.77	2.49	2.09
Six-year tenures of permanent teaching staff <sup>45</sup>	54% <sup>46</sup>	102%	154%	131%
Funds obtained per annum per permanent lecturer	€12,513			
European R&D&I Project Funds in European competitive	€941	€2547	€2490	€4192
programmes				
Spanish R&D&I project funds for national competitive	€7980	€20,315	€21,129	€14,732
programmes				
Revenue Article 83 from agreements with companies 47	€3508			
Revenue from industrial and intellectual property rights	€84			
(patents, licensing agreements, etc.)				
Number of spin-off companies <sup>48</sup>	0.30	0.48	2.00	0.00
Number of students obtaining doctoral degrees <sup>49</sup>	9.27			
Percentage of non-Spanish students enrolled in doctoral	14%			
courses				

Table 5 Specific indicators as requested in the Innocampus call. The UIB average and the value by strategic focal points are provided, whenever possible.

We would also like to highlight the following indicators:

- 4<sup>th</sup> place in the national ranking of ISI articles per PDI
- 1<sup>st</sup> place in ranking of articles per Doctor
- 2<sup>nd</sup> place in publications in international co-authorship
- 10 ISI fields in which the UIB is in the top quartile for average impact factor of publications
- 10% of PDI staff established through Ramón y Cajal contracts and similar

For further details on indicators, expected benefits, etc., see section 2.6.

<sup>&</sup>lt;sup>44</sup> International publications in ISI journals

<sup>&</sup>lt;sup>45</sup> Ratio between the number of six-year tenures of a lecturer and the number of six-year tenures there could be, according to current regulations (last year). The figure may exceed 100% due to the fact that the possible six-year tenures are counted from the time a lecturer takes office, while those possible may include previous work (scholarship or post-doctorate periods)

<sup>&</sup>lt;sup>46</sup> The value for researchers of the CSIC is 96%

<sup>&</sup>lt;sup>47</sup> This section excludes funds from sub-contracting, article 83, directly related to R&D&I projects in European, national or regional competitive programmes.

48 Set-up on an annual basis from the University, per 100 permanent lecturers

<sup>&</sup>lt;sup>49</sup> On an annual basis, per 100 permanent lecturers





# a. Dissemination plan

The CEI website will play a determinant role in the dissemination of the project's action plans, its governance structure and the results obtained and related news.

We also plan to use social networks (Facebook, etc.), drawing up leaflets about project summaries (in Spanish, Catalan and English), organising events such as summer courses, joint workshops with the Max Planck Institute, events for final year students, press conferences and press releases.





# 5. Economic report

# a. Budget summary of the actions

The following table details the budget for the actions, broken down by type and annual amount. The items and annual payments coincide exactly with the economic schedule for the strategic plan, presented within the context of the Campus of Excellence, except for the extension of the INNOILLES programme to cover the cost of patent acquisitions.

The details of the actions are detailed in the following sub-section.

Actions	Type of entry	2010	2011	
AVANZA				€3,000,000
	Construction and implementation of buildings		€2,650,000	
	Outsourcing services and work	€350,000		
INNOVA				€3,960,000
	Construction and implementation of buildings		€2,000,000	
	Equipment		€1,810,000	
	Outsourcing services and work	€150,000		
UNIVALUE				€60,000
	Direct operating expenses	€30,000	€30,000	
TRANSFIERE				€1,050,000
	Construction and implementation of buildings		€665,000	
	Equipment		€310,000	
	Outsourcing services and work	€75,000		
INNOILLES				€400,000
	Direct operating expenses	€200,000	€200,000	
		€805,000	€7,665,000	€8,470,000

Table 6 Project budget





### b. Actions

### i. Post-graduate Studies Centre (AVANZA)

It is proposed to construct a building of 4285m2 with 3 lecture halls with capacity for 100 students, 15 rooms for 50 students and 20 rooms for 25 students, a conference room with a capacity for 150 people and 30 double offices for guest lecturers, post-doctorate students, etc. This building will make the plans for recruiting international talent possible (including the startup of the IBREA) and the launch of the International Doctoral School.

The total budget is €8,300,000, of which €6,640,000 will be earmarked for constructing the building ( $4285m^2 \times 1550 \text{ €/m}^2$ ) and €1,660,000 for fitting out its lecture rooms and offices. In 2010, we forecast project and tender costs of €350,000, which will be requested in Innocampus. The 2011 budget for constructing the building is €2,650,000, which will be requested in Innocampus, and this will be €3,640,000 in 2012 (financed through the Campus of Excellence programme or our own investment). The equipment will be budgeted for in 2012 and will not be included in the Innocampus programme.

### ii. INNOVA laboratory (University-Company)

It is planned to construct a new 2000m<sup>2</sup> building, annexed to the Scientific-Technical Services building. It will be a modular building to be adapted to the needs for space of the different companies that we plan to house there. It will have a general use laboratory with instruments (a mass spectrometer with a source of inductive plasma coupling, a gas-mass chromatograph, etc.) that will allow different analysis to be conducted.

The total budget is €4,910,000, of which €150,000 will be invested in 2010 when drawing up the project, which will be requested in the Innocampus programme. In 2011, €2,000,000 will be spent on the first stage of the building construction (2000  $\text{m}^2 \text{x} 1550 \text{ €/m}^2$ ) and this will also be requested in Innocampus. The construction will be completed in 2012 with an investment of €950,000, which will be obtained from other sources (Campus of Excellence or our own investment). In 2011, €1,100,000 will be spent on fitting out the offices and laboratories (furniture and scientific equipment: lab tables, gas extractors, gas fittings, etc.) and €710,000 will be spent on purchasing laboratory materials and instruments.

# iii. UNIVALUE project

In 2010 and 2011, €30,000 will be spent each year on capitalising the UNIVALUE Company, which is composed of the universities from the G9 group, in which the UIB participates, for promoting assessment of research.





# iv. TRANSFIERE project: Enlargement of the Son Lledó building to house the OTRI (transfer) and the Research Support Office

The improvement in the assessment of research results and promoting the creation of spin-off companies means we must have a suitable building for the Research Results Transfer Office (OTRI). Its current location in the Son Lledó building, along with the Research Support Office, in a  $100\text{m}^2$  room makes it impossible to employ an adequate number of experts in this field and to properly assist the researchers in detecting which types of results from their projects could be patented and that therefore could generate new wealth. It is also indispensable to have adequate space to strengthen relationships with the business world and to improve the transfer of knowledge results that has given rise to 14 spin-off companies being set up.

In order to suitably deal with these needs, we propose enlarging the rear part of the Son Lledó building, by adding a corridor connecting the old building to the new building with two floors of  $400\text{m}^2$ . This extension will allow the correct location of the Research Support Office and the Research Results Transfer Office, which is currently divided between the UIB campus and the University-Company Foundation.

The overall budget is €1,550,000, of which €75,000 is required to draw up the project (2010), and requested as part of Innocampus. €1,165,000 will be spent on constructing the building  $(800m^2 \times 1550 \text{€/m}^2)$ , divided into €665,000 in 2011 (requested in Innocampus) and €500,000 in 2012 (Campus of Excellence or our own investment). In 2011, €310,000 will be invested in fitting out the offices.

# v. INNOILLES project

The INNOILLES programme aims to:

- Assess, protect and transfer technology of the UIB by:
  - Developing marketing plans for the research groups
  - Protecting and creating value in technology of the UIB
  - Cataloguing, organising and disseminating scientific and technological resources of the UIB
  - Managing the technology transfer process
- Set up spin-off companies in the university scope by:
  - Developing a regulatory framework for setting up spin-off companies
  - Promoting companies being set up within the scope of the university
  - o Encouraging entrepreneurship at the UIB
  - Training students and researchers
  - Creating a network of investors
- Mobilise collaborative R&D&I projects between research centres and companies by:
  - o Providing advice on public R&D&I programmes
  - Seeking new financing models for research
  - Detecting demand and opportunities in the business sector





- Coordinating sector R&D&I projects
- Provide the research groups and the OTRI with an information and technology monitoring service by:
  - Developing tools for monitoring technology
  - Detecting the most appropriate sources of information
  - Offering a personalised monitoring service
- Train the players of the science-technology-business system in R&D&I and technology transfer management by:
  - Disseminating good management practices in innovation and R&D in companies
  - Training researchers in technology transfer and setting up companies
  - Organising meetings, conferences and seminars of interest
- Manage the Technology Developers project of the Balearic Islands by:
  - Detecting and launching R&D&I business projects
  - o Innovation managers being recruited by companies in the Balearic Islands
  - Making innovation management a professional task

The Innoilles programme has a budget of €990,312, which covers the aforementioned work. The financing is structured through the UIB agreement with the Regional Ministry for Innovation, Interior and Justice. Within the framework of the Innocampus programme, an amount of €200,000 was requested for 2010 and the same figure for 2011 to pay for acquiring patents, an action that supplements the transfer actions and strengthens the R&D&I business actions mentioned above.

#### c. Statement of aid

In accordance with that stated in the Innocampus programme, with regards to the Autonomous Communities in competitive areas<sup>50</sup>, ERDF aid will be requested to cover half the budget. In the case that the available ERDF funding runs out we will resort to the ERDF funding managed by the Autonomous Community.

# d. Financing and co-financing plan

Table 7 summarises the requested budget to fund the Campus of Excellence. The amount of financing received through the present call will not be known until the completion of the programme's second stage in October 2010. As previously stated, apart from the €400,000 earmarked for the extension of the INNOILLES programme (acquisition of patents), the rest of the payments requested in the Innocampus call exactly correspond to the 2010 and 2011 payments shown in the aforementioned programme. Table 8 summarises the private

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<sup>&</sup>lt;sup>50</sup> Autonomous Communities in competitive areas may opt for ERDF aid only in the unusual case that there are still ERDF funds available, on a case by case basis. In this situation the amount of ERDF funding would be 50%.





contributions to the strategic plan, while Table 9 shows the contributions from the Autonomous Community.

Budget requested to the CEI	
Development and specification of the conversion to the CEI project	€200,000
Headhunting (teaching)	€1,580,410
Postgraduate Study Centre (AVANZA)	€8,300,000
Library Project	€26,660,000
Professional Training in Tourism Centre Development	€100,000
Doctoral School	€100,000
PRES-PM Campus	€100,000
Adaptation to the EHEA. Adaptation of classrooms, laboratories and security storage	€700,000
Adaptation to the EHEA. Virtual classrooms	€300,000
SEGURA Project	€700,000
Headhunting (research)	€3,160,820
Headhunting (Strengthening programme)	€100,000
INNOVA Laboratory (University-Company)	€4,910,000
Setting up UNIVALUE	€60,000
TRANSFIERE Project	€1,550,000
APOYO Project	€1,275,000
MEJORA Project. Pedestrian adaptation of campus	€500,000
MEJORA Project. Elimination of flooding risks	€500,000
ICT Project	€500,000
ICT Project. Wi-Fi Area	€200,000
ICT Project. Multi-conference	€500,000
ICT Project. Moodle (Virtual classrooms)	€350,000
ICT Project. WebTV	€300,000
ICT Project. WebTV Contents	€200,000
ICT Project. WebTV (strengthening programme)	€320,400
ELIMINA. "Sa Riera" Project	€207,680
ELIMINA. Campus Project	€108,561
ELIMINA Project	€207,680
University accommodation	€100,000
Change of culture towards sustainability	€139,500
Master's scholarships in developing countries	€250,000
TOTAL	€54,180,051

Table 7 Summary of the project budget





Private contributions	
RESIDENCIA Project (University accommodation)	€2,000,000 <sup>51</sup>
AGORA Project (Public square with service area)	€800,000 <sup>52</sup>
ENTORNO Programme (collaboration agreements and contracts with	
private institutions)	€9,000,000 <sup>53</sup>
COLABORA Programme (collaboration agreements and contracts with	
other public authorities)	€3,500,000 <sup>54</sup>
Promoting innovation (COLABORA Programme)	
INNOILLES Project (Transfer of technology and university	€990,312 <sup>55</sup>
entrepreneurship)	
RESET Programme (Promoting companies being set up)	€180,000 <sup>56</sup>
Total	€16,470,312

Table 8 Summary of private contributions to the project

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<sup>&</sup>lt;sup>51</sup> Financed by land lease for a certain period of time plus an administrative concession. In 2010 a project is being drawn up for a value of  $\in 100,000$ . The rest will be carried out in 2011

is being drawn up for a value of  $\in 100,000$ . The rest will be carried out in 2011. <sup>52</sup> The part of the service area is financed by land lease for a certain period of time plus an administrative concession. This entry does not include the costs of pedestrian adaptation. In 2010 the project is being carried out for a cost of  $\in 50,000$ . The rest of the conversion will be carried out in equal parts in 2011 and 2012.

<sup>&</sup>lt;sup>53</sup> By means of article 83 agreements. Annual contribution.

<sup>&</sup>lt;sup>54</sup> Annual financing by agreements with various institutions. Indefinite annual contribution.

<sup>&</sup>lt;sup>55</sup> Financing by agreement with the Regional Ministry for Innovation, Interior and Justice. Indefinite annual contribution.

<sup>&</sup>lt;sup>56</sup> Financing by agreement with Sa Nostra. Indefinite annual contribution.





Public contributions	
Competitive Group Building (Parc Bit) 57	€7,500,000
Adaptation of laboratories (in process) 58	€250,000
Adaptation of classrooms to EHEA <sup>59</sup>	€674,991
Videoconference rooms and audiovisual material <sup>60</sup>	€504,865
Interdepartmental Building II <sup>61</sup>	€7,600,000
CTI Extension <sup>62</sup>	€2,300,000
Reform of "Can Oleo" 63	€4,900,000
Library Project <sup>64</sup>	€340,000
Electronic Network Improvement <sup>65</sup>	€5,000,000
Master's and degree in medicine.	€13,975,537
IBREA (Advanced Studies Institute of the Balearic Islands) <sup>66</sup>	€4,000,000
Total	€47,045,393

Table 9 Summary of public contributions to the project

<sup>&</sup>lt;sup>57</sup> Financing 50% by ERDF funds and CAIB contribution. The bid is completed and the budget will be applied broken down in two years.

Financed by investment budget, as a supplement to the nominative transfer by the CAIB.

<sup>&</sup>lt;sup>59</sup> Financed by investment budget, as a supplement to the nominative transfer by the CAIB. It will be

carried out in 2010. 60 Financed by investment budget, as a supplement to the nominative transfer by the CAIB. It will be carried out in 2010.

<sup>&</sup>lt;sup>61</sup> Financed by the CAIB by granting a loan to the UIB. The basic project is drawn up and the tender for bids is being prepared. To be completed in 2011.

<sup>&</sup>lt;sup>62</sup> €1,950,000 will be financed by the CEI programme in 2008 (delivery date September 2010), and the rest by the CAIB.

<sup>63</sup> Extraordinary investment entry of the CAIB by means of the financing consortium of university facilities. Planned to be completed in October 2010.

<sup>&</sup>lt;sup>64</sup> Financed by means of the financing consortium of university facilities, carried out in 2010.

<sup>&</sup>lt;sup>65</sup> Project granted by MICINN, with 50% ERDF funds, to be completed in 2013.

<sup>&</sup>lt;sup>66</sup> Financed by means of the strategic plan for science, technology and innovation of the Autonomous Community of the Balearic Islands 2009-2012, €0.5M per annum in 2010 and 2011, and €1M per annum from 2012 to 2014. By means of this body it is planned to recruit up to 250 top level scientists.





### e. Plan for reimbursement of aid

The budget presented in the Innocampus programme amounts to €8,470,000. As stated, we hope to obtain 50% of the financing through either national or autonomous ERDF funding. The plans for aid reimbursement are based on the premise that these actions are an essential part of the UIB's strategic plan of excellence and that they will be carried out in all cases within such context. In this respect, the UIB's ordinary annual entries for investment will cover these investments in the next few years, although this would obviously occur at a much slower rate without the advance investment provided by the Innocampus programme.

The plan consists of reimbursing half of the aid (not covered by ERDF), i.e. €4,235,000, by applying the 3-year grace period and the 15 year repayment schedule included in the Innocampus tender. The repayment will be made through annual instalments. This figure may be higher (up to a maximum of twice the amount) or be lower depending on whether ERDF funding is obtained and on the second stage of the Campus of Excellence project. In any case, the ordinary investment entries of the UIB over 15 years allow us to meet this repayment schedule with no need to adopt any special measures. Drawing down the aid from ERDF will be formally carried out with no physical expenditure of funds, being applied to repayment of the reimbursable advanced amount.

The University of the Balearic Islands, being subject to a public budgetary system, will record income for the amount of the advance payment received, applied to Chapter 9 "Financial Liabilities" in its budget.

When the ERDF funding is received, the MICINN will inform the UIB of this so that the funding received from the European Union can be recorded by means of an income entry according to article 79 "Transfers of capital from external sources" that, in turn, will allow the formalities to be carried out to repay the debt recorded when the State funds were received in advance, by means of the relevant payment in Chapter 9 of the expenditure budget.





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### 7. Additional documents

Additional information can be found on the CEI-UIB Website<sup>67</sup>, including:

- CEI-UIB membership documents
- Agreements and contracts
- A list of competitive groups
- Research efficiency data of the UIB groups

#### a. Member institutions

The following is a list of institutions that are parties to the CEI agreement between the UIB and the Government of the Balearic Islands:

- 1. The State Meteorology Agency
- 2. The Hotel Chain Association of the Balearic Islands
- 3. The Council of Alaior
- 4. The Council of Eivissa
- 5. The Council of Palma
- 6. The Hotel Association of Minorca
- 7. Banco Santander
- 8. Bancaja
- 9. Barceló Hotels
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- 11. The Chamber of Commerce of Majorca
- 12. The Chamber of Commerce of Minorca
- 13.Camper
- 14.CIDTUR
- 15. Audiovisual Cluster
- 16.Balears T Cluster
- 17.BIOIB Cluster
- 18. Nautical Cluster
- 19.Colonya Caixa d'Estalvis
- 20.CCOO Trade Union
- 21. Island Council of Ibiza
- 22. Island Council of Formentera
- 23. Island Council of Majorca
- 24. Island Council of Minorca
- 25. Economic and Social Council
- 26.Regional Tourism Council
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