STRATEGIC PLAN FOR RESEARCH, INNOVATION & MANAGEMENT OF INTELLECTUAL PROPERTY RIGHTS

cibican
IMBRAIN
Improving Biomedical Research and Innovation in the Canary Islands

ULL
Universidad de La Laguna

cibican
Centro de Investigaciones Biomédicas de Canarias

STRATEGY FOR INNOVATION AND IPR MANAGEMENT

Coordinator:
Rafael Alonso Solís

Center for Biomedical Research
of the Canary Islands
University of La Laguna

ULL
Universidad
de La Laguna

Supported by a grant from the European Commission
(IMBRAIN, FP7-REGPOT-2012-2013-1-316137)

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MASTER LINE

Edita: Master Line & Prodigio, S. L.
C/ Las Minas 1, 28250 Madrid (Spain)
Depósito Legal: M-
Impreso en España (Printed in Spain)

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FOREWORD

Universities must play an essential role in the development of a knowledge-based society. As public institutions, they are the primary generators, providers and sources of knowledge, and, in some cases, also of technology. During centuries public European universities have been the main actors in the generation of knowledge through research, and Spanish universities are not an exception. In fact, in spite of the profound reduction in public funds due to the economical crisis, most Spanish universities have been able to maintain a reasonable level of scientific productivity during the last years. However, to make the necessary steps forward in fulfilment all of their societal duties, Spanish universities have to undertake new approaches not only in higher education and advanced research, but also in the procedures and the structures that should be responsible for the transfer of knowledge and technology to industry and society. Therefore, the needs for improving the efficiency of the Spanish university system in knowledge and technology transfer are now totally recognized. In particular, universities have the responsibility of affronting several new challenges, which include the creation of a solid innovation capacity. This can only be accomplished through incorporating and training human resources dedicated to knowledge and technology transfer (KTT), and building the appropriate framework and administrative structures for the management of intellectual property rights (IPR). In this regard, fostering the culture of innovation is an urgent task that has to be performed without delay.

In line with this vision, the University of La Laguna (ULL) submitted in 2010 a specific application to the REGPOT call of the FP7 program, which had the innovation dimension as key aspect. Aimed at to unlock and to develop the research and innovation potential of the institutes and research teams integrated in the

Centre for Biomedical Research of the Canary Islands (CIBICAN) at the ULL, a coherent series of activities were designed with the general purpose of building an effective capacity for innovation and management of IPR. Among other actions, a strategic plan was elaborated under the advice of a team consisting of a panel of world class professionals in technology transfer, with extensive expertise in transfer activities in the life sciences..

It was clear that the needs of biomedical researchers are not assuaged by simply overcoming the technical difficulties of filing patents and structuring licensing agreements, but rather they require building teams which effectively understand the health care sector, the pharmaceutical industry and the interests, objectives and requirements of the various stakeholders needed to ensure the eventual use and exploitation of biomedical innovations. Therefore, the focus of the project was not only on developing a plan for the management of IPR and innovation capacity building, but also on developing the necessary specialized expertise, external collaborations and internal capacity for effective knowledge and technology transfer to support the biomedical research at CIBICAN. In this regard, a first action was to evaluate the existing capacity of CIBICAN and that of ULL for IPR management, including the policy environment, the structural support mechanisms and the human resources dedicated to IPR and innovation. The prevailing situation was also gauged from a relative perspective in relation to established best practices through benchmarking with technology transfer and innovation practices of leading universities and biomedical research institutes. The strategic plan was then drafted and circulated to the external Advisory Board for review and feedback. A set of recommendations for specific changes and steps were made to reach prioritized best practices, together with an analysis of which of them could be localized most effectively and implemented at CIBICAN with respect to the Spanish and European legislations and priorities.

FOREWORD

It should be emphasized that the design and development of the strategic plan was actually a true training process for all the participants. In this respect, to ensure immediate access to world-class advice and support for innovation and IPR management, a strategic collaboration was agreed with two of Europe's leading centres of excellence in these activities (i.e., MRC Technologies and Ascenion). As a result, by working in the elaboration of the strategic plan we have succeeded in the fostering of the innovation culture at CIBICAN, which will be crucial to the long-term development of innovation and intellectual property management capacity.

This document is an executive summary of what has been done during the last three years to design a strategic plan for innovation and IPR management during the execution of the REGPOT FP7 project IMBRAIN. We hope it could be of help to others in the process of building an effective innovation capacity and the creation of effective structures for knowledge and technology transfer in Spanish universities and their research institutes, and perhaps in other countries.

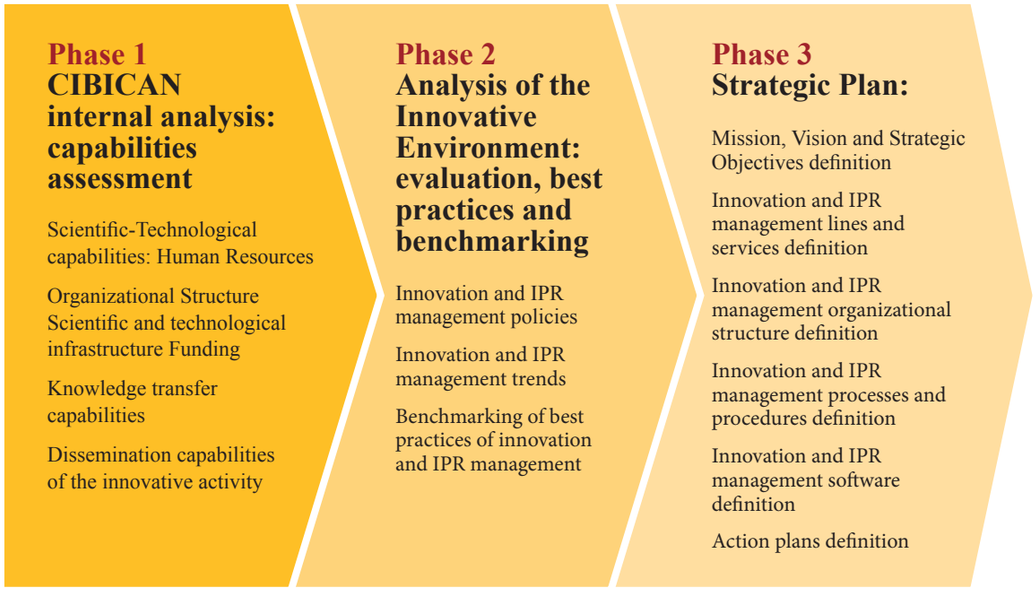
CHAPTER I
Strategy for innovation and IPR management

Contents

1 Introduction

In order to develop the CIBICAN Innovation and IPR Strategic Plan, PwC propose the following methodology

The present document includes Phase 1:



2 CIBICAN environment

CIBICAN environment can be structured as follows:

STAKEHOLDERS	SUPPORT STRUCTURES	ENTIDADES QUE APORTAN GRUPOS A CIBICAN
GOVERNMEN Cabildo de Tenerife Gobierno de Canaria **PUBLIC COMPANI** ITC. Instituto Tecnológico de Canarias. *Gobierno de Canaria* PROEXCA para canarias. *Gobierno de Canaria* **ORGANIZATIONS** PCTT. Parque Cientifico y Tecnológico de Tenerife SI. Clúster de Salud-Innovación **RESEARCH CENTERS** IPNA - CSIC IAC.ES. Instituto de Astrofisíca de Canarias **COMPANIES** BIOSIGNIA CEAMED S. A. Centro Atlántico del Medicamento ALERGENETICA. Solutions for Allergies	**OTRI.** ULL, Universidad de Transferencia de Resultados de Investigación **SEGAI.** Servicio General de Apoyo a la Investigación de la Universidad de La Laguna **BIOAVANCE** **ORGANIZATIONAL STRUCTURE.** IMBRAIN	**SERVICIO CANARIO DE LA SALUD.** **HOSPITAL UNIVERSITARIO NUESTRA SEÑORA DE CANDELARIA** **HOSPITAL UNIVERSITARIO DE CANARIA** **ULL.** Universidad de La Laguna **ITB.** Instituto de Tecnologías Biomedicas **INSTITUTO UNIVERSITARIO DE ENFERMEDADES TROPICALES Y SALUD PÚBLICA DE CANARIAS** **IUBO.** Instituto Universitario de Bio-Orgánica Antonio González

Universidad de la Laguna (ULL) is located in Tenerife, the largest of the seven islands of the Canary Archipelago

The ULL research capacity is reflected in the existence of numerous university institutes: among them, the Institute of Biomedical Technology, the University Institute of Tropical Diseases and the Public Health Department of the Canary Islands and the University Institute of Bio-organic Antonio González .

ULL IN NUMBERS

1.813 Teachers and reserachers

16 Faculties

63 Departaments

17 Research Centers
- **257** research groups
- **267** research projects
- **1.129** national papers and
- **1.133** internationals

Almost **25.000** students

SCHOOLS AND CENTERS

- School of Biology
- School of Information Sciences
- School of Economics and Business
- School of Social and Political Sciences
- School of Law
- School of Education
- School of Pharmacy
- School of Philology
- School of Philosophy
- School of Physics
- School of Geography and History
- School of Mathematics
- School of Medicine
- School of Psychology
- School of Chemistry
- Instituto de Lingüística Andrés Bello
- Instituto Universitario de Astrofísica
- **Instituto Universitario de Bio–orgánica Antonio González**
- Instituto Universitario de Ciencias Políticas y Sociales
- Instituto Universitario de Desarrollo Regional
- **Instituto Universitario de Enfermedades Tropicales y Salud Pública de Canarias**
- Instituto Universitario de Estudios Avanzados en Atómica, Molecular y Fotónica
- Instituto de Estudios Universitario de Estudios de las mujeres
- Instituto de Estudios Medievales y Renacentistas
- Instituto Universitario de la Empresa
- Instituto Universitario de Materiales y Nanotecnología
- **Instituto Universitario de Tecnologías Biomédicas**

Instituto Universitario de Bio-Orgánica (IUBO-AG) is a multidisciplinary research center focused on Bioactive Natural Products

Director: Manuel Norte

The Center was developed through various stages until it is known today.

He belonged to the National Research Council, CSIC.

Currently, the center belongs exclusively to Universidad de la Laguna but its researchers belong either to the ULL or the CSIC.

Currently, the Institute objectives are isolation, biosynthesis, micro-organism cultures, biotechnology and the complete synthesis of pharmacologically active substances from natural sources.

RESEARCH GROUPS

Chemistry

Bioactive Alkaloids

Bioactive Natural Products

Bioactive Products Synthesis

Gren Bioorganic Chemistry

Applied Green Chemistry and Photochemistry

Natural Products Chemistry and Biotechnology

Natural Marine Products

Stereoselective Synthesis and Syntetic Metodology

Biomolecules Structures

Biological evaluation

BioLab

Pharmacology

Lines of research of Instituto Universitario de Bio-Orgánica (IUBO-AG) :

Anticancer agents derived from natural sources
Several natural products and their semi-synthetic derivatives are produced within several common projects to develop antitumor substances with new mechanisms of action. Some products have recently shown in vitro a reversal of MDR (multidrug resistance) and chemopreventive effects on Epstein-Barr virus.

Studies of Structure-Activity relationship
To understand the structural basis for the biological activity of a molecule and to direct the design of a more potent drug, the three-dimensional model of the quantitative ratio of the structure-activity relationship (3D-QSAR) is performed from chemo-libraries of related compounds.

Antimicrobial agents from natural sources
Natural products from plants and semisynthetic derivatives are products of interest to fight against various microorganisms and their mechanisms of action.

NMR in the study of biological processes
Advanced techniques of Nuclear Magnetic Resonance (NMR) are used to determine enzyme-inhibitor interactions as a novel alternative in the search for new drugs.

Genetic Engineering
In vitro development of plants culture to manipulate their biosynthetic pathways and to induce large scale production of secondary metabolites for various medical applications such as arthritis, rheumatism, and back pain.

Marine organisms and toxins
The dinoflagellates are marine organisms responsible for red tides and shellfish poisoning. Among others, okadaic acid and yessotoxins common toxins are present in European crustaceans. Cropping systems development is done to provide the group with sufficient quantities of toxins for biological studies.

Insecticides and repellents
Natural products are being isolated to use against pests, especially those that affect agriculture. These projects are carried out in collaboration with public companies and agrochemical companies in Europe and Latin America.

Chemicals and farmaquímicos
IUBO has a long experience in the field of organic synthesis focused on the synthesis of medicinal substances, especially on asymmetric processes. IUBO has particular interest to develop new methods for the total synthesis of biologically active substances such as toxins, amino acids, sphingosine analogues, alkaloids, etc.

Pharmacology and research of anticancer drugs
The IUBO-AG has recently began research programs in collaboration with Canary hospitals and research centers. The result of this project is the discovery of several initiatives that form the basis for current and future projects.

Instituto Universitario de Enfermedades Tropicales y Salud Pública de Canarias is a multidisciplinary institution part of Universidad de la Laguna

The IUETSP is composed of teachers, researchers and professionals in the field of Public Health and Biotechnology, and whose main function is research, development and innovation in these fields.

The University Institute of Tropical Diseases and Public Health of the Canary Islands has 3 research groups developing the following lines:

STAFF

- Director: Basilio Valladares
- Secretary
- 8 Full Teachers
- 1 Associate Teacher
- 10 Fellows
- 2 PhD's
- 4 Researchers
- 1 Administrative and Service Assistant

GENETICS
- Molecular Human Genetics
- Biodiversity and Molecular Evolution

PARASITOLOGY
- Immunology and molecular biology of parasites
- Wildlife and epidemiology of parasites.
- Antiparasitic therapy
- Biological Control of Water Quality

ECOLOGY
- Biogeography
- Community ecology, insular and terrestrial

Instituto de Tecnologías Biomédicas (ITB) aims to enhance biomedical research excellence with translational guidance regarding environmental health sciences needs, building synergies between the productive sector and the development of renewable strategic plans

Director: Rafael Alonso

The Institute of Biomedical Technologies (ITB) is a multidisciplinary center still in development, dedicated to basic and applied research in Biomedicine and Biotechnology, which integrates the activity of teachers and researchers from several areas of knowledge, departments, university hospitals, units and associated centers of ULL.

The ITB aims **to enhance biomedical research excellence with translational guidance** regarding environmental health sciences needs, building synergies between the productive sector and the development of renewable strategic plans.

ITB is organized in three research areas in which the center groups are allocated

Basic Biomedical Research Area :

- Biology of development (Pablo Martin Vasallo; Julio Ávila Marrero).
- Biology of secretory vesicles (José David Machado Ponce).
- Physiopathology of mineral corticoids (Diego Álvarez de la Rosa).
- Genomic instability and cancer (Félix Machín Concepción).
- Electric engineering and bioengineering (Ernesto Pereda de Pablo).
- Cellular and viral immunology (Agustín Valenzuela Fernández).
- Biotechnology and basic science of yeasts (José Manuel Siverio Expósito).
- Cellular Neurobiology and Channelopathies (Teresa Giraldez Fernández).
- Cellular and Molecular Pathology (Eduardo Salido Ruiz; Rafael Alonso Solís).
- Responses to DNA damage and cancer (Raimundo Freire Betancor).
- Biochemical Technology (Néstor Torres Darias).
- Neuronal vulnerability and plasticity (Tomas González Hernández).

Clinical and Translational Research Area

- Chronic renal disease and transplantation (Armando Torres Ramírez).
- Pathophysiology, prevention and treatment of inflammatory diseases and gastrointestinal tract tumors and portal hypertension (Enrique Quintero Carrión).
- Inflammation, pain and tissue regeneration (José Federico Díaz González).
- Cardiology Research (Alberto Domínguez Rodríguez).
- Metabolism, nutrition and human development (Nieves Marta Díaz Gómez).
- Nephrobiology, kidney disease and cardiovascular risk (Juan Francisco Navarro González).

Health Services Research, Planning and Innovation Area

- Evaluation Unit of the Canary Islands Health Service (Pedro Guillermo Serrano Aguilar).
- Planning and Societal Evaluation of Projects and Innovation in the Health Sector (Serafín Corral, José Luis Rivero Ceballos).

ITB has a powerful scientific equipment that can be used interchangeably by the center groups

Despite its current dispersion, the equipment is described as part of the functional units of the institute, according to the organization designed for the building that is being constructed. From the point of view of inventory, equipment belongs indistinctly to the university institute or the research unit of the HUC.

Laboratorios y Unidades Técnicas

- Unida de instrumentación analítica y preparativa y preparativa
- Unida de cultivos celulares
- Unida de de criopreservación
- Unida de de histología y banco de cerebros
- Unidad de mircroscopía y análisis de imagen
- Unidad de genómica, pididómica, metabolómica y proteómica
- Unidad de registros electrofisiológicos
- Unidad de neurociencia cognitiva
- Otros servicios generales

Research Units of Complejo Hospitalario Universitario de Canarias (HUC) and Hospital Universitario Nuestra Señora de Candelaria involves a quality clinical research in the Canaries

The research groups of both units are part of the ITB.

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Centre for Biomedical Research of the Canary Islands

The Office of Research Results Transfer at Universidad de la Laguna (OTRI) is the department in charge of setting up collaborative and productive cooperation between the research carried out at the University and the socioeconomic, national and international business environment

The OTRI promotes and **advises** potential clients and researchers on the best approach to **collaborative agreements** and research contracts, consultancy and technical assistance and facilitates the implementation of projects of common interest.

Furthermore, this office manages the protection of intellectual property of the ULL. The OTRI is a member of the OTRI Network of Universities, of Uniemprendia and of Redeuropea Proton. It also has agreements and collaborative projects with research and development organizations and business associations of the Canary Islands.

Purposes of the OTRI:
The Statutes of Universidad de la Laguna establish the main functions of the OTRI:

- **Identify the results** generated by the research groups that may be **transferable, and disseminate them** among companies and institutions.
- Promote, manage, and participate in **negotiation of contracts for research and development**, technology support, advice, services, as well as framework and collaboration agreements between the research groups and companies and institutions.
- Advise, assist and manage the **protection of research results produced by Universidad de la Laguna**, with the corresponding Registry of Intellectual Property (patents, utility models).
- Inform, advise and energize their research community about regional, national and European I**D programs**, supporting the development of projects.
- Collaborate in the s**earch for partners**, both scientific and business partners.
- Encourage and mediate the r**esearcher-company relationship**.
- **Orienting the lines of work of researchers from the needs of industrial sectors ID**.

For the development of its activities the OTRI has a structure composed of seven professionals

OTRI Oficina de Transferencia de Resultados de Investigación
ULL Universidad de La Laguna

Despite this structure and the procedures theoretically established, all the researchers of the institutesinterviewed showed low satisfaction with the activity of this structure.

DIRECTOR	
Chief of Negotiations *Julia Sánchez Perdono*	**Chief of Section** *Mónica González Tejera*
OTRI technical staff. Manager of European Projects *Cristina Domínguez Conde*	**OTRI technical staff. PTA. Humanities and Social Sciences** *Gustavo Luis Cedrés*
OTRI technical staff. Manager of PCTMAC *Evangelina Arteaga Acosta*	**Inventions and industrial property** *Lorenzo García García*

There is a lack of trained staff who can advise on the transfer from the beginning of the value chain and who can anticipate needs.

It has problems in making any procedure, mainly because the staff do not know how to do it or do not know what they can do.

There is a lack of backup of the ULL.

There is no good relationship between the staff.

The Director has little wiggle room, since there is no information of which are his competencies.

There is a lack of connection to the business sector which complicates the transfer process.

Despite the existence of a detailed procedure, bureaucratization, dependence on unstable positions of university policy, staff shortages and economic crisis make the OTRI of the ULL a useless support tool.

The Servicio General de Apoyo a la Investigación (SEGAI) of Universidad de la Laguna was designed as a scientific, technical and instrumental support structure for research groups of the institution and other research centers

Despite the purpose of the ULL of launching this structure, nowadays the building is the only thing that exists.

SEGAI purpose:

- Support research that is being developed by several research groups at Universidad de la Laguna.
- Scientific, technical and instrumental support and service to any public or private institution or individual user, within the framework of establishing a contract with the University.
- Develop methods and techniques to support the research in accordance with the guidelines of science policy at Universidad de la Laguna.
- Actively foster University-Industry relationships through the provision of services and training, development and technology transfer.
- Participate in national and international networks of centers of research support.

Certified services:

- Animal-housing unit
- Phonetics Laboratory
- XRD integrated service
- Nuclear Magnetic Resonance Service for biomedical research

CIBICAN Strategic Innovation and IPR Plan 18 The Canary Foundation for the Progress of Biomedicine and Biotechnology (Fundación Bioavance) was established by the Cabildo Insular de Tenerife to attend ULL in any needs to achieve the successful completion of the proposed implementation of CIBICAN

These activities include:

- Establish contacts and motivate several political and institutional stakeholders such as the Ministry of Science and Innovation, Ministry of Health, National Research Council, European Commission, Canary Islands Autonomous Government to get authorization, funding, agreements and actions that advance that ULL get the project materialized.
- Contribute to the design of the future center, in its infrastructure as well as its organization and its plans to attract scientists from abroad.
- Initiate and maintain mutually beneficial relationships with the world's leading universities, such as Harvard University, Massachusetts Institute of Technology and Max Planck Institute.
- Remove obstacles and resistance to present the project in all its facets.

Scientific Director
Rafael Alonso

Project Director
Randolph
Revoredo Chonaco

Advisory Board Secretary
Randolph
Revoredo Chonaco

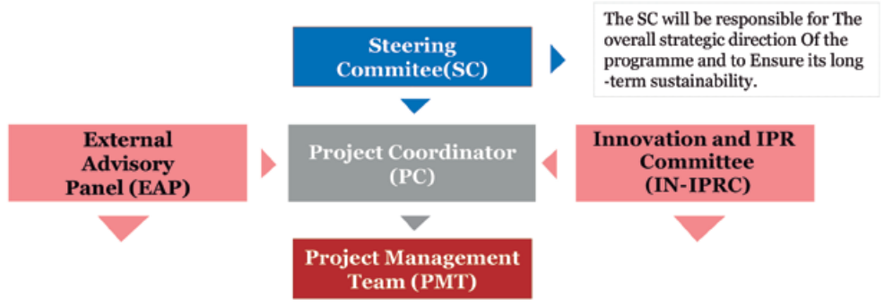
Currently the Bioavance Foundation is in charge of CIBICAN building construction management and of the management of some of the projects of the groups of the center.

In the future, the foundation might become CIBICAN Foundation.

bioavance

IMBRAIN management structure

Management of The project will be done Through WP1. It will be the main responsibility of the Project Coordinator (PC) and the Project Management Team (PMT), which is composed by the PC, the WPs leaders and the administrative officer.



- On the one hand, the EAP is comprised of Several top class and Highly recognised scientists, representatives of national, european and international institutions covering different areas of Specialized research. It will advise the PC and PMT by reviewing their periodic reports.
- On the other hand, the EAP will include top - level experts from the fields of biotechnology, life sciences IP, technology transfer and others.

The IN -IPRC will be responsible for advising on the development Of a plan for the management of IP and Innovation capacity, as well as developing expertise, external collaborations and internal capacity for effective technology transfer.

Instituto de Productos Naturales y Agrobiología (IPNA) is part of the network of research centers of the National Research Council (CSIC), of the Agency of the Ministry of Economy and Competitiveness (MINECO)

AGROBIOLOGY AND ENVIRONMENT

- Natural Plant Defenses Chemical Activators
- Island Ecology and Evolution
- Soil Fertility and Plant Nutrition
- Volcanology

APPLIED PHYTOCHEMISTRY AND CHEMICAL ECOLOGY

- Applied Phytochemistry
- Marine Products Chemistry
- Natural Products Chemistry: Alkaloids

BIOLOGICAL CHEMISTRY AND BIOTECHNOLOGY

- Sustainable Metal Catalysis
- Organic and Biological Chemistry
- Natural Products Chemistry and Biotechnology
- Supramolecular Chemistry and Molecular Recognition

NATURAL PRODUCT SYNTHESIS

- Drugs and Bioactive Compounds Synthesis
- Natural Product Synthesis

The IPNA has a technology offer catalog

SCIENTIFIC-TECHNOLOGICAL SERVICES	RESOURCES
Services • Laboratories technology support services • Technical advice for staff • Preparation of feasibility scientific - technical studies • Rental laboratories to business sector	• Análisis Elemental analysis • Low mass and high resolution spectroscopy infrared Spectroscopy • Nuclear Magnetic Resonance • Thermoluminescence testing laboratory • Soil cultivation, irrigation water and plant material chemical analysis • Environmental pollution by heavy metals • Paleomagnetism laboratory • Gamma + radon radiation spectroscopy
Technological development projects: • Requests for services: – Human or material resources • Developing joint project proposal • Fundraising (European, national, regional, etc..)	
External visits	

The main purpose of IPNA is to transfer its research into social, economic and cultural welfare

The Institute of Natural Products and Agrobiology provides several external science and technology support services, to any business sector that can benefit from the skills and resources of the center. To sum up, these are:

- Consulting services.
- Technology Support Services: Analysis, testing, validation, etc..
- Fix a technological problem or develop a new product or service under R&D contract.

The center is also interested in collaborative projects involving technological development in collaboration with external customers and partners.

Finally, the Institute offers tours of their facilities to entities of any technological and industrial sector in order to provide more detailed information about its capabilities and resources as well as services provided.

The IPNA situation is quite critical due to the CSIC economic situation and even more intensified due to its location.

IPNA is really interested in joining CIBICAN, and in this context, an agreement is going to be signed.

Being CIBICAN able to count on IPNA research groups and knowledge is a great opportunity.

Instituto de Astrofísica de Canarias (IAC) is a Spanish research center characterized by its high degree of internationalization(1)

IAC has two headquarters and two observatories in an environment of high astronomical quality. It constitutes the European Northern Observatory (ENO).

- One of IAC headquarters are located in La Laguna, regular workplace for most of its staff. It holds astrophysics research projects and technological development, graduate programs and scientific dissemination.
- The other IAC headquarters is at the Astrophysics Center of La Palma (CALP), which also has their offices, the huge telescope called CANARIAS and the Colaboración Magic and the supercomputer La Palma.

The Canary Islands Astrophysics Institute (IAC) is a Spanish research center characterized by its high degree of internationalization (2)

The Office of Institutional Projects and Research Results Transfer of IAC contributes to the dissemination of scientific and technological capabilities of the center.

Up today, IAC OTRI used to focus its activity on attracting European projects. Due to current economic situation, IAC OTRI is expanding its scope and its actions abroad.

AREAS OF INTEREST TO CIBICAN

STAFF

- Engineering and production work for companies of any area (national and international).
- IAC develop at a prototype level.

TECHNICAL CAPABILITIES:

- Design and testing of optical systems (in collaboration with hospital)
- Design and development of optometric systems
- Vacuum and cryogenics systems
- Precision mechanics.

In 2009 Tecnalia developed a Business Plan for the creation of a technology centre: IAC TECH.

IAC Tech will be a private and profit technological center focused on astrophysics, space and medicine. This are some of IAC medicine capabilites, among others:

- medical image for diagnosis and prevention
- design software for medical applications and
- medical images capturing

IAC perceives CIBICAN as a very interesting partner that can teachthem how to work in the health sector.

IAC is configured as an important contributor to CIBICAN in the technological development field.

PROEXCA is a public company of the Treasury Department of the Canary Islands to promote the internationalization of the industry and the attraction of strategic investments to the Canary Islands

OBJECTIVES:

a. Promotion of internationalization
b. Specific program of direct support to companies in the internationalization process.
c. Attracting investments to increase economic diversification of regions.

- On this last point, the actions carried out by Proexca that might be of interest to CIBICAN are located.
- About 5 years ago, Proexca identified the biotechnology sector as one of the sectors with low mass but relevant in the Canaries.
- Currently, PROEXCA has relocated interest in the biotechnology sector. Especially in regard to marine biotechnology, which from Norway and the U.S. has shown interest (Innovation Norway).
- In order to attract more international funding, seminars are organized in countries where the stakeholders often visit. PROEXCA attends to Biospain Forums, BioEuropa, etc.

Despite the stated intentions of the organization to support the biotech sector of the Canary Islands, up to now the research community has been discontented with the service provided.

Instituto Tecnológico de Canarias (ITC) is a public company of the Canary Islands, attached to the Ministry of Employment, Industry and Commerce, which is configured as an instrument of the regional government to promote and disseminate the R&D&I

ITC has a department of innovation, an area of mechanical engineering and an area of biotechnology that a priori might be of interest to CIBICAN.

Estructura orgánica del ITC / **ALTA DIRECCIÓN**
DIVISIÓN DE INNOVACIÓN TECNOLÓGICA
DIVISIÓN DE INVESTIGACIÓN Y DESARROLLO TECNOLÓGICO

DEPARTAMENTOS

Agua

Análisis ambiental

Biotecnología

The Department of Biotechnology develops algae with application in the field of nutrition and health products:

– They grow algae in bioreactors and license them once they have developed the patent.
– They are planning to start a manufacturing plant algae.

Computación Cientifica y Tecnológica

Energías Renovables

Ingenieria Mecánica

The Department of Biomechanics designs and develops implants and grows tissues. They collaborate with the SNS.

There is a list below of major developments, most of them under patentability:

– Elastic Intramedullary Nail – CIE: Intramedullary nail to the femur and tibia which has an implantation technique less invasive.
– To fix hip osteotomies in children and adolescents - HUMIC®: Adaptation of a hip nail-plate technique that optimizes the implementation and improves fixation of the osteotomy.
– Surgical suturing needle inaccessible places – PORTA: Device to give deeply stitches in very narrow surgical fields.

Servicios Institucionales en Industria y Energia

DIVISIÓN DE SERVICIOS CENTRALES

Although above areas could have interest in establishing collaborations with CIBICAN, the center lives a very uncertain situation. There is potential. However, the research community has afeeling of discontentment and no benefits perceived.

BIOSIGMA began as a distributor of laboratory reagents

BIOSIGMA has licensed 4 patents for the production of a reagent which is now manufactured and sold.

They are located in CIBICAN.

Address:
Calle Antonio Dominguez Alfonso 16,
38003 Santa Cruz de Tenerife
Phone: +34 922 24 40 31

BIOSIGMA is the only company that currently has a relevant distribution and sales activity.

ALERGENETICA is a company created by three scientists in Silicon Valley focused on curing fungal allergies

Alergenetica is an example of delocalized company.

Its innovation process is as follows:

1. Identification of the target: fungal allergy cure.
2. Process design and requirements: stages, partners and capabilities they need to develop and put on the market.
3. In this case, they contacted the University of Manchester and signed a contract with them to use their researchers and laboratories. In two years they had two patents. At this point has MewburnEllis advice.
4. While patenting, they perform market analysis of key competitors, where they are, what stage of research are they at, etc. They see essential to have researchers – managers profiles.
5. Request of a grant to the Canary Islands Government to put the company.
6. The in vitro development phase is being done in collaboration with Canary in a Barcelona hospital to obtain the cells.
7. For the future preclinical development they are already establishing collaborations with Manchester.
8. For the clinical trials they will do so with the NIH.

For them, the key points of this model are to establish collaborations in which they rule and have a more sharp profile.

Despite initially being configured as a promising company with leading researchers, there has no been particularly relevant results so far.

CEAMED S.A. involves the creation of a university-based company, primarily engaged in the research and development of new drugs (anti-tumor and other families)

CEAMED SA is a biopharmaceutical company founded in 2006 by 12 scientists nucleated around Canary Institute for Cancer Research (www.icic.es). It is a spin off company type, with the peculiarity that it is of the two Canarian universities:

Universidad de la Laguna (www.ull.es) and the University of Las Palmas de Gran Canaria (www.ulpgc.es). It has signed collaboration agreements with both of them.

They are funded through regional projects. The venture capitalists are private. The foundation was the ULL and ULPGC.

Today the company belongs to the FICIC, Dopesa and POLINAT.

CEAMED S.A. structure its activity in two divisions: New Antitumor and generic drugs.

1.1. MISSION OF THE DIVISION OF R & D:
Discovery, development and production of original drugs in the Canary Islands to the international pharmaceutical industry, obtained or inspired by natural products of the rich biodiversity of the regions of Macaronesia.

1.2. MISSION OF THE GENERIC DIVISION:
Production and marketing of generic drugs from the Canary Islands to the local, Spanish and African, in order to allocate 15% of the profits to the development of new drugs CEAMED original SA.

Despite initially being configured as a promising company with leading researchers, there has no been particularly relevant results so far.

3 CIBICAN Innovation Capacities

Originally CIBICAN is an initiative promoted by Universidad de la Laguna to develop biomedical research in the Canary Islands

Currently, CIBICAN consists of Universidad de la Laguna and the Canary Islands Health Service.

Each of these organizations has defined CIBICAN research units.

CIBICAN
UNIVERSIDAD DE LA LAGUNA
Institute of Bio-Organic Antonio González
University Institute of Tropical Diseases and Public Health of the Canary Islands
Institute of Biomedical Technologies
CANARY ISLANDS HEALTH SERVICE
University Hospital of Canary Islands
Nuestra Señora de Candelaria University Hospital
Evaluation Research Unit, Canary Islands Health Service

CIBICAN creation dates back to 2010, when the funding from the ISCIII was received for the construction of a biomedical research center in Tenerife

2010 — The ULL presents a project to the Institute of Health Carlos III for the construction and development of a biomedical research center in Tenerife.

2011 — Formal agreement between the Cabildo of Tenerife and the ULL in November 2011 for the draft of the construction and the set up of the "Centro de Investigaciones Biomédicas de Canarias (CIBICAN)".

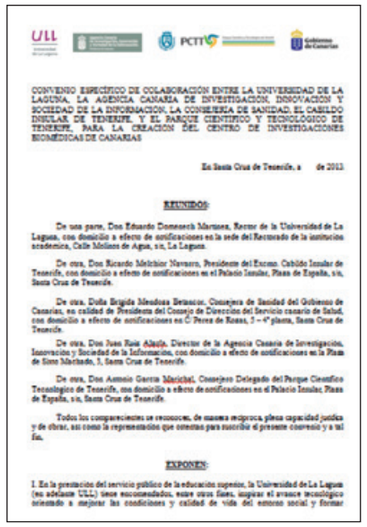
2012 — Universidad de la Laguna obtains a significant funding in FP7-REGPOT Program-2012-2013-1 of the European Commission, with the project "Improving Biomedical Research and Innovation in the Canary Island", designed to promote research excellence in the biomedical field in a regional level and to build a strong innovation capacity.

2013 — The project, to be implemented over the period 2013-2015, aims to generate and implement strategic scientific structure able to become a center of reference in Biomedicine and Health Sciences, which allows the visibility of the center to a national and international level.

2014 — In late 2014, existence of a new building to house the first phase of the Biomedical Research Center of the Canary Islands as a center of excellence in the Campus of Health Sciences, where to locate the animal house, utilities and large equipment, and research laboratories.

2015

In the near future, the formal "specific cooperation agreement between Universidad de la Laguna, the Canarian Agency for Research, Innovation and Information Society, the Ministry of Health, the Cabildo Insular de Tenerife and the Science and Technology Park and of Tenerife, for the creation of the Centro de Investigaciones Biomédicas de Canarias" is going to be closed



CONVENIO ESPECÍFICO DE COLABORACIÓN ENTRE LA UNIVERSIDAD DE LA LAGUNA, LA AGENCIA CANARIA DE INVESTIGACIÓN, INNOVACIÓN Y SOCIEDAD DE LA INFORMACIÓN, LA CONSEJERÍA DE SANIDAD, EL CABILDO INSULAR DE TENERIFE, Y EL PARQUE CIENTÍFICO Y TECNOLÓGICO DE TENERIFE, PARA LA CREACIÓN DEL CENTRO DE INVESTIGACIONES BIOMÉDICAS DE CANARIAS

En Santa Cruz de Tenerife, a de 2013

REUNIDOS:

De una parte, Don Eduardo Domenech Martínez, Rector de la Universidad de La Laguna, con domicilio a efecto de notificaciones en la sede del Rectorado de la institución académica, Calle Molinos de Agua, s/n, La Laguna

De otra, Don Ricardo Melchior Navarro, Presidente del Excmo. Cabildo Insular de Tenerife, con domicilio a efecto de notificaciones en el Palacio Insular, Plaza de España, s/n, Santa Cruz de Tenerife.

De otra, Doña Brígida Mendoza Betancor, Consejera de Sanidad del Gobierno de Canarias, en calidad de Presidenta del Consejo de Dirección del Servicio canario de Salud, con domicilio a efecto de notificaciones en C/ Pérez de Rozas, 3 – 4ª planta, Santa Cruz de Tenerife.

De otra, Don Juan Ruiz Alzola, Director de la Agencia Canaria de Investigación, Innovación y Sociedad de la Información, con domicilio a efecto de notificaciones en la Plaza de Sixto Machado, 3, Santa Cruz de Tenerife.

De otra, Don Antonio García Marichal, Consejero Delegado del Parque Científico Tecnológico de Tenerife, con domicilio a efecto de notificaciones en el Palacio Insular, Plaza de España, s/n, Santa Cruz de Tenerife.

Todos los comparecientes se reconocen, de manera mutua, plena capacidad jurídica y de obrar, así como la representación que ostentan para suscribir el presente convenio y a tal fin,

EXPONEN:

I. En la prestación del servicio público de la educación superior, la Universidad de La Laguna (en adelante ULL) tiene encomendados, entre otros fines, impulsar el avance tecnológico orientado a mejorar las condiciones y calidad de vida del entorno social y formar

The agreement notes that the centerhas potential for being certified as Health Research Institute

AGREEMENT:

First. - Establishment of a center for research and innovation in biomedicine

The center name is going to be Biomedical Research Center of the Canary Islands (CIBICAN) and it is going to include groups of researchers from Universidad de la Laguna and University Hospitals Partners, regardless of the potential aggregation of other regional, national and international stakeholders, with collaboration of the other stakeholders of the agreement, and it is going to be developed within the Science and Technology Park of Tenerife, constituting the biomedical pole of this and in line with the objectives of the Spanish Strategy for Science, Technology and Innovation 2013 -2020.

Second. - Aims and activities of CIBICAN

The CIBICAN shall be to contribute to the social use of science and technology in the biomedicine field, as well as the support, promotion and management of scientific and technological development, in order to make better use of research and encourage the participation of civil society mobilizing its resources.

Third. – Legal organization of CIBICAN

To carry out the design of the legal structure, the organizational form, the system of administration and management as well as financing and participation mechanisms, the appearing parties agree to the establishment of a commission that, within six months, develop a proposal of CIBICAN statutes and a roadmap intended for incorporation as a research and innovation excellence vocation.

Fourth. – Validity and causes of extinction of the Convention

As set in the agreement, CIBICAN aims to contribute to the social use of science and technology in the field of biomedicine, as well as the support, promotion and management of scientific and technological development, in order to achieve better use of research and encourage the participation of civil society in mobilizing its resources

To fulfill its mission CIBICAN is going to execute three sets of activities:

1. Study of chronic and age-related diseases that have to do with the quality of life of individuals, and genetic and rare diseases.
2. Generation of biomedical innovation through the effective integration of medicinal chemistry research with molecular biology at the molecular, cellular, systemic and organizational.
3. Health promotion research developing a quality and other issues directly related to social needs.

- **In this context, the following document is developed in order to carry out an analysis of CIBICAN capabilities and its environment in the field of biomedical innovation, to supply all necessary information to develop IMBRAIN Innovation and IPR Strategic Plan.**

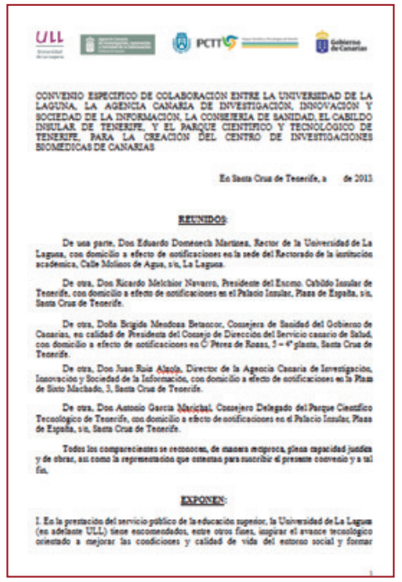
The internal analysis will be based on the study of the value chain of innovation, referring to the intellectual, concretion and transfer of knowledge capabilities and skills of innovation diffusion

INNOVATION VALUE CHAIN

IDEAS AND KNOWLEDGE GENERATION CAPACITY	CONCRETION CAPACITY	DISSEMINATION CAPACITY
Organizational Capital	Implementation of new organizational, management or technological models	Healthcare sector
Human Capital	Commercialization of new products (intellectual/ industrial property)	University
Infrastructure	Cooperation with industry / other stakeholders	Business sector
Financial Capital	Contribution to the creation of new technology-based firms	Scientific-technological sector
		Patients and associations
		Society

Fuente: Adaptado a partir de La Cadena de Valor de la Innovación. Morten T. Hansen, Julian Birkinshaw. Harvard Business Review, ISSN 0717-9952, Vol. 85, Nº. 6, 2007, pags. 100-110

Following the formal agreement in may 2013, CIBICAN is defining its legal form and organizational structure



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EXPONEN:

I. En la prestación del servicio público de la educación superior, la Universidad de La Laguna (en adelante ULL) tiene encomendados, entre otros fines, inspirar el avance tecnológico orientado a mejorar las condiciones y calidad de vida del entorno social y formar

IDEAS AND KNOWLEDGE GENERATION CAPACITY

ORGANIZATIONAL CAPITAL

AGREEMENTS:

Third. - Legal form and organizational structure of CIBICAN

To carry out the design of the legal structure, the organizational form, the system of administration and management as well as financing and participation mechanisms, the appearing parties agree to the establishment of a commission that, within six months, develop a proposal of CIBICAN statutes and a roadmap intended for incorporation as a research and innovation excellence vocation.

However, the center already has its organizational capital (Bioavance Foundation and staff employed by IMBRAIN), which will be the seed of the future organizational structure of the Center

CIBICAN	
BIOAVANCE FOUNDATION	**IMBRAIN**
Scientific Director *Rafael Alonso*	**Innovation manager** *Sebastián Jiménez*
Project Director *Randolph Revoredo Chocano.*	**IMBRAIN Project manager** *Farah Cova*
Advisory Board Secretary *Irene López Jiménez.*	**CIBICAN manager** *Jennifer Hernández*

CIBICAN has 2 horizontal programs that converge with 4 areas of research to promote appropriate interactions with industry and end users

1. Brain and Related Diseases
- Biology of secretory vesicles (ITB)
- Electric engineering and bioengineering (ITB)
- Human channelopaties associated to potassium and sodium channels (ITB, HUC)
- Neuronal vulnerability and plasticity (ITB)
- Molecular mechanisms of action of DA stabilizers (ITB) (newly recruited researcher)
- Molecular mechanisms of HDAC6 regulation: implications for neurodegeneration (ITB) (newly recruited researcher)
- Pathogenesis of Parkinson Disease (ITB (newly recruited researcher)
- Synaptic restoration as a possible therapy for Alzheimer's Disease
- (ITB) (newly recruited researcher)

2. Chronic, Infectious and Age-related Diseases Affecting Quality of Life
- Biochemical technology (ITB)
- Cellular and viral immunology (ITB)
- Chronic renal disease and transplantation (ITB, HUC)
- Inflammatory and neoplasic diseases of the gastrointestinal tract (ITB, HUC)
- Inflammation and ischemic heart disease (ITB, HUC)
- Inflammatory response and tissue damage in Rheumatoid
- Arthritis (ITB, HUC)
- Nephrobiology and cardiovascular risk (ITB, HUNSC)
- Physiopathology of mineral corticoids (ITB)
- Non-proteinic way of renal dysfunction in type-2 diabetes (ITB) (newly recruited researcher)

3. Genetic-based and Rare Diseases
- Biology of development (ITB)
- Genomic instability and cancer (ITB, HUNSC)
- Genetic variation and human diseases (IUETSPC, HUNSC)
- Molecular pathology of metabolic and rare diseases (ITB, HUC)
- Responses to DNA damage and cancer (ITB, HUC)
- Targeting DNA damage responses for cancer therapy (ITB) (newly recruited researcher)
- MicroRNAs –a potential cause for cancer resistance in hematological malignancies: a translational approach to identify and eliminate these hidden targets (ITB) (newly recruited researcher)

4. Tropical Diseases
- Immunology and molecular biology of parasites (IUETSPC)
- Antiparasitic therapy (IUETSPC)

INDUSTRY

5. Medicinal Chemistry and Innovation
- Biological Screening and Drug Delivery
  Drug delivery systems (ITB)
  Phenotypic drug discovery (IUBO)
  Neurosecretion and pharmacology of neural transmission (IUBO)
- Chemical Design and Synthesis
  Synthesis of bioactive products (IUBO)
  Stereoselective synthesis (IUBO)
  Structure of biomolecules (IUBO)
  A novel approach to targeted drug delivery: molecular capsules assembeld by mechanical bonds (IUBO) (newly recruited researcher)
- Bioactive Compounds and Biotechnology
  Bioactive alkaloids (IUBO)
  Biotechnology and basic science of yeasts (IUBO)
  Chemistry and biotechnology (IUBO)
  Marine bioactive products (IUBO)
  Plant bioactive products (IUBO)
  Activity of "silent" metabolic pathways of marine actinomycetes: novel bioactive metabolites and biological tools (IUBO) (newly recruited researcher)
  Structure of biomolecules and thermodynamics of biomolecular interactions (IUBO) (newly recruited researcher)

SOCIETY

6. Societal Involvements on Health Issues
- Evaluation Unit of the Canary Islands Health Service
- Assessment of telemedicine-based health services (ITB, SCS)
- Effectiveness and organizational impact of new health care technology (ITB, SCS)
- Shared decision making (ITB, SCS)
- Cost-effectiveness analysis of multicomponent interventions for patients and health care professionals in the management of type-2 diabetes mellitus (ITB, SCS) (newly recruited researcher)
- Planning and Societal
- Evaluation of Projects and
- Innovation in the Health Sector
- Quality assurance methodology and processes (ITB)

Currently, CIBICAN has IUBO and IUETSPC buildings and the Research Units of the Hospitals available to develop its activities

Additionally, currently there is a new building under construction that will be the headquarters and where will be located the general services and animal care, and will also host the ITB.
The building will be located within the campus of the Faculty of Medicine (Universidad de la Laguna)

The uses of the building-square were organized into 3 areas: animal house, large equipment area equipment and general laboratories.

For operational reasons and to adapt to the available funding, the construction of the building has been divided into phases:

A. Phase 1: demolition and earthworks, structure of the building construction, including the General Service story.

B. Phase 2: laboratories tower construction and furnishing.

CIBICAN has significant funding for the coming years

CIBICAN funding can be classified into three types, all of them complementary and necessary for the development of their activities.

CIBICAN FUNDING	
IMBRAIN PROJECT	**ISCIII**
Requested EU contribution 4,158,874.00 4,158,874.00 **PURPOSE: Internationalization, potential for excellence developing and innovation capacity.**	Project ADE210---00046: Construction and development of CIBICAN The ISCIII funded budget for the development of CIBICAN is € 8,030,000. **PURPOSE: Construction and development of the center.**

CIBICAN has significant funding for the coming years

CIBICAN funding can be classified into three types, all of them complementary and necessary for the development of their activities.

CIBICAN FUNDING

PROJECT FUNDING

Rough estimation of funding capacity

TYPE ON FUNDS	AMOUNT	TIME PERIOD	SOURCES & COMMENTS
Research projects	19,550,000 €	Last 5 years (2008-2012)	National public (70 %), regional public (12 %), Europe public (2 %), and private contracts (5 %)
Scientific equipment	7,000,000 €	Last 10 years (2003-2012)	National public funds (96 %), and regional public funds (4 %)
Building	9,500,000 €	Last 5 years (2010-2012)	National public funds (100 %).
Singular projects	4,158,000 €	IMBRAIN (2012-2015)	European Commission (100 %)
Estimation last 5 years	32,550,000 €	Last 5 years (2008-2012)	See above
Funding capacity/year	3,910,000 €	Estimated from 2008-2012	Only considering "Research project" and "Scientific equipment"
Estimated overheads/year	586,500 €	Estimated from 2008-2012	Estimation of 10-20 % of budget

Currently, the highlights of the innovative research projects are:

PEDRO SERRANO

Innovation activity focused on initiatives in collaboration with private companies:

- Técnicas Competitivas: early diagnosis software
- ELFOS: automatic health outcomes measurement software
- Proyectrán: several collaboratives projects and shared products. The highlight is a patients empowerment website.
- Vodafone: Holting developed by Pamplona University

BASILIO VALLADARES

- Study of free-living amoebae in contact lenses.

EDUARDO SALIDO

Study of rare diseases: gene therapy for rare diseases.

- It is the research group that performs larger transfer activity, with GENETRIX and a Dutch company.

ARMANDO TORRES

- It has a breeding animal model of diabetes by immunosuppression with patentability potential Companies working in immunosuppression might be interested.
- Moreover, accurate measurement service of filtration for the deterioration of renal function could be provided. No one does in Spain and could do so in collaboration with the Spanish Society of Nephrology. It could also be patentable.

The area of Medical Chemistry and Innovation is one with larger transfer activity

1	**Brain and Related Diseases**	*1 group out of 3 has 1 patent*
2	**Chronic, Infectious and Age-related Diseases Affecting Quality of Life**	*2 groups out of 8 have 2 patents*
3	**Genetic-based and Rare Diseases**	*1 group out of 3 has 3 patents*
4	**Tropical Diseases**	*2 groups that have 2 patents*
5	**Medicinal Chemistry and Innovation**	*4 groups out of 10 have 16 patents*
6	**Societal Involvements on Health Issues**	*1 group that has 1 patent*

In the past, some research groups have already had several collaborations with the industry

		PRIVATE COMPANIES
1	**Brain and Related Diseases**	
2	**Chronic, Infectious and Age-related Diseases Affecting Quality of Life**	*Contract*
3	**Genetic-based and Rare Diseases**	
4	**Tropical Diseases**	*Project funding*
5	**Medicinal Chemistry and Innovation**	*Contract*
6	**Societal Involvements on Health Issues**	*Project funding*

CIBICAN has a provisional website within the ULL

IMBRAIN activities include the design and implementation of a specific website, which is under construction and expected to be ready by the end of June.

4 Main conclusions

To sum up, key capabilities and needs identified at different levels are mentioned below: (1)

Entities that provide groups to CIBICAN

IUBO, ITB, IUETSP and SCS have, at some point, innovation outcomes that become patents and utility models.

Main limitations perceived when transferring the results are:

- Lack of knowledge identifying those who are likely to transfer
- Lack of knowledge deciding the best way to do it
- Lack of advice in previous phases of the research to be more focused on market needs.

It is also emphasized lack of awareness and lack of access to regional or external business sector.

OTRI's role is totally missing.

To sum up, key capabilities and needs identified at different levels are mentioned below: (2)

Regarding capabilities and potential of collaboration of Canary Islands stakeholders, most of them were created with high expectations. However, those never achieved.
In this context, only **IPNA, IAC and BIOSIGMA** are stakeholders of interest to CIBICAN.

CANARY ISLANDS STAKEHOLDERS

TECHNICAL skills:

- Design and test of optical systems (in collaboration with hospitals)
- Design and development of optometric systems
- Design and development of vacuum and criogenia systems
- Precision mechanics

FUTURE PLANS:

In 2009 Tecnalia developed a Business Plan for the creation of a technology centre: IAC TECH.

IAC Tech will be a private and profit technological center focused on astrophysics, space and medicine. This are some of IAC medicine capabilites, among others:

- medical image for diagnosis and prevention
- design software for medical applications and
- medical images capturing

IAC perceives CIBICAN as a very interesting partner that can teach them how to work in the health sector.

- **IPNA is really interested in being part of CIBICAN**. In this context, it is going to be a formal agreement with CIBICAN.
- CIBICAN being able to rely on IPNA research groups and its knowledge is a great opportunity.

BIOSIGMA

- It is a reagent distributor that already has 4 patents licensed.
- BIOSIGMA is the only company in the sector that currently works and invoice.

To sum up, key capabilities and needs identified at different levels are mentioned below: (3)

CIBICAN

CIBICAN has powerful resources in terms of funding, infrastructure and research activity.

The recent inclusion of IMBRAIN innovation manager is configured as a strong opportunity.

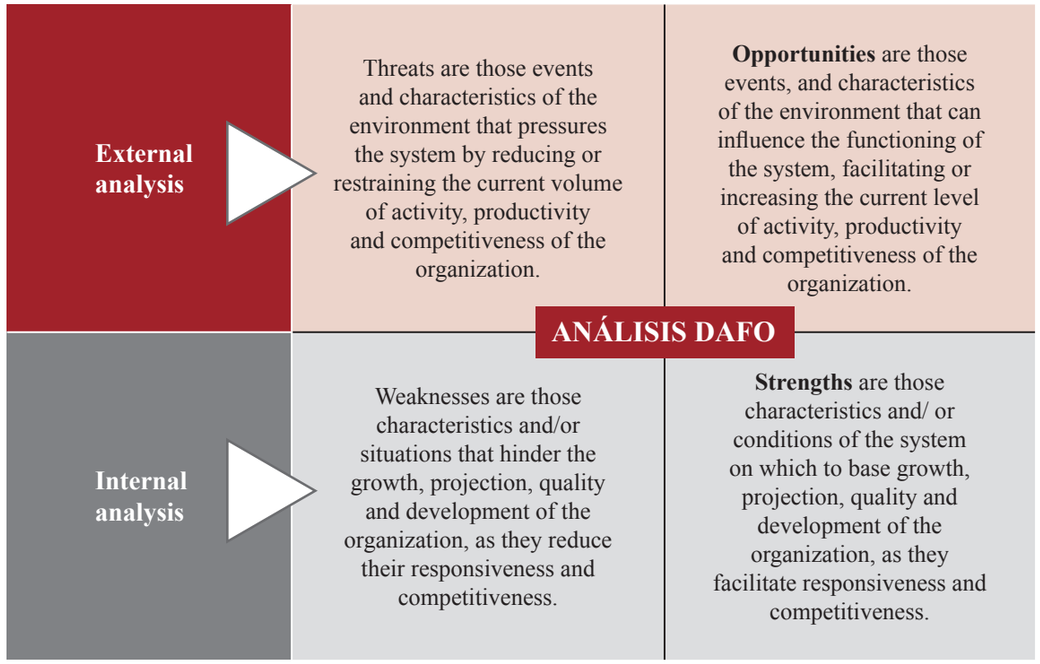
In regard to innovation results highlights the area of Medicinal Chemistry and Innovation.

The needs in this area are similar to those mentioned in the previous section.

5 SWOT analysis

CIBICAN SWOT analysis allows to identify the actual situation of the organization through the study of internal and external aspects

The study of the internal aspects allows to identify weaknesses and strengths of the organization, while the study of the external aspects allows to identify threats and opportunities in the environment of CIBICAN.



SWOT analysis has been developed through analysis as well as expert opinions, both internal and external to CIBICAN (1)

NAME	POSITION
José Luis Rivero Ceballos	Professor of Applied Economics and Chairman of the Committee of Experts on Public Administration Reform in the Canaries
Rafael Alonso Solís	IMBRAIN IP
Sebastián Jiménez	IMBRAIN Innovation Manager
Farah Cova	IMBRAIN project manager
Jenifer Hernández	CIBICAN manager
Tomás González	IMBRAIN Research area: Diseases of the nervous system
Randolph Revoredo	Bioavance Foundation Project Manager
Eduardo Salido	IMBRAIN Research area: genetically based diseases and rare
José Manuel Padrón	OTRI director
Manuel Norte	IMBRAIN Research area: Medicinal Chemistry
Javier Fernández	IMBRAIN Research area: Medicinal Chemistry
Víctor Martín	IMBRAIN Research area: Medicinal Chemistry
Pedro Serran	Head of Planning and Evaluation in the Office of Health Service of the Canary Islands and Head of the Unit of Health Technology Assessment
Basilio Valladares	Director of the University Institute of Tropical Diseases and Public Health of the Canary Islands
Armando Torres	IMBRAIN Research area: infectious and chronic diseases associated with aging and affect quality of life
Serafín Corral	Institutional Economics

TOTAL INTERNAL INTERVIEWS: 16

SWOT analysis has been developed through analysis as well as expert opinions, both internal and external to CIBICAN (2)

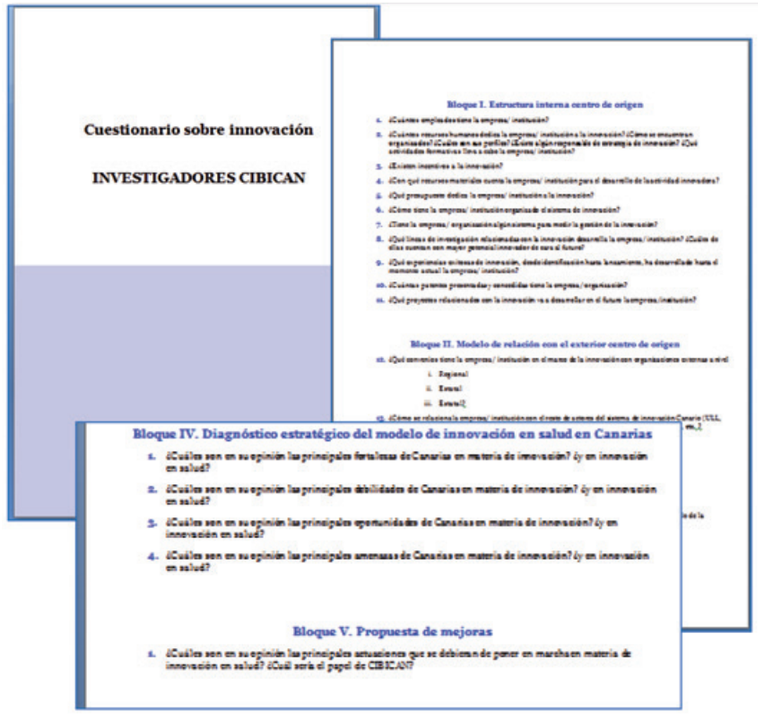
NAME	POSITION
Cosme García Francisco	Director of the Institute of Natural Products (IPNA-CSIC)
Ricardo Guerrero	ITC CEO
Jesús Burgos	Institutional Project Manager and Technology Transfer Institute of Astrophysics of the Canary Islands
Antonio García Marichal	Innovation Advisory Council of Tenerife
Juan Ruiz Alzola	ACIISI Director
Queila Delgado Ojeda	PROEXCA Project Manager
Alfonso Navarro	Biosigma Manager
María Díaz Torres	Alergenetica
Elisa María Pérez	Sacau CEAMED

TOTAL EXTERNAL INTERVIEWS: 9

Interviews were structured through a questionnaire that was previously sent to stakeholders

The questionnaire included five different parts focusing on extract all the information necessary for the development of the project.

QUESTIONNAIRES



PART I.
Internal structure and innovation capabilities of the center

PART II.
Relationship with stakeholders

PART III. Funding

PART IV.
Strategic diagnosis of health innovation model in the Canaries

PART V.
Proposed improvements

Additionally, as a Sebastián Jiménez initiative, a survey on the degree of knowledge and satisfaction of the innovation processes of CIBICAN (ITB, IUBO, IETSP) and IPNA was distributed to the employees

SURVEY RESULTS:

CIBICAN	IPNA
# of responses: **16 (35%)**	Have you ever patented? **YES: 42%**
Responses of each center: **ITB: 8** **IUBO: 3** **UI-HUNSC: 2** **SESC: 2** **IUETSP: 1**	Have you ever participated in the creation of a spin-off? **YES: 8% (one person)**
Have ever you patented? **YES: 40%**	Have you ever done research projects under contract? **YES: 33%**
Have ever you participated in the creation of a spin-off? **YES: 7% (one person)**	Knowledge and satisfaction: Ways of financing: **MIDDLING** Knowledge transfer: **MIDDLING**
Have ever you done research projects under contract? **YES: 53%**	Main Needs: P2: Project leadership to EC, MINECO Regional Government, CDTI, etc.. (9.1) P10: Scientific staff (8.9) P4: Support in negotiating contracts or agreements with companies (8.6)
Knowledge and satisfaction: Ways of financing **MIDDLING** Knowledge transfer: **BAD - MIDDLING**	
Main needs: P10: Scientific staff (8.7) P9: Technical ftaff (8.6) P5: Protection of industrial property supports(8.1)	

Additionally, a survey on the degree of knowledge and satisfaction of the innovation processes of CIBICAN (ITB, IUBO, IETSP) and IPNA was distributed to the employees

SURVEY RESULTS

MAIN OPINIONS

Little personal experience
- Little or no support from the OTRI
- Expert advice needed

- CIBICAN should contemplate the R&D&I management in a more efficient and dynamic approach than currently exists in the ULL.
- CIBICAN should take the lead and be a role model. CIBICAN should bet on a management system with qualified personnel to meet the needs demanded by researchers, companies and / or society.
- CIBICAN should maintain closer relations with the production and business sector (in a regional, national and international level) to promote a culture of knowledge-based business.

The following statements are the main strengths identified in CIBICAN

CIBICAN RESOURCES
- CIBICAN has qualified research staff.
- CIBICAN has powerful equipment and infrastructure (two institutes and two units that will be expanded with a building currently under construction) that allows research excellence development.
- IMBRAIN has secured funding for the next 2-3 years. CIBICAN has proven ability to raise funds.
- IMBRAIN has enabled HR hiring: a project manager, an innovation manager and research staff (total of 18 professionals), which is much higher than any hiring activity of any university in 2013 (in proportion to the volume of the center).
- CIBICAN has a partnership with Bioavance Foundation.

DIFFERENTIAL SCIENTIFIC ACTIVITY
- CIBICAN comprises research groups of proven quality and years of experience.
- Synergies are possible within the center between clinical activity, basic activity and medicinal chemistry - associated to natural products. This is a remarkable advantage, especially if it focuses on identified disease groups.

COMPETITIVE POSITIONING
- A similar initiative as CIBICAN does not exist in the Canaries.
- CIBICAN could be offered as an attractive research center to attract European researchers who enjoy nice weather and a natural environment.

INSTITUTIONAL SUPPORT TO THE PROJECT
- The Cabildo of Tenerife has shown strong support to CIBICAN since its inception.
- CIBICAN is configured as a PCTT biotechnology hub.
- Recently, the Canary Islands Government, is also supporting the project through ACIISI and the Spanish Ministry of Health.

The following statements are the main weaknesses identified in CIBICAN

ORGANIZATION AND INTERNAL PROCESSES
- Although CIBICAN has extensive resources, it is still in construction and starting phase.
- The center does not have yet a legal form or an organizational structure defined.
- There are neither rules of procedure, nor process R&D&I defined.

R&D&I ACTIVITY
- Researchers have rarely worked in collaboration.
- There are neither common objectives nor priority lines in applied research, which makes the alignment of the business hardly possible.
- Innovation management structures are dependent of ULL OTRI, which has currently no structure.
- CIBICAN research groups lack the knowledge to develop innovation excellence.

VISIBILITY AND COMMUNICATION
- Although the IMBRAIN project has been a big boost for the center, CIBICAN is not yet known nationally or internationally.

CIBICAN RELATIONSHIP WITH STAKEHOLDERS
- CIBICAN researchers identify many difficulties to locate companies interested in converting the prototype into a commercial product, and to manufacture it.

The following statements are the main opportunities identified in CIBICAN

CANARY ISLANDS ATTRACTION
- The Canary Islands represent an open society.
- The weather of the Canary Islands may be attractive to foreign research staff.
- The Canary Islands' location allows relationship with Africa, Latin America and Europe.

TAX BENEFITS
- The Canary Islands' tax benefits are an incentive to establish business in the region.

DEVELOPMENT OF THE BIOMEDICINE AND BIOTECHNOLOGY SECTOR IN THE CANARY ISLANDS
- There are Canary institutions that can help CIBICAN, such as the Chamber of Commerce in Tenerife, PROEXCA and the Canary Office in Brussels.
- Biotechnology is one of the strategic areas of PCTT.
- IAC will launch the IACTech, a private technology center for profit which will focus on astrophysics, space and medicine (medical imaging for diagnosis and prevention, software design for medical applications and medical imaging, among others).

EUROPEAN POLICY FOCUSED ON INNOVATION
- Despite R&D budget cuts in Spain, there are other policies which aim to finance R&D&I, mainly at a European level. Those policies have a special interest in the peripheral regions.
- ACIISI will endorse the development of financial instruments to promote knowledge-intensive business projects, included in the Smart Specialization Strategy 2014 - 2018 of the EU.

The following statements are the main threats identified in CIBICAN

R&D STATUS IN THE CANARY ISLANDS

- Investments made in the Canary Islands are focused on sectors more profitable and less risky than biomedicine, such as construction and tourism.
- The stakeholders focused in innovation in the Canary Islands are very unstable.
- There is no existence of powerful companies, as Google or Tecnalia, to leverage a business network.
- There is little business focused on this sector.
- Financial flows from venture capital and business angels do not consider the Canary Islands as a target. This territory is not very well known with the Biomedicine R&D&I.
- Canary Islands culture has aversion to risk..

SECTOR SITUATION AND TRENDS

- The consolidation of Madrid and Barcelona as centers of demand monopolies research fundraising.
- Exponential growth in these sector in the eastern countries.

MACROECONOMIC SITUATION

- Uncertain financial situation in Spain and particularly in the Canary Islands.
- Poor financial support, both public and private.

CHAPTER II
Best practices of innovation and IPR management

Contents

1 Introduction

The present document is Phase 2: "Analysis of the innovative environment: Evaluation, Best Practices & Benchmarking"

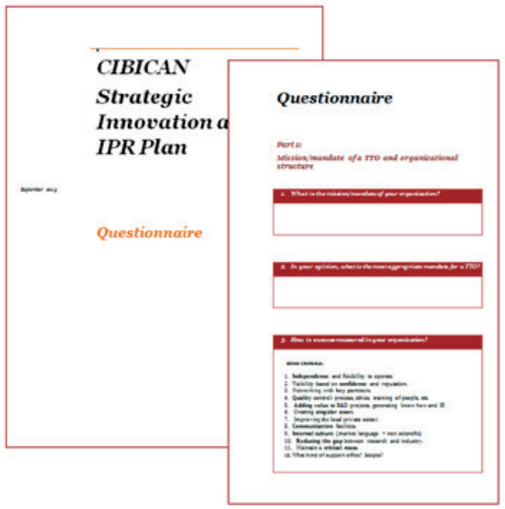
2 Best practices identified in interviews with sector experts

According to aspects agreed in last meeting in June in Tenerife a group o f 5 experts at international level were contacted and interviewed

EXPERT	POSITION
Mike Johnson David Pardoe	Director of Corporate Partnerships at MRCT Head of Growth Projects at MRCT
Cristina Horcajada	Head of Innovation at IRB (Institute for Research in Biomedicine)
Christian Stein	Chief Executive Officer at ASCENION
Ximena Ares	Licensing Associate at Stanford Office of Technology Licensing (OTL), STANFORD UNIVERSITY
Anders Haugland	Managing Director at Bergen BTO

Interviews were structured through a questionnaire that was previously sent to all of them

The questionnaire included five different parts focusing on extract all the information necessary for the development of the project.



PART I.
Mission/mandate of a TTO

PART II.
TTO organizational structure

PART III.
Relationship between TTO and the university/ institute administration.

PART IV.
Relationship and responsibility of the TTO to the researchers and departments.

PART V.
General best practices in technology transfer and life science/healthcare tech transfer.

PART VI.
Engagement with industry and other stakeholders

PART VII. Other best practices

PART VIII.
National regulation. Challenges, best practices for TTOs in Spain (IRB only).

Interview with Mike Johnson- Director of Corporate Partnerships at MRCT- and David Pardoe- Head of Growth Projects at MRCT

Part I. Mission/mandate of a TTO and organizational structure

MRCT MISSION/MANDATE: To transform scientific **discoveries** into health and wealth for society: Commercial impact, Patient/health impact, Charity/ business.

MRCT promotes public benefit of improving human health and medical research in particular by **assisting the progress of the scientific discoveries** and new technologies arising from research into therapeutic treatments, drugs, diagnostics, other technologies or information resources.

MRCT works with industry, charities, universities, the NHS and other relevant bodies as well as conducting their own research and development to accelerate the progress of these discoveries and technologies to the stage at which they are:

- Capable to be transformed to a practical application **available to the medical professionals** for the improvement of health and/or
- **Transferred or licensed to a third party** to progress development of such discoveries or technologies towards such goals.

THE MOST APPROPRIATE MANDATE FOR A TTO: To ensure that innovative life science and healthcare research reaches its full potential

MRCT's success is measured by meeting their charitable objectives, in particular progressing early stage projects towards patient benefit. In

Mike Johnson's opinion, **evidence of translation (e.g. licensing, creation of viable companies, wider dissemination of research outcomes) is the best criteria to measure success concerning a development of a TTO in a small institute**.

Part II. TTO organizational structure

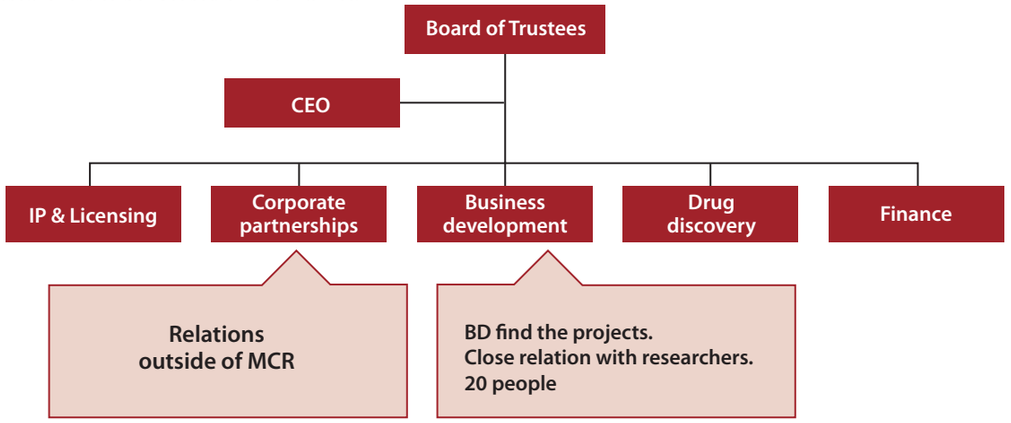
BEST ORGANIZATIONAL MODEL FOR A SMALL TTO

A small TTO finds it challenging to cover all the functions and expertise required for identification, protection and commercialization of discoveries at the same time as retaining a deep understanding of the science.

Outsourcing to larger organizations (such as MRCT) is a realistic option to overcome this problem for small TTOs.

- Locate business managers with the PIs they are supporting to foster a close relationship.
- Other functions (finance, IP management, licensing, etc.) can be located remotely.

The most important point is to **have a close relationship between the TTO and the researchers, and educate researchers to be focused on the market**.



Part III. Relationship between TTO and the university/ institute administration

MRCT is an independent charity with roots in the UK's Medical Research Council. Since creation in 2000, the MRCT has grown its client base to include additional medical research charities (mostly with a therapeutic or primary disease focus) and academic institutions.

Its **independence allows MRTC to select the best and most promising science** to commercialize without regard or bias for its source.

In this context, MRCT has become a respected intermediary and advisor of a wide range of universities, charities and industries.

THE MOST EFFICIENT RELATIONSHIP BETWEEN A TTO AND A UNIVERSITY/INSTITUTE ADMINISTRATION: Nonexclusive relationship.

REPORTING STRUCTURE: A Key Customer approach – clear lines of communication between appropriate senior staff in University and TTO (or outsourced partner) plus regular performance **reporting around key metrics which have been agreed in advance**.

MEASURING SUCCESS: Importantly not against the number of patents filed, start-ups created or revenue generated, but **through triaging disclosures and translating fundamental discoveries to create partnering events**.

INTELLECTUAL PROPERTY: In MRCT's case, the **Research Council owns the IP** – MRCT has a **mandate to manage and exploit that IP** on the Research Council's behalf and only needs to refer back for decisions which go beyond the remit of their service agreement.

MRCT is **paid an annual service fe**e. Income arising from the IP belongs to the Research Council in most of the transferred activities. In the case that MRCT contributes to a program through its own internal scientific group a level of revenue shares on future income is due to MRCT.

Part IV. Relationship and responsibility of the TTO to the researchers and departments.

- **Business Managers work directly with the MRCT scientists** to identify novel technologies and other ideas which have potential for translation – MCRT mandate to do so is communicated by the Research Council to scientists as their employer.
- **Authority to decide on filling and maintaining IP: MCRT does** – it is part of its remit under our service agreement. All decisions are taken **in consultation with the scientists** and, if appropriate, its departmental director.

Part V. General best practices in technology transfer and life science/healthcare tech transfer.

- **Identifying and selecting the most promising technologies: Market analysis, wide networking** and relationship building with potential partners to obtain a deeper understanding of the projects/technologies they want.
- **Moving the selected technologies or IP forward** towards eventual licensing or other ways to commercialization: intensive marketing.
  In addition, if further work is required on a project to make it attractive to partners MRCT can assist on finding further funding or even take some projects in house in our drug discovery group.
- **Measuring success in project development:** Moving it into **the next stage of development with an appropriate partner** or through another appropriate mechanism (e.g. a start-up company).
- **Promoting internal collaboration:** Communication & clarity of message. **Training and education of PIs** of the process and value of translation and commercialization in order they understand how to get involved early.
- **External advice:** in **patenting and legal fields** (i.e. commercial contracts) if not available internally as well as this other functions referred before.
- Partners (as private companies) are **required to succeed** in the technology transfer process.

Part VI. Engagement with industry and other stakeholders

- Actions are developed to promote external collaboration: **Sufficient business development to scout, network, create open ecosystems that promote and enable commercialization**. Talk to people who already have these contacts.

Part VII. Other best practices

- **Locate business managers with the PIs** they are supporting to foster a close relationship.
- **Other functions** (finance, IP management, licensing, etc.) can **be located remotely**.
- Contact those **that have already done it successfully** to externally collaborate with them.
- Maximize the value of being involved with **EU collaborations such as ENTENTE**.
- Be prepared **to outsource** in order to meet the objectives of the TTO.

Interview with Cristina Horcajada - Head of Innovation at IRB (Institute for Research in Biomedicine)

Part I. Mission/mandate of a TTO and organizational structure

IRB MISSION/MANDATE:
The Institute aims to:

- promote multidisciplinary research of excellence at the interface between biology, chemistry and medicine, to foster collaborations with local organizations and international research institutes
- provide high-level training in the biomedical sciences to staff, students and visitors
- ***promote innovation and technology transfer***
- and to actively engage in an open dialogue with the public through a series of outreach and education activities.

The third mission is conducted by the Department of Innovation, which runs the following mandates: Identification, protection, development and commercialization of discoveries and inventions that are made, ensuring that inventions finally go to society and society benefits of it. This department manages the public-private relationship with the private sector in terms of: patents, spin-offs, licensing, public and private fundraising and development of innovation projects.

THE MOST APPROPRIATE MANDATE FOR CIBICAN:

- Ensure the active and effective transfer of discoveries.
- Concerning CIBICAN, it is important to enhance the strength of having multidisciplinary centers next to a hospital , which promotes innovation in several areas.

HOW TO MESURE SUCCESS IN A ORGANIZATION:
Success measurement in the IRB: Its purpose is to be an institute of excellence and to become an international center of reference. Thus, the success is measured through publications and Impact Factor. The measurement of success in transfer is something that is still being developed.

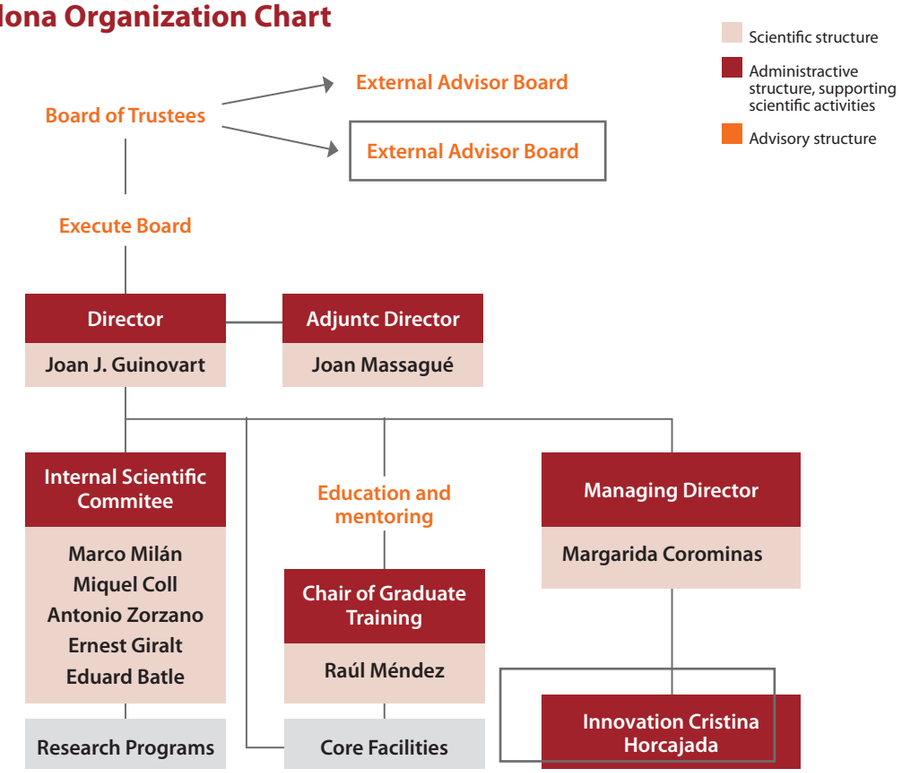
The interviewee's opinion is that in a TTO the transfer must be effective . Thus, the success has to be measured by indicators such as the following:

- Number of licensed patents.
- Partnerships with companies.
- Spin off that have raised funds (Venture Capital), created jobs and brought a product to market.
- Ability to raise funds to develop innovation projects (for instance ERG, Botín).

Part II. TTO organizational structure

The IRB scientific structure consists of 5 programs, 23 groups and more than 430 researchers. The Department of Innovation is part of the administrative area, in which 30 people are employed. The Department is lead by the Managing Director.

IRB Barcelona Organization Chart



STRUCTURE OF THE INNOVATION DEPARTMENT:

- Director of Innovation
- Technology Transfer Officer: management of patents, licenses and MTAs.
- Industry Liason Officer: Strategic relationship with businesses, partnership projects and search for opportunities.
- Sometimes, there is an extra employee and the department count on a Project Officer.
- Recently, a Business Advisory Board has been structured. It advises on Technology Transfer and Innovation.
- The most important characteristics of its structure are its proximity to the researchers and its biomedical expertise of the employees within the TTO.
- The department is very flexible and its orientation characterized by its dedication to researchers, helping them out so they can pursue science.

Part III. Relationship between TTO and the university/ institute administration

IRB Barcelona was founded in October 2005 by the Government of Catalonia (Generalitat de Catalunya), the University of Barcelona (UB) and the Barcelona Science Park (Parc Científic de Barcelona).

- It is a center with its own legal identity, independent and flexible, so it has no legal dependence on the University except from the regulation of intellectual property rights.
- Its staff comes from ICREA, from University of Barcelona and from CSIC.

INTELLECTUAL PROPERTY REGULATION

- In IRB's case and in terms of the Patent Act, the employer holds the rights of the invention (IRB, CSIC or UB depending on the project).
- There are Institutional agreements that regulate the intellectual property.
- With the staff of the University
- With CSIC
- Additionally, in each specific case agreements are signed between the institutions involved in the discovery.
- The profit sharing is usually 50%-50% between the institutions involved.
- Within the IRB, the profit sharing policy is usually 1/3, 1/3, 1/3.

RECOMMENDATIONS FOR TTO:

- The interviewee believes very important that CIBICAN is defined as an independent structure and that has it own legal identity.
- General rules for ownership of inventions and internal policy of profit sharing.
- An institutional agreement has to be signed to set the guidelines of how to regulate intellectual property.
- Additionally, in each project, specific agreements could be signed: project management responsibilities, commercialization, etc.

Part IV. Relationship and responsibility of the TTO to the researchers and departments.

The IRB's TTO is a cross structure that concerning reporting is completely independent of researchers.
IRB's TTO reports directly to the Management and the Board of Trustees who are the ultimately deciders of what is done.
Its relationship with investigators is of trust and of support to bring the project forward. It is a relationship of cooperation and coordination of the technology.
The main activities with investigators include **active promotion of innovation**:

- Development of specific calls for researchers:
  Technology Acceleration Program: TECH CANCER. It is funded by the institution's funds and by the Foundation.
  Performances are funded to advance the project in the next 6 months.
  The selection is done by BAB and by other external staff deemed interesting at the time of the event.
  Internal Calls (with small amount of funds) in which IRB researchers present their technology, and funds are addressed to enhance technology, commercial advice, to develop marketing plans, to business contact or to take it to Asebio.

Active attendance to seminars.
Direct contact with group leaders that it is developed over time.
Some other interesting examples in Spain:

http://www.vhir.org/larecerca/CONCURS_INNOVACIO/CONCURS_presentacio asp?mv1=7&mv2=1&mh1=7&mh2=1 &mh3=1&m_es=7&cont=1ca

http://www.irbbarcelona.org/index.php/en/tech-transfer/innovation-projects

IRB Board of Trustees takes the decision of filling a patent.

Patent Process:
A preliminary study of patentability is done within the Department of Innovation through a first analysis of marketing possibilities.
The internal committee with both management and external staff make the decision.
In national stages, the technology must be licensed and the company must accept responsibility of the cost. The Committee meets at each stage of the process.

Part V. General best practices in technology transfer and life science/healthcare tech transfer.

To identify and select : External Calls .
To advance technologies to licenses or other forms of marketing:

- Internationalization and international conferences to establish networking to evaluate projects early and not invest in what is not worth it (it's a global market, it does not matter that Canarias does not have industry).
- Existence of an advisory body which contacts the TTO to the business world .
- At what point should business be contacted: every time before, furthermore the sector is every day more sensitive to early **stage** projects .

Once there is the opportunity ITB **moves forward designing the type of project:** making partnerships with businesses, raising funds to accelerate the technologies and spin – off's to develop a project. It depends on the project and the business model .

- In the IRB's TTO office, it is done between the two technicians, the innovation manager and the external advisors. It is assigned by projects between the two technicians. This assignment is done depending on expertise. It is important to keep the relationship close with the private sector, but you need first to have the confidence of the researchers.

The success is measured by milestones and project management tools. They are also focused on complementary fundraising. However, for the prioritized ones, it is useful to fetch calls . The scheme of a patent application establishes due dates, money of the project, etc.

The interviewee would **prioritize contact with the international business** sector and major contact with public bodies that form the CIBICAN and direct contact to researchers .

To promote **internal synergies IRB has several internal programs** such as Cancer TECH and European funds for post-PhD programs. Multidisciplinary projects are promoted, but this is a strategic decision of the institution. Seminars are organized , meetings, symposia's, etc.

To start the resources that are available there has to be a clear commitment from management.

Software: started with access and excel. They are now thinking about Sophia. It is going to be a decision based on resources.

Part VI. Engagement with industry and other stakeholders

Actions to promote external relations:
- Hold meetings with companies
- Establish contacts at fairs
- Organize sessions at the Institute
- Etc.

The relationship with hospitals is better done by Institute's TTO's. The important thing is to be in the Red OTRI.

Part VII. National regulation. Challenges, best practices for TTOs in Spain (IRB only).

Barriers:
- Legal Advisors
- Science Law
- Patent Law
- Sustainable economic Law

It is important to have legal advisors.

Examples of good practices: Gimpera Bosch Foundation, University of Santiago, Red OTRI, UB, UP Valencia, UP Madrid, Proton Association.

Interview with Christian Stein Chief Executive Officer at ASCENION

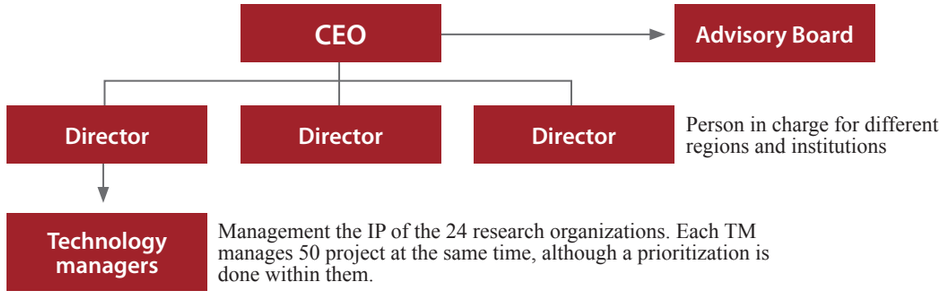
Part I. Mission/mandate of a TTO and organizational structure

ASCENION Mission: Protecting its partner institutes' IP, advancing technologies into application, realizing financial returns for their partner institutes.

Appropriate mandate for a TTO:
- To secure properly, stratify the portfolio.
- To find opportunities process to application.
- Not only manage IP but also put into a start up or license it.

Success must be measured by: return in investment into the TTO
- Nº of invention disclosures
- Nº of prioritized patent applications
- Nº of patent granted
- Estimate Revenue Generated from the Active Spin-Outs
- External Investment/Funding Raised per Spin-Out
- Potential impact of the technology
- Repeat business in the form of other knowledge transfer activities

Part II. TTO organizational structure



Central Departments

Analysis and research department: market analysis tasks

Evaluation and recommendation department:
How to protect
How much it is worth it
How good is the chance of the patent
Timeline to license or to spin off
Quality evaluation
Quality control
IP protection

Commercialization and project development department:
IP commercialization

Legal Department

3 lawyers

Central department's profiles

Biologists
Physicists
Chemists
Analysts
Business Consultants
Biochemists
MBA's

CIBICAN: concerning an activity composed by to 2-10 patents applications per year in CIBICAN, which in terms of success means every 10 years there is one major good project that makes substantial financial impact to the TTO and to the organization.

Any TTO needs to cover the following factions:
- Legal advice
- Market expertise
- Regulation experience
- Pre-clinical regulation
- Scientific expertise
- Technology expertise
- Medical devices expertise

These functions must be covered by 6 to 10 people. However, at this early stage of **CIBICAN that TTO's size is not viable neither efficient because this amount of people would not have enough work**.

- Thus, in the interviewee's opinion **CIBICAN needs a small TTO with 2 to 3 people and where all the expertise needed are obtained in a qualified network**. What is really important is to create this solid network with a few organizations that you work with and 2 or 3 other TTO's (as MRCT Technology or Ascenion) with the available expertise and resources to help CIBICAN's TTO.

FUNCTIONS THAT SHOULD BE DONE INTERNALLY:
- Technology scouting
- At least the first quality steps should be able to be done within the organization
- The coordination of the whole project
- The communication with the external organizations, external laboratories and investors and external experts.
- The management of the IP (not the filling of the patent, which should be done by the lawyer)
- The cost control of the patent protection

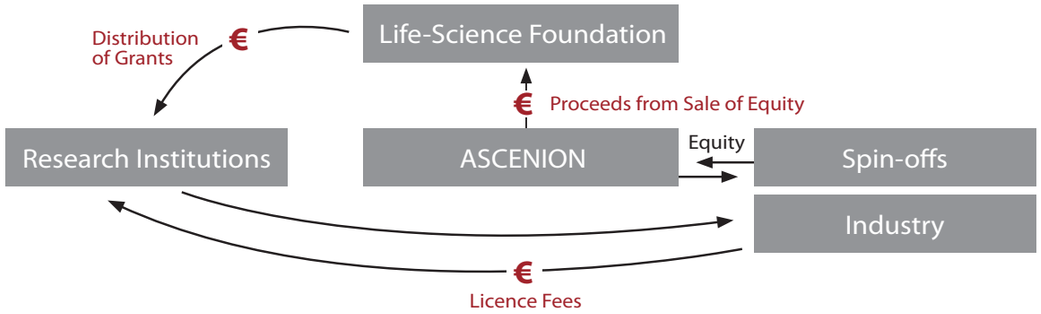
FUNCTIONS THAT SHOULD BE EXTERNALIZED:
- Tasks done once the TTO has decided to fill the patent as:
- filling the patent
- decision process of how to develop the IP to the next stage which needs experts of the field to be able to decide concerning the regulatory requirements

The staff hired should have a double profile. The staff should have a scientific/academia profile as well as an industry profile. The staff working in the TTO should have at least 3 years of industry or venture capital experience.

Part III. Relationship between TTO and the university/ institute administration

How the money flows:
- Ascenion is 100% subsidiary Life – Science Foundation.
- 9 to 10 research organizations are part of the foundation.

The IP belongs 100% to the research organization. The deals are done between the licensee and the licensor (who are the contract partners), and Ascenion is just the agent that manages the deal. The money goes directly from the licensor to the licensee and Ascenion gets de 20% of it for its services.



In case that Ascenion owns an equity part, it can be Managed by Ascenion and it can be sold. In this case, Ascenion profits are transferred to the Foundation. Ascenion profits from the equity sale are transferred to the Foundation, which are transferred back to the Research Institutions as a distribution of grants.
The distribution is done by 3 criteria:
1. If profits come from a start-up, the research institution where the start-up was created from receives the profits minus 20% (tax free) as a grant (which can be all used to research).
2. The second channel depends on the size of the account of the Research Institution have with Ascenion.
3. An equally distribution between the Foundation members.

CIBICAN: The problem is when the university administration is very volatile, which happens because the administration depends on the opinion of the university leader. Thus, **CIBICAN TTO should be as autonomous as possible and self-responsible**.
- It should be clearly defined which are the university aims and responsibilities and which are the TTO aims and responsibilities.

A proper reporting of the projects that the TTO is working on depends on who owns the IP. There are two possibilities:
- The IP is owned by the university

Part IV. Relationship and responsibility of the TTO to the researchers and departments.

The researchers are not the ones who should rule neither decide over the IP process decisions nor influence over what is done in the technology transfer process.

However, a good relationship with the researchers and especially with heads of the departments is essential. Otherwise without the researchers the TTO is not going to get any invention patented.

The routine actions of the TTO concerning the relationship between the TTO and the researcher are, among others:

- Scouting
- Discuss invention disclosure with the researchers
- Control the relationship between the inventor and the lawyer

Part V. General best practices in technology transfer and life science/healthcare tech transfer.

Internal initiatives:

The TTO should do a value proposition of the technology transfer to the researchers to engage them with the process.

Ascenion promotes the technology transfer and it successes in it through several Technology Transfer Initiatives.

At a first level, and concerning the researcher, there are initiatives as seminars and workshops with a double intention:

- The education of the researchers
- The motivation of the researchers

External initiatives:

Other successful initiatives used further in the technology transfer process in order to accelerate it, which are already external initiatives, are:

- *BioVaria:*
  Pan-European marketplace for life-science inventions.
  Cooperation with European technology transfer organizations
- *Spinnovator:*
  Supporting and financing life-science start-ups
  Cooperation with the BMBF and venture capitalists
- *Biotech NetWorkshop:*
  Workshop for entrepreneurs with experienced life-science managers/experts
  Cooperation with Max Planck Innovation

CIBICAN: A TTO from scratch as CIBICAN's should prioritized to keep the portfolio and the projects managed in a very narrow selection
and do very intense work in few projects.
To educate and motivate the researchers and to set them in contact with the industry, although its not through an invention already.

Software: Ascenion does have a very strong management software called Sophia. It is comprehensive aligned to their own interests. Ascenion
has other management tools. However, the interviewee believes these are just needed when the amount of patents is wide.

Part VI. Engagement with industry and other stakeholders

It is essential to keep the bioindustry updated with the projects that are being done, because the industry is not going to

proactively look CIBICAN portfolio constantly.

There are network platforms which are really interesting and useful to develop a TTO scratch.

Ascenion has some collaboration with hospitals. Ascenion uses the same mechanisms to promote ideas from hospitals, except from the clinical

trials, which are normally sponsored trials so they do not have access to the IP.

Ascenion's expertise in hospitals are concentrated in hospitals research units and a scouting process in the Medical School of Hannover.

Interview with Ximena Ares - Licensing Associate at Stanford Office of Technology Licensing (OTL), STANFORD UNIVERSITY

Part I. Mission/mandate of a TTO and organizational structure

The **mission** of Stanford University is to **transfer technologies for public use while generating income**.

From Stanford University perspective, **this is the most appropriate mandate for a TTO** of an organization of this nature.

The success at Stanford University **is measured as the independence and flexibility to operate**.

It is believed that the best criteria to measure success, concerning a development of a TTO in a small institute, has to **be done empowering just a couple of people**.

Part II. TTO organizational structure

The **Stanford TTO** is structured **with a cradle-to-grave approach, with teams integrated by 2 people**.

For a particular **TTO developed from scratch** in a small institute the most appropriate organization model from Stanford point of view would **be a 2-people team composed by one licensing associate and one supporting administrative with cradle-to-grave approach too**.

Part III. Relationship between TTO and the university/ institute administration

Within the scope of the TTO's mandate, the **TTO should have all the autonomy** so that it can respond quickly without delays.

The most appropriate legal structure and autonomy to sign contracts and to enter agreements **should be without attorneys**, because there are detrimental.

The best reporting structure is from t**he TTO to report directly to the dean of Research**.

The **success of this part of the process should the customer satisfaction**.

The **intellectual property is owned by the University**.

The **final decision is the Licensing Associate's responsibility**.

Costs/profits allocation: **1st: 15% for the TTO, 2nd: Pay back of patent expenses, 3rd: 1/3 to the investors, 1/3 to the Department, 1/3 to the School**.

Part IV. Relationship and responsibility of the TTO to the researchers and departments.

The relationship and responsibility of the TTO to the researchers and departments is **service-oriented**.

The licensing associate has authority to decide on filling and maintaining IP and to control the associated budgets.

In a small institution, it should work the same way as the smaller the institution is, the more you need to empower the licensing associate.

In the case a TTO decides not to follow a patent, Stanford University TTO gives the change to investors to pay patent costs on their own. However, it depends on the obligations with funding agencies that sponsored the research.

Part V. General best practices in technology transfer and life science/healthcare tech transfer.

The **mechanisms** that Stanford University TTO use **to identify and select the most promising technologies or research are based on the experience of the licensing associate**.

The mechanisms used by Stanford University t**o move the selected technologies or IP forward** towards eventual licensing or other avenue to commercialization **are marketing via email, databases, phone calls, investors contacts with companies**.

For a new TTO at a small institute, **the licensing of biological materials and the software that does not require patent protection are two aspects in technology transfer that should be prioritized**.

Face-to-face meetings are the type of actions that are developed to promote internal collaboration in order to foster synergies to increase the efficiency of the innovation strategy within the organization.

The **requirements needed to develop a TTO from scratch are: 1 licensing associate, 1 administrative employee and 1 IT employee**.

It is emphasized that it a position of project manager is created, unnecessary work will be created. At Stanford University **TTO there is a customized innovation software**. However, the are other commercial alternatives.

Part VI. Engagement with industry and other stakeholders

The engagement of a TTO with industry is obviously important.

The **Stanford University TTO does not promote external collaboration in order to foster synergies because there is no need considering its location in Silicon Valley**.

The networking practices developed by the Stanford University TTO are **by phone and face-to-face meetings**.

Part VII. Other best practices

The **no existence of lawyers in the TTO is considered crucial**.

Empowerment of the licensing associate to make all decisions from cradle-to-grave (patenting, licensing, etc.).

Interview with Anders Haugland Managing Director at Bergen BTO

Part I. Mission/mandate of a TTO and organizational structure

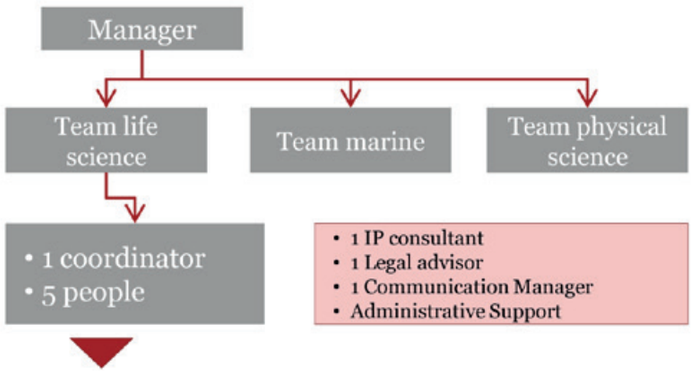
Mission of Bergen BTO: **Increasing value of research in a broad sense**.

Success is measured by a set of KPIs such **as projects turned to a new company, licenses, new processes in hospitals, new products and so on**.

Measuring **success in a small TTO: customer satisfaction**. Number of patents is not a good indicator.

Part II. TTO organizational structure

Bergen BTO has a flat organization with 20 full time people.



BEST ORGANIZATIONAL MODEL FOR A SMALL TTO

- 1 Manager
- 2 Business Developers (BD) good relationship between them and with researchers.
- 1 Legal Advisor
- BD training: work together with other TTO's. Help in projects you can not deal.
- Outsource the rest.
- Good connection between BD and researchers.

ROLE:

- Contact with researchers, organizing meetings, and so on.
- Following IP ideas and searching funds.
- Identification of potential partners.
- Negotiating with them and recommending strategy,
- They are organized by project.

Part III. Relationship between TTO and the university/ institute administration

BTO **was funded by the government and 3 research centers. It is a regional TTO who serves to research organizations**.

Bergen BTO is an **independent organization**.

Every **year BTO signs an agreement with Institutions**.

Each Institution owns the IP.

Benefits sharing is done in the following way:

- First 10.000 euros: (50% researcher – 50 % research group)
- More than 10.000 euros (1/3 researcher – 1/3 research group – 1/3 research institution).
- BTO apply for the third part to reinvest it in new projects.

Part IV. Relationship and responsibility of the TTO to the researchers and departments.

BTO has an structure addressed to **work closely with researchers**. It is important to **treat Institutions as a customer** and to play a role with surrounding industry.

Part V. General best practices in technology transfer and life science/healthcare tech transfer.

Identifying and selecting the most promising technologies:

- Funding Best Ideas Competition.
- Meeting with Institutions and staff looking for interesting ideas with commercial value.
- Working with big initiatives such as cluster initiatives, UE Framework
- Brain storming with groups and selecting through business model innovation (Alexandre Osterwalder)
- Calendar with colleagues ideas, is kind of inspiration.

Moving the selected technologies or IP forward: Brain storming with groups (Alexandre Osterwalder)

Measuring success in project development: Having a clear picture of the strategy to follow with each project.

In a small TTO: helping researchers and building knowledge and network.

Part VI. Engagement with industry and other stakeholders

Really important.

Health challenge – smart weekend initiatives.

For a small TTO: ASPP Community,

Part VII. Other best practices

Enough money

Contact with industry.

MISSION

MRC

To transform scientific discoveries into health and wealth for society. **Assisting the progress of the scientific discoveries** and new technologies arising from research into therapeutic treatments, drugs, diagnostics, other technologies or information resources.

- Capable to be transformed to a practical application **available to the medical professionals** for the improvement of health and/or
- **Transferred or licensed to a third party** to progress development of such discoveries or technologies towards such goals.

IRB

The Institute aims to promote innovation and technology transfer.

This mission is conducted by the **Department of Innovation, which runs the following mandates: Identification, protection, development and commercialization** of discoveries and inventions that are made, **ensuring that inventions finally go to society and society benefits of it**.
This department manages the public-private relationship with the private sector in terms of: **patents, spin-offs, licensing, public and private fundraising and development of innovation projects**.

STANFORD UNIVERSITY

The **mission** of Stanford University is to **transfer technologies for public use while generating income**.

BTO

Mission of Bergen BTO: **Increasing value of research in a broad sense**.

ASCENION

ASCENION Mission is:

- Protecting its partner institutes' IP
- Advancing technologies into application
- Realizing financial returns for their partner institutes.

CIBICAN MISSION:

To support innovative translational research and the transfer of knowledge in the biomedical field.

MEASURE OF SUCCESS

MRC

Evidence o**f translation (e.g. licensing, creation of viable companies, wide dissemination of research outcomes) is the best criteria to measure success concerning a development of a TTO in a small institute.**

IRB

The interviewee's opinion is that in a TTO the transfer must be effective.

Thus, **the success has to be measured by indicators such as number of licensed patents, partnerships with companies, spin off that have raised funds (Venture Capital), created jobs and brought a product to market, ability to raise funds to develop innovation projects (for instance ERG, Botín)**.

STANFORD UNIVERSITY

The success at Stanford University is measured as the independence and flexibility to operate.

BTO

Success is measured by a set of KPIs such as projects turned to a new company, licenses, new processes in hospitals, new products and so on.

ASCENION

Success in Ascenion is **measured by the return in investment into the TTO**. There is a set of KPIs such as patents granted, estimate Revenue Generated from the Active Spin-Outs, etc. that make it able to measure it.

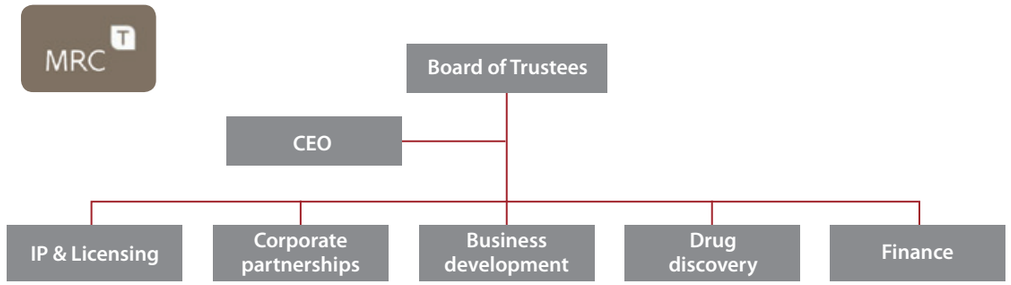
MEASURE OF SUCCESS IN CIBICAN:

- Operational **independence and flexibility** as the obtain its own legal identity.
- Taking into account that CIBICAN's TTO is created from scratch, in the short term **success should be measured on the number of projects in each phase**.

- In the other hand, **in long term**, measures of success should be more about results as Number of patents licensed, Partnerships with companies, Spin off that have raised funds (Venture Capital), jobs created and brought a product to market, ability to raise funds to develop innovation projects, etc.
- **Customer satisfaction.**

Best practices: main conclusions and recommendations to CIBICAN

ORGANIZATIONAL STRUCTURE



Outsourcing to larger organizations (such as MRCT) is a realistic option to overcome certain problems for a small TTOs.

- Internal capabilities (MTA and patents management).
- External capabilities (the others).

INSTITUTE FOR RESEARCH IN BIOMEDICINE
IRB BARCELONA

STRUCTURE OF THE INNOVATION DEPARTMENT:

Director of Innovation

- Technology Transfer Officer: management of patents, licenses and MTAs.
- Industry Liason Officer: Strategic relationship with businesses, partnership projects and search for opportunities.
- Sometimes, there is an extra employee and the department count on a Project Officer.
- Recently, a Business Advisory Board has been structured. It advises on Technology Transfer and Innovation.

Stanford University

The Stanford TTO is structured with a cradleto-grave approach, with teams integrated by 2 people.

BTO
GUIDING GOOD IDEAS

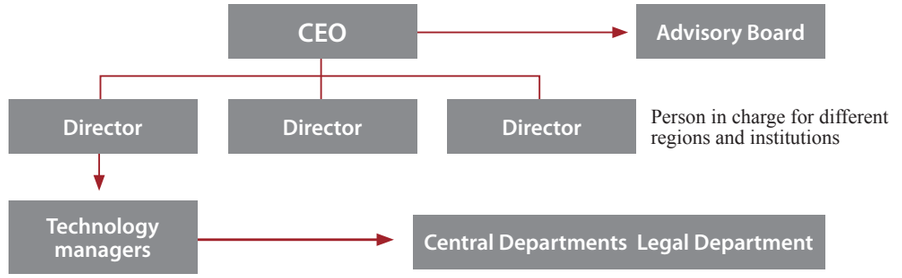
Team life science ▶ 1 coordinator 5 people ▶

- 1 IP Consultant
- 1 Legal Advisor
- 1 Communication
- Manager
- Administrative
- Support

ROLE:
Contact with researchers, meetings organization, and so on.

- Following up ideas and funds search.
- Identification of potential partners.
- Negotiation with them and strategies recommendation,
- Organized by project.

ascenion



CIBICAN

CIBICAN (with its needed own legal identity) should cover **all the functions and expertise required for identification, protection and commercialization of discoveries at the same time as retaining a deep understanding of the science**.

In the short term, most of these functions should be externalized. Only a 2 people team should be in-house supported by a Research Committee and an Advisory Board:

1 person	IP & LICENSING	BUSINESS DEVELOPER	RESEARCH COMMITTEE
1 person	INDUSTRY LIASON OFFICER	BUSINESS DEVELOPER	ADVISORY BOARD

- The most important point is to **have a close relationship between the TTO and the researchers,** and educate researchers to be focused on the market.
- For a particular **TTO developed from scratch the structure should be composed by a 2-people team, and the rest outsourced**.

The other functions would be outsourced..

Business Developers should have science expertise to understand researchers.

CIBICAN should work together with other TTO's in order tobe supported with projects that CIBICAN can not deal with.

Best practices: main conclusions and recommendations to CIBICAN

RELATIONSHIP WITH UNIVERSITY

MRC

MRCT is an independent charity with roots in the UK's Medical Research Council. Since creation in 2000, the MRCT **has grown its client base to include additional medical research charities** (mostly with a therapeutic or primary disease focus) **and academic institutions**.

- Their **independence allows them to select the best and most promising science** to commercialize without regard or bias for its source. In this way, the MRCT has become a respected intermediary and advisor to a wide range of universities, charities and industries.
- **REPORTING STRUCTURE: A Key Customer approach** – clear lines of communication between appropriate senior staff in University and TTO (or outsourced partner) plus regular performance **reporting around key metrics which have been agreed in advance**.
- MRCT is **paid an annual service fee**. Income arising from the IP belongs to the Research Council in most of the transferred activities.
- **INTELLECTUAL PROPERTY:** In MRCT's case, the **Research Council owns the IP** – MRCT has a **mandate to manage and exploit that IP** on the Research Council's

IRB

IRB Barcelona was founded in October 2005 by the Government of Catalonia (Generalitat de Catalunya), the University of Barcelona (UB) and the Barcelona Science Park (Parc Científic de Barcelona).
It is a center with its **own legal identity, independent and flexible**, so it has no legal dependence on the University except from the regulation of intellectual property rights.
Its staff comes from ICREA, **from University of Barcelona and from CSIC**.

STANFORD UNIVERSITY

Within the scope of the TTO's mandate, the TTO should have all the autonomy so that it can respond quickly without delays

- The intellectual property is owned by the University.
- The final decision is the Licensing Associate's responsibility.
- Costs/profits allocation: 1st: 15% for the TTO, 2nd: Pay back of patent expenses, 3rd: 1/3 to the investors, 1/3 to the Department, 1/3 to the School.

BTO

Bergen BTO is an **independent organization**.
Every year **BTO signs an agreement with Institutions**.
Each Institution owns the IP.
Benefits sharing is done in the following way:

- First 10.000 euros: (50% researcher – 50 % research group)
- More than 10.000 euros (1/3 researcher – 1/3 research group – 1/3 research institution).
- BTO apply

ASCENION

- The IP belongs **100% to the research organization**.
- The deals are done between the licensee and the licensor (who are the contract partners), and **Ascenion is just the agent** that manages the deal.
- The money goes directly from the licensor to the licensee and **Ascenion gets 20% of it for its services**.
- In case that Ascenion **owns an equity part**, it can be managed by Ascenion and it can be sold.
- In this case, **Ascenion profits are transferred to the Foundation, and from the Foundation transferred back to the Researchers institutions as grants**.

CIBICAN SHOULD HAVE INDEPENDENCE AND FLEXBILITY FROM UNIVERSITY.

- CIBICAN should have its own legal identity
- General rules for ownership of inventions and internal policy of profit sharing should be defined.
- An institutional agreement has to be signed to set the guidelines of how to regulate intellectual property.
- Additionally, in each project, specific agreements could be signed: project management responsibilities, commercialization, etc.

RELATIONSHIP WITH RESEARCHERS

MRC

Business Managers work directly with the MRCT scientists to identify novel technologies and other ideas which have potential for translation – MCR mandate to do so is communicated by the Research Council to scientists as their employer.
Authority to decide on filling and maintaining IP: MCRT does – it is part of their remit under our service agreement. All decisions are taken **in consultation with the scientist** and, if appropriate, their departmental director.

IRB

Its relationship with investigators is of trust and of support to bring the project forward. It is a relationship of cooperation and coordination of the technology transfer process.
IRB Board of Trustees takes the decision to fill a patent.
Patent Process:

- A preliminary study of patentability is done within the Department of Innovation through a first analysis of marketing possibilities. The internal committee with both management and external staff make
- the decision.
- In national stages, the technology must be licensed and the company must accept responsibility of the cost. The Committee interacts at each stage of the process.

STANFORD UNIVERSITY

The relationship and responsibility of the TTO to the researchers and departments is **service oriented**.
The licensing associate has authority to decide on filling and maintaining IP and to control the associated budgets.

BTO

BTO has an structure addressed to **work closely with researchers**. It is important to **treat Institutions as a customer** and to play a role with surrounding industry.

ASCENION

The researchers are not the ones who should rule decide over the IP process decisions nor influence over what is done in the technology transfer process.
However, a **good relationship** with the researchers and especially with heads of the departments **is essential**. Otherwise without the researchers the TTO is not going to get any invention patented.

CIBICAN relationship with researchers has to be **of trust and of support** to bring the project forward. It is a relationship of cooperation and coordination of the technology.

Training is going to be accomplished in order to foster this trust.

The Researchers Committee should collaborate with the Innovation Area in order to accomplish this trust and support.

CIBICAN should have authority to decide on filling and maintaining IP and to control the associated budgets.

RELATIONSHIP WITH INDUSTRY

MRC

Actions are developed to promote external collaboration:

Sufficient business development to scout, network, create open ecosystems that promote and enable commercialization. Talk to the people who already have the contacts.

IRB

IRB has an international Business Advisory Board
Actions to promote external relations:

- Hold meetings with companies
- Establish contacts at fairs
- Organize sessions at the Institute
- Etc.

The relationship with hospitals is better done by Institute's TTO's. The important thing is to be in the *Red OTRI*

STANFORD UNIVERSITY

The engagement of a TTO with industry is obviously important.
The **Stanford University TTO does not promote external collaboration** in order to foster synergies because **there is no need considering its location in Silicon Valley.**
The networking practices developed by the Stanford University TTO are **by phone and face-to-face** meetings.

BTO

Really important.
Health challenge – smart weekend initiatives.
For a small TTO: ASPP Community

ASCENION

It is essential to keep the bioindustry updated with the projects that are being done, because the industry is not going to proactively look CIBICAN portfolio constantly.

There are network platforms which are really interesting and useful to develop a TTO scratch

Ascenion's expertise in hospitals are concentrated in hospitals research units and a scouting process in the Medical School of Hannover.

Cibican must have an active role with the industry internationally:

- **Through the creation of the Business Advisory Board.**
- **Participating in international networks.**
- **Collaborating with other TTO's with major expertise.**
- **Holding** meetings with companies
- The aim is to keep the industry aware and informed of the projects that are being done.

In order to accomplish this aim, CIBICAN should identify and develop novel means of industry collaboration , which should be innovative and really attractive (the success of Boston University's Tech Drugs and Rock and Roll event could be an inspiring idea).

BEST PRACTICES

CIBICAN

IDENTIFYING AND SELECTING THE MOST PROMISING TECHNOLOGIES

ACTIVITIES

Development of specific calls for researchers who have some research concerning the call to present it:

- Best Ideas Funding Competition.
- Working with big Initiatives: such as cluster Initiatives, EU Framework

Active attendance at seminars.

- Brain storming with groups and Selecting through business model innovation (http://alexosterwalder.com/)

Direct contact with group leaders, with which a relationship is built over time. Meeting with Institutions and staff looking for interesting ideas, with commercial value.

CAPABILITIES

Based on the experience of the licensing associate and market analysis researchers

Wide networking and relationship building with potential partners to obtain a deeper understanding of the projects/technologies they want.

MOVING THE SELECTED TECHNOLOGIES OR IP FORWARD
towards eventual licensing or other avenue to commercialization

ACTIVITIES

Focused marketing, **marketing via email, phone calls, investors contacts with companies which are previously identified by the external advisory board as CIBICAN target**.

In addition, if further work is required on a project to make it attractive to partners the **TTO can assist on finding further** funding.

Create Workshops for entrepreneurs with experienced life-science managers/experts to network

Cooperate and network with venture capitalists of other Research Institutions with which opportunities are identified.

Participate in the European marketplace for life-science inventions.

Cooperate with European technology transfer organizations

Participating in other successful initiatives used further in the technology transfer process in order to accelerate it, which are already external initiatives, such as: BioVaria, Spinnovator, Biotech NetWorkshop, and so on.

CAPABILITIES

Existence of an advisory body to give contacts with the business world.

Internationalization and international conferences to establish networking and to foster projects much earlier and to avoid investing in what is not worth it.

MEASURING SUCCESS IN PROJECT DEVELOPMENT:

Moving it into **the next stage of development with an appropriate partner** or through another appropriate mechanism (e.g. a startup company).

Having a clear picture of the strategy to follow with each project.

The success is measured by milestones and project management tools. It is also focused on complementary fundraising. However, for the prioritized projects it helps in order to fetch calls.

PROMOTING INTERNAL COLLABORATION:

Communication & clarity of the message. **Training and education of PIs** about the process, the translation value and commercialization such that they understand how to get involved early.

Face-to-face meetings are the type of actions that are developed to promote internal collaboration in order to foster synergies to increase the efficiency of the innovation strategy within the organization.

OTHER BEST PRACTICES IMPORTANT FOR CIBICAN:

External advice: in patenting and legal issues (i.e. commercial contracts) if not available internally as well as this other functions referred before.

Partners (as private companies) **are required to succeed** in the technology transfer process

The interviewee would prioritize contact with the international business sector and major contact with public bodies that form the CIBICAN and direct contact to researchers .

For a new TTO at a small institute, **the licensing of biological materials and the software that does not require patent protection are two aspects in technology transfer that should be prioritized**.

In a small TTO: helping researchers and building knowledge and network.

3 Other innovation and IPR management trends

Below , there is a brief summary of the innovation environment in Spain that allows to frame actions proposed to CIBICAN

AREAS OF STUDY

1. Creation of spin – off
- Applicable law
- Best practices of spin–off creation process

2. Patents Development
- Best practice of Result Transfer Procedure and Distribution.

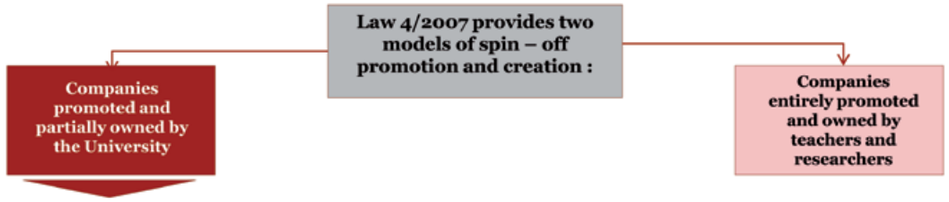
1. In Spain, spin - off creation is regulated by the ORGANIC LAW 4/2007, of April 12th, by amending the Organic Law 6/2001, of 21 December, on Universities

Despite of this law, Spin-Off legal regulation is not fully defined, that is the reason why universities are developing its own rules of business creation, based on the law mentioned above.

However, there are still certain gaps related to aspects such as:

- Legal status of teachers and academic researchers with permanent contract with university.
- Detailed aspects related to the creation and development of these projects.

1. The following describes different types of spin - off included in the law



University is an equity holder of the company.

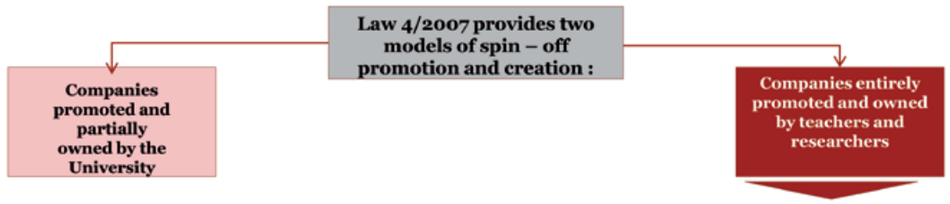
The project must meet the following requirements:

- The company must be created from patents or results generated by research projects at the university.
- The company must be completely or partially funded with public funds.
- The company must be approved by the University Governing Council and the University Board.
- So far, few universities have chosen this model of ownership.

The initiative may be proposed by either the researcher or the University. Thus, promoters can offer any ownership rate to the University.

There is no ownership rate limit to professors and research staff, so it has to be negotiated in each case.

1. The following describes different types of spin - off included in the law



There is no clear regulation about this model. That is why it is not clearly defined neither the application itself nor others procedures, and most importantly, university support and control process.

10% Commitment time limit of teachers and research staff:

- If the University does not have shares of the company, teachers and researchers commitment to the company can not exceed 10% ownership of the company, under the terms stated in Art. 12 Acta de Incompatibilidades.
- Even teachers and researchers commitment is has to be lower than 10%, university authorization is mandatory.

If University does not have shares of the company, any commitment exceeding 10% requires a special permit of temporary leave.

1. Best practice of a spin – off creation process: Universitat de Barcelona

SUBMISSION OF APPLICATION

- Team definition
- Description of the R&D result
- Business Plan Draft

APPLICATION ANALYSIS

APPLICATION VALIDATION

FORMALIZATION OF A CONTRACT OF R&D RESULTS TRANSFER

This contract regulates EBT usage rights and commercial exploitation of research results.

DEFINITION OF THE PARTICIPATION OF THE CAPITAL OF THE EBT

The authorization of Universitat de Barcelona to create the spin-off and to participate in its capital with the conditions set out in the resolution adopted.

The share of the University of Barcelona of the EBT partially owned by UB can be direct, or indirect through an entity created by accordance with Article 84 of Law 6/2001 on Universities.

Right out of the University of Barcelona

PARTICIPATION FOLLOW-UP

PARTNERS CONTRACT

It includes the management and governance standards.

UNPAID LEAVE TO THE INCORPORATION TO THE EBT

The Academic Staff may apply for a unpaid leave to join the EBT in accordance with the terms of these rules.

Before the end of the period of the leave, the academic staff must notify their willingness to continue working on the EBT or rejoin the University in Barcelona.

1. Best practice of a spin – off creation process: Universidad Autónoma de Madrid

Contact the OTRI-UAM, who will handle the process of the patent application.

Check the requirements for patentability: novelty, inventive step and industrial application.

Complete the patent application questionnaire.

Make a technical report.

Patent apllication will be guided by atechnician from the OTRI-UAM

PATENT APPLICATION:

1.ADMISSION
Evaluation of the final patent report to check if it meets the requirements.

2. APPLICATION EVALUATION
Evaluation if legal aspects according to the provisions of Article 31 of the LPE and Article 17 of the Implementing Regulation.

3. FOLLOWING PROCEDURE
If the request does not contain defects or after correction of these, the applicant must submit a Report on the State of the Art (IET) and pay the fee.

5. PUBLICATION OF THE APPLICATION
18 months after the submission date, the Spanish Patent and Trademark public publishes patent application.

5. TRANSFER TO THE APPLICANT

6. GRANTING OF THE PATENT
The concession involves the payment of concession rights.

2. Patent policy of Universitat de Barcelona:

Innovation and IPR procedures:

Industrial and Intellectual Property:
The researchers will, in any case, benefit from profits that UB obtains from a license or a transfer (sale) of their intellectual property rights.
Net benefits are distributed in the following way:

Up to 500,000 € of profit:
- 50 % to the author of the invention or the utility model
- 50 % to the University of Barcelona distributed as follows:
  15% to the research group
  10% to the researcher department
  8% to the University of Barcelona
  7% to the FBD
  10% to the Patents Fund managed by the FBG

Industrial Property:
From € 500,000 profit:
- 40 % to the author of the invention or the utility model
- 60 % to the University of Barcelona distributed as follows:
  15% to the research group
  10% to the researcher department
  15% to the University of Barcelona
  10% to the FBG
  10% to the Patents Fund managed by the FBG

The ownership of the Intellectual or Industrial Property is the University of Barcelona.

2. Patent policy: common benefit distribution

Intellectual Property and Industrial Property Rights

30% for the Institution

30% for the researcher

30% for the research group

4 Other best practices of innovation and IPR management

Below , there is a brief summary of the innovation environment in Spain that allows to frame actions proposed to CIBICAN

AREAS OF STUDY

1. Best Practices in Offices of Research Results Transfer of Universities:

- Universitat de Barcelona (UB)
- Universidades Autónoma de Madrid (UAM)
- Consejo Superior de Investigaciones Científicas (CSIC)
- Standford

2. Best Practices in Offices of Research Results Transfer of Private Companies:

- Best practice of Result Transfer Procedure and Distribution.
- Consejo Superior de Investigaciones Científicas (CSIC)

3. Best Practices in Educative Models focus on Innovation:

- Stanford Biodesign,
- Future Med,
- d·Health Barcelona

4. Best practices: Innovation and IPR management Information Technology Systems

1. The Bosch i Gimpera Foundation is Universitat de Barcelona Centre for the Transfer of Knowledge, Technology and Innovation

The Business Creation Area has a **multidisciplinary team**, with graduate and MBA profiles, and relevant business experience in Europe and America.

BUSINESS CREATION

Advice and support throughout the process of creating a company:
UB accompanies UB Group researchers, teachers, trainees, alumni and UB community in the creation and financing of technology-based companies.

Business ideas and business projects: It accompanies and advises on issues of:
- Market research
- Protection of Industrial Property (patent applications, know-how)
- Defining the business model
- Economic Viability
- Agreements with the UB to form the company as EBT of UB (spin off)

Company established period: Once the company is established, it accompanies and advises on issues of:
- Business plan and financial plan
- Access to public financial resources
- Access to private re sources (business angels and venture capital)
- CR Trading Investor
- Bioincubator
- Business Consulting

•Other: Advisory Board, Networking & Partnering, Human Resources

VALORISATION AND LICENSING

The mission of this unit is to ensure **identification, protection, assessment and commercialization of the inventions produced** by UB researchers and professors with the aim of transferring the benefits of these discoveries to society and at the same time achieving a good return for the University and its researchers.

- **Encourage** the disclosure of new ideas and discoveries;
- **Identify key projects and areas** of research at the UB Group whose results have strong potential for transfer;
- **Protect new knowledge** through patents;
- Manage Universitat de Barcelona **Intellectual property**;
- **Valorize research through financing and promotion of research** by sourcing funding and promoting collaborative and translational projects;
- **Commercialize research results** through licensing agreements and the creation of spin-offs

1. UAM has two independent structures to perform transfer processes: The Office of Research Results Transfer (OTRI) and the Centro de Iniciativas Emprendedoras (CIADE)

OTRI is the institutional instrument to support researchers and companies related to the institution and it manages the research results protection.

1. **UAM Knowledge Management: scientific-technological and knowledge resource inventory (PRISMA).**
2. **UAM groups and capabilities promotion.**
3. **Cooperative research with companies and institutions.**
4. **Research Results Protection.**
5. **Other activities: shareholdings, technological surveillance reports, networks participation, specialized training.**

Legal and technical advice:

- Definition whether a research outcome is protectable or not
- Identification of the most appropriate way of protection
- Definition of commercialization process.

Development and management of UAM industrial property:

- Request of ownership title (which is hold by the UAM, who funds the costs of the application process, where the researchers are named as inventors)
- Promotion and fundraising, performing marketing tasks to obtain license agreements with either companies or institutions.

CIADE SERVICES
Feasibility analysis of the idea
Team configuration
Entrepreneurship team training
Business model definition
Support with the Business Plan definition
Fundraising
Intellectual Protection Support
Growth and consolidation phase support

1. The Technology Transfer Office of the Spanish Council for Scientific Research (VATC-CSIC) supports our researchers and entrepreneurs to turn their results into successful products and processes

VATC - CSIC focuses on technology licensing, consultancy, spin-off companies creation, and staff mobility between industry and Research Institutes.

Support to CSIC research groups with the establishment of contractual relationships with companies.
To facilitate these agreements with companies in legal terms, VATC has the following basic models:

- Technological Support Contract
- Research Project Contract
- Research Projects Contract conditioned by public funding
- License Agreements and Technical Assistance
- Management of the Protection of Intellectual Property Rights (patents, trademark and copyright) of research developed at CSIC.

VATC-CSIC has a decentralized structure.
It has five Departments:

1. **R&D and Licensing Agreements.**
2. External Funding
3. **Intellectual Property Rights**
4. **Technology Licensing and Commercialization**
5. Documentation, Databases and Coordination.

Identification of scientific results within the Institution that might be exploitable or transferred.
Advertisement of CSIC technological offer to companies that might be interested.
Identification of canary companies needs in order to give back results that might be of their interest.
Establishment of cooperation between our researchers and companies through technical assistance.

1. Stanford University: Inventions, Patents, and Licensing

Establishes policy and procedures for disclosure and assignment of ownership of potentially patentable inventions created in the course of work at Stanford or with more than incidental use of Stanford resources. Extends this requirement to faculty, staff, graduate students, and visitors involved in research.

PATENT POLICY

A. Board Policy

1. All potentially patentable inventions conceived or first reduced to practice in whole or in part by members of the faculty or staff (including student employees) of the University in the course of their University responsibilities or with more than incidental use of University resources, shall be disclosed on a timely basis to the University. Title to such inventions shall be assigned to the University, regardless of the source of funding, if any.
2. The University shall share royalties from inventions assigned to the University with the inventor.
3. The inventors, acting collectively where there is more than one, are free to place their inventions in the public domain if they believe that would be in the best interest of technology transfer and if doing so is not in violation of the terms of any agreements that supported or related to the work.
4. If the University cannot, or decides not to, proceed in a timely manner to patent and/or license an invention, it may reassign ownership to the inventors upon request to the extent possible under the terms of any agreements that supported or related to the work.
5. Waivers of the provisions of this policy may be granted by the President or the President's designate on a case-by-case basis, giving consideration among other things to University obligations to sponsors, whether the waiver would be in the best interest of technology transfer, whether the waiver would be in the best interest of the University and whether the waiver would result in a conflict of interest. In addition, the President may expand upon these provisions and shall adopt rules, based on the same factors as well as appropriateness to the University's relationship with inventors, for the ownership of potentially patentable inventions created or discovered with more than incidental use of University resources by students when not working as employees of the University, by visiting scholars and by others not in the University's employ.
6. This policy shall apply to all inventions conceived or first reduced to practice on or after September 1, 1994.

B. Additional Provisions

(promulgated by the University President, reference section 5 of the Board Policy, above)

1. In addition to faculty and staff (including student employees), the provisions of the University's patent policy will extend to: all graduate students and postdoctoral fellows non-employees who participate or intend to participate in research projects at Stanford (including visiting faculty, industrial personnel, fellows, etc.).
   The Board policy will apply as stated for graduate students and postdoctoral fellows. In the case of non-employees, all potentially patentable inventions conceived or first reduced to practice in whole or in part in the course of their participation in research projects at Stanford, or with more than incidental use of University resources, shall be disclosed on a timely basis to the University, and title shall be assigned to the University, unless a waiver has been approved.
2. The President's authority to grant waivers of provisions of this policy is delegated to the Vice Provost and Dean of Research.

ADMINISTRATIVE PROCEDURES

A. Office of Sponsored Research

Office of Sponsored Research (OSR) is responsible for reviewing terms and conditions of the University's grants and contracts for compliance with University policies on intellectual property rights and openness in research.

B. Office of Techonology Licensing

The mission of the Office of Technology Licensing (OTL) is to promote the transfer of Stanford technology for society's use and benefit while generating unrestricted income to support research and education. OTL is responsible for the administration of the University's invention reporting and licensing program, the commercial evaluation of inventions, patent filing decisions, petitions to agencies for greater rights in inventions, and negotiation of licensing agreements with industry.

D. Invention Disclosures

An invention disclosure is a document which provides information about inventor(s), what was invented, circumstances leading to the invention, and facts concerning subsequent activities. It provides the basis for a determination of patentability and the technical information for drafting a patent application. An invention disclosure is also used to report technology that may not be patented but is protected by other means such as copyrights.

Inventors must prepare and submit on a timely basis an invention disclosure for each potentially patentable invention conceived or first actually reduced to practice in whole or in part in the course of their University responsibilities or with more than incidental use of University resources.

A disclosure form describing the invention and including other related facts should be prepared by the inventor and forwarded to OTL, or to the SLAC Inventions Administrator, as appropriate. Forms may be requested from these offices.

The following practical considerations relate to invention disclosures:

1. Individuals covered by this policy are expected to apply reasonable judgment as to whether an invention has potential for commercial marketing. If such commercial potential exists, the invention should be considered "potentially patentable," and disclosed to Stanford.

2. Individuals may not use University resources, including facilities, personnel, equipment, or confidential information, except in a purely incidental way, for any non-University purposes, including outside consulting activities or other activities in pursuit of personal gain.

"More than incidental use of University resources" would include:

- The use of specialized, research-related facilities, equipment or supplies, provided by Stanford for academic purposes
- Significant use of "on-the-job" time

The occasional and infrequent use of the following would typically not constitute "more than incidental use of University resources":

- Routinely available, office-type equipment, including desktop computers and commercially-available software
- Reference materials or other resources collected on the Stanford campus, and which are generally available in non- Stanford locations.

E. Alternative Disposition of Rights

The inventor, or inventors acting collectively when there are more than one, is free to place inventions in the public domain if that would be in the best interest of technology transfer and if doing so is not in violation of the terms of any agreements that supported or governed the work. The University will not assert intellectual property rights when inventors have placed their inventions in the public domain.

If OTL cannot, or decides not to, proceed in a timely manner to patent and/or license an invention, OTL may reassign ownership to the inventor or inventors upon request to the extent possible under the terms of any agreements that supported or related to the work. In the case of an invention resulting from a government-sponsored project, where OTL cannot or chooses not to retain ownership, rights would then typically be retained by the government. In such cases, the inventor may request and be granted rights by the sponsoring agency to an invention made under such an award, provided that a well-conceived and detailed plan for commercial development accompanies the request.

LICENSING

The University encourages the development by industry for public use and benefit of inventions and technology resulting from University research. It recognizes that protection of proprietary rights in the form of a patent or copyright are often necessary - particularly with inventions derived from basic research - to encourage a company to risk the investment of its personnel and financial resources to develop the invention. In some cases an exclusive license may be necessary to provide an incentive for a company to undertake commercial development and production. Nonexclusive licenses allow several companies to exploit an invention.

The research and teaching missions of the University always take precedence over patent considerations. While the University recognizes the benefits of patent development, it is most important that the direction of University research not be established or unduly influenced by patent considerations or personal financial interests.

OTL handles the evaluation, marketing, negotiations and licensing of University-owned inventions with commercial potential. Royalty distribution is as follows:

1. Cash Royalities
A deduction of 15% to cover the administrative overhead of OTL is taken from gross royalty income, followed by a deduction for any directly assignable expenses, typically patent filing fees. After deductions, royalty income is divided one third to the inventor, one third to the inventor's department (as designated by the inventor), and one third to the inventor's school. In the case of Independent Laboratories and Independent Research Centers or Institutes, which report directly to the Vice Provost and Dean of Research (who is the cognizant Dean for these research units), the inventor may assign to his or her Independent Laboratory, Center or Institute the department's third of the royalty income or a part thereof, based on support of the work. In these cases, the School's portion goes to the Dean of Research. Similarly, when more than one department is involved, the inventor shall designate the distribution of the department and school thirds based on support of the work. Disagreements involving royalty distribution will be reviewed and resolved by OTL; involved parties may appeal the OTL resolution to the Dean of Research.

2. Equity
Stanford may at times accept equity as part of the license issue fee. Net equity, i.e., the value of the equity after the deduction of 15% to cover OTL administrative costs, will be shared between the Inventor(s) and the University, with the University share going to the OTL Research and Fellowship Fund. The University's share of equity will be managed by the Stanford Management Company, and the OTL Research and Fellowship Fund is administered by the Vice Provost and Dean of Research. (All other cash payments, including royalties based on sales, will be distributed in accordance with the provisions of (1) above.)

2. MRC Technology is a technology transfer organisation specialising in the life sciences. They add commercial value to scientic research

They offer intellectual property management and commercialization services combined with early stage drug discovery and antibody engineering facilities.	*licensing and partnering research*
They manage intellectual property on behalf of the UK Medical Research Council (MRC), and offer their services to other universities and charities to help them both gain a return on their research investment and benefit human health.	*small molecule drug discovery*
They have already generated over half a billion GBP pounds in revenue for the MRC and licensed intellectual property to many of the world's leading pharmaceutical companies, including AstraZeneca, GlaxoSmithKline, Pfizer, Roche and Novartis.	*antibody humanization*

2. MRC Technology offers access to the very best in academic research

MRC Technology adds value to cutting edge scientific discoveries through **strategic patent protection and creative licensing of intellectual property (IP) or through partnered research with MRC units and institutes** (with an annual research budget of around US$ 530m/GBP£355).

MRC Technology is a not-for-profit organisation that specialises in helping companies, universities and charities carry out drug discovery work and to protect and commercialise their intellectual assets. Originally set up to act as the technology transfer agent for the Medical Research Council (MRC), we now offer this to other organisations alongside a host of additional services, including:

- Intellectual property management, commercialisation and licensing
- Life science technology identication and development
- Therapeutics discovery

2. MRC Technology finds, protects, funds and develops the very best in university and medical charity research

Identifying & evaluationg research	Protecting assets with potential	Investing in promising projects	Creating commercial partnerships
Our expert teams examine research portfolios and look for projects with potential for further development. We also offer services to ensure that future research funding is geared towards success.	With over 13 years of pecialised IP management expertise, our partners can trust us to protect their promising healthcare research. Importantly we also offer expert advice on further potential development routes and access to funding.	We make our specialist drug discovery, diagnostics and medical device centers available to both our research and industry partners. We invest our own resources in projects with real potential and have built an excellent track record in developing drug targets.	We develop projects to a stage where they have strong commercial potential, and then work with our industry partners to continue their development to market. Revenue streams are ultimately used to fund further research.

KEY SERVICES FOR RESEARCH ORGANISATIONS

Grant terms approval service

We ensure charities' research grants T&Cs have the best chance of supporting development of novel treatments.

Scientific scouting

We evaluate the commercial and healthcare potential of your historic and current projects.

Investing in projects with potential We can suggest development routes for early stage research and opportunities for pre-seed funding.

Small molecule & antibody development

Our aim is to turn validated drug targets into viable drug candidates.

Life science technology transfer

Some partners use us to outsource their entire tech transfer operation, from intellectual property management through to commercialisation, whilst others use us to help run specific projects for their TTOs. Discoveries are appropriately protected to ensure return on investment if commercialised.

2. How MRC Technology licenses technology

COMMERCIALISING IP

Their business development team identify commercial potential and seek to protect the work for the best possible outcome of the research.

LICENSING DEALS

Licenses can be offered exclusively or non-exclusively. Typically, the financial terms of a licences from the MRC could include an up-front payment, milestones or annual payments, and royalties on products. However there are many structures and variations, e.g. taking equity in a start-up company. They have a flexible and creative approach to deal making.

LICENSING AREAS

They have opportunities in many therapeutic and commercial areas, including, Biotechnology, Devices, Diagnostics, Pharmaceutical and Reagents

2. How MRC Technology licenses technology

We aim to de-risk novel targets via proof of concept studies, demonstrating that they are druggable with strong evidence for disease association.

VALIDATED HTS FORMAT ASSAYS

Wide range of targets including unique or first in class.

GOOD QUALITY PROGRESSABLE HITS

Derived from a high quality compound library SAR development versus the target
Selectivity profiling of series

PROPRIETARY TEMPLATES DERIVED FROM

In silico screening
Pharmacophore mapping
Template hopping
De novo design

DRUG-LIKE LEAD COMPOUNDS

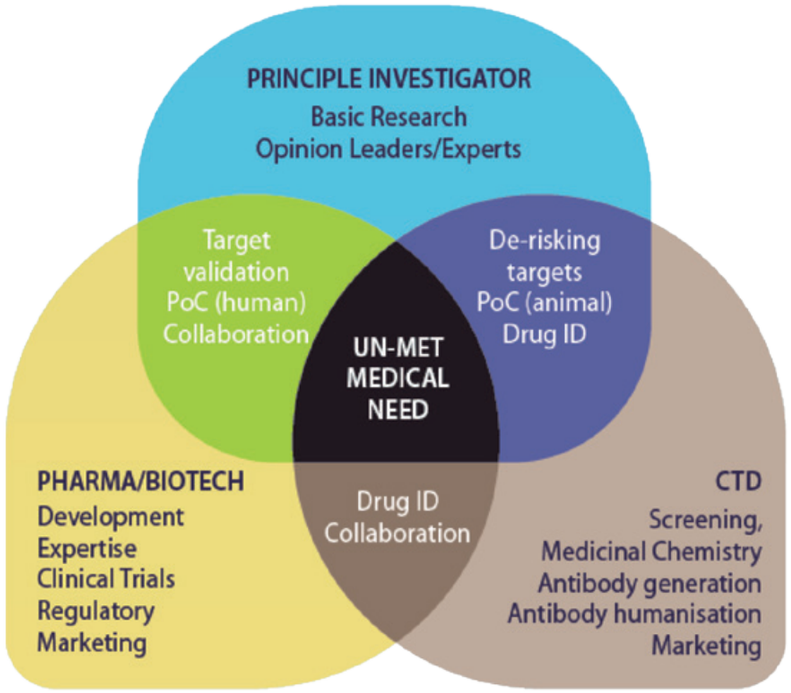
Good potency and selectivity
Favourable ADMET profiles
IP position

POC IN CELLS AND/OR ANIMALS TO LINK TARGET TO DISEASE

2. MRC Technology bridges the gap between research and commercial product development ensuring breakthrough research gets to market

MRC Technology helps bridge the 'valley of death' between basic research and industry, ensuring that our academic and medical charity partners generate a return on their esearch investment and providing our industry partners with a pipeline of commercially viable projects.

MRC TECHNOLOGY DRUG DISCOVERY PROCESS



Bridging the gap between basic research and pre-clinical development, we develop innovative assays and pharma quality medicinal chemistry programmes from high quality hits. We collaborate with scientists and clinicians from the MRC and other academic organisations, many of whom are world leaders in their fields.

2. Ascenion is an IP asset management company focused on the life sciences. It works closely with public research institutions to ensure that promising scientific findings are identified, secured and brought to market to the benefit of society

Range of Services
Ascenion supports our partner institutes in all aspects of technology transfer:

- identify and assess commercially attractive research results
- steer and support patenting processes
- develop commercialization strategies
- steer projects towards marketplace
- initiate and negotiate agreements with industry
- coach start-ups
- manage company equity
- monitor contract compliance
- manage patent portfolios
- educate scientists about patenting and commercialization
- foster dialogue between researchers, businesses and public agencies
- shape the development of technology transfer.

Ascenion is exclusive technology transfer partner to numerous research institutes of the Helmholtz and Leibniz Associations, the Hannover Medical School and associated organizations for translational research.

2. Ascenion handles some 10 business ideas on average per year, about half of which usually culminate in a start-up

ASCENION BUSINESS MODEL

Ascenion creates value through Spin-offs

Ascenion receives a share of equity in return for the coaching and consulting services it provides during the foundation process, instead of being received by the research institution.
Commonly, the originating research institution has no interest in taking shares, for many reasons: Being a shareholder may come into conflict with its non-profit status, it may raise undue liability risks and, last but not least, the institution mostly lacks the expertise and time required for professional equity management.

Range of the share that Ascenion usually takes in spin-offs:

It depends very much on the spin-off's business model and the scope of services it provides, but there are some general rules:

- **Stock of less than 5% is generally not attractive – and more than 25% is also difficult**, as it normally takes the role of a minority shareholder.
- **Smaller shares, with dilution protection, usually apply for fast-growing, venture-capital** financed businesses that offer attractive exit scenarios within about 5 years.
- **Stakes at the upper end of the range are more appropriate for service businesses that grow slowly** from within and hardly use external capital.

All in all, our negotiations are driven by the **goal of ensuring a fair return for public research**, should one of its spin-offs become commercially successful.

Ascenion usually negotiates a licensing agreement on be half of the institution for the IP its spin-off requires

Resulting fees go directly to the institution

In addition, the institution will benefit significantly from the proceeds that we generate from the sale of our equity stake at a later date.

Ascenion forwards the money to the Life-Science Foundation for the Promotion of Science and Research

The Life-Science Foundation then distributes it in the form of grants to appropriate public research projects

3. Best practice: Biodesign Innovation Fellowship, Stanford University

The Biodesign program offers a one- or two-year fellowship in Biodesign Innovation.

PROBLEM-BASED, SOLUTION-DRIVEN
Teams invent new technologies that address major clinical and surgical needs

All of the fellows complete a **10-month program**, stipend supported

Multidisciplinary teams of four graduate and/or postgraduate engineers, business professionals, bioscientists and physicians collaborate **in a process involving**:

- **clinical immersion**
- **identification and verification of clinical problems**
- **invention**
- **Prototyping**
- **early-stage testing**
- **project planning**

Each year, the Biodesign Program has two **U.S.- based fellowship teams of four fellows working within a specific clinical area.**

Applicants with a background in engineering, medicine, biosciences or relevant business / technology are encouraged to apply. Masters, Medical or Doctorate degrees are preferred.

In addition to Stanford clinical and engineering faculty, the teams are **mentored by over 100 "real world" experts in design, prototyping, regulatory, reimbursement, finance and other aspects of technology implementation**.

Focus areas in the past have included:

- Cardiovascular Medicine
- Neurosurgery/ Neurology
- Electrophysiology
- Musculoskeletal
- Regenerative Medicine
- Anesthesia/Critical Care
- Gastroenterology and General Surgery

Desirable fellow characteristics include:

- demonstrated leadership potential
- evidence of innovation within medical technology
- knowledge of medicine and public health
- engineering and business
- the ability to work in a team.

3. Best practice: Biodesign Innovation Fellowship, Stanford University

Biodesign is committed to producing tomorrow's leaders in the medical technology industry.

Biodesign graduates are trained to:
- **build and manage multi-disciplinary teams,**
- **identify and assess medical needs,**
- **brainstorm, invent, innovate and evaluate concepts,**
- **communicate the merits of these concepts to a wide audience**
- **work with others to bring products to market**

And all this is possible thanks to the Sponsors…
- Corporate Sponsors
- Foundation Sponsors
- Community Partners
- Venture Partners
- Individual Support

After its success, the fellowship program has been expanded internationally.

Stanford-India Biodesign Fellowship Program is centered in New Delhi and administered as a collaboration between Stanford University, the Indian Institute of Technology Delhi, and the All India Institute of Medical Sciences (AIIMS) in partnership with the Indo-US Science & Technology Forum(IUSSTF).

Singapore-Stanford Biodesign Fellowship Program is centered in the Biopolis in Singapore and is administered as a collaboration between Stanford University, the Singapore Economic Development Board (EDB), the Agency for Science, Technology and Research (A*STAR).

3. Best practice: FutureMed, Singularity University

FutureMed is an intimate executive program for clinicians, innovators, investors and others who want to understand where rapidly developing technologies can take health and medicine

WHY?
To explore and drive the future of medicine through exponential, game changing technologies.

HOW?
Through a series of faculty speakers, panels, hands on experiences, demos and site visits and in-depth, late night discussions, participants will complete this 3 and half day program.

FOR WHOM?
Physicians, innovators, inventors, investors and senior healthcare executives.

WHAT?
A 3 and a half day program focused on the following

CORE TRACKS:
- Data & Web Enabled Healthcare
- Genomics & Personalized Medicine
- Regenerative Medicine
- Neuromedicine
- Medical Intervention & Surgical Robotics
- Biotech Innovation & Entrepreneurship
- Medical Practice

3. Best practice: FutureMed, Singularity University

This program will be hold by the Singularity University, which is an interdisciplinary university whose mission is to assemble, educate and inspire leaders who strive to understand and facilitate the development of exponentially advancing technologies in order to address humanity's grand challenges.

An intensive 3 and half day program with **new relationships, business concepts, insights, and opportunities for collaborations that can transform the attendees' practice or company**.

FutureMed brings together leading thinkers and practitioners who will describe:
- What is in the lab and early clinical trials today
- What is likely coming to market in the next 2 to 10 years.

i.e. FutureMed focuses on breakthrough development ranging from 3D printing to organ regeneration, from point-of-care lab-on-a-chip diagnostics to large-scale bioinformatics; from synthetic biology to new gene based therapies. All of these and more are discussed in the context of the current explosions of digital information and distributed healthcare.

3. Best practice: MOEBIO – d · Health Barcelona - BIOCAT

A Higher Education Program inspired in the prestigious Stanford University's Biodesign Fellowship.

MOEBIO is a disruptive talent development initiative of Biocat where life sciences, health, business and technology meet in a new level to accelerate entrepreneurship in healthcare. It is an integral, new educational program focused on solving society's great problems and challenges by creating the future generation of innovators in healthcare. Through a unique combination of lectures and real experiences, it gives to talented professionals both **the knowledge and the skills to boost the transition from ideas to products.**

WHY?
To empower leaders who can transform society and make a better future.

HOW?
Training a new generation of entrepreneurs to solve widespread global needs in the healthcare system.

FOR WHOM?
Graduates and PhDs in Health, Bio, Tech, Business and Design.

WHAT?
A 8 months full time Design Health course and short focused programs

3. Best practice: MOEBIO - BIOCAT

It takes the initiative to **solve real, global, major challenges in the healthcare and medical technologies** industries starting up **new, innovative business models, products and services**. It guides participants beyond their boundaries. It teaches them to think outside the box to identify new opportunities and develop the advancing technologies that will set the future of medical practice and will positively impact people' lives.

MOEBIO acts as a catalyst for new business models and it fosters the creation of new companies and of innovative technologies and services in the healthcare sector.

The selection of 12 graduate students who will attend to the Barcelona Design Health Program (d · Health) will get real experience at Institut Guttmann, Hospital Sant Joan de Deu and the Hospital Clínic of Barcelona

4. Best practice: CRIT flow - easycrit

easycrit develops software platforms to help companies boost their innovation process.

easycrit helps the users to boost new ideas in any Department or Business Unit. It is the best way to focus the attention and creativity of the staff of an organization, to capture their ideas and translate these into tangible projects and initiatives.

Keen to innovate
Make people keen to innovate, mindful of innovation potential, sensitized to the innovation strengths

Pays off!
Achieve credibility innovation. Achieve quickwins. Benefit from the knowledge that the staff has. If those responsible fo innovation change, everything will continue in the hands of the company

Replicable Results
Brings Systematization. Ensures the quality of results

DANONE, ZURICH, ROCHE, HESPERIA HOTELS, AUSA, METALQUIMIA are some of easycrit's customers.

From collecting ideas from everywhere to analyzing, voting and selecting new projects.

KEY FEATURES

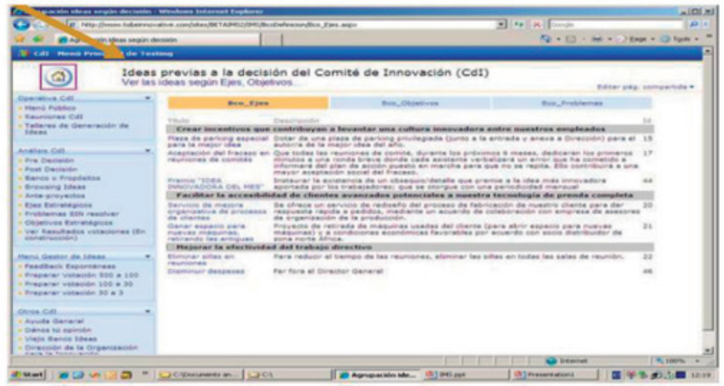
- **Participants** (employees) find it very easy to use.
  They **only have 3 simple buttons** on their home page.
- **Collaborative**. Inviting people of a team or department, will join forces with colleagues to address the challenges, provide comments, enhance and vote on ideas.
- It can be used from **everywhere**. From the office, form home, while traveling, always accessible. All you need is access to Internet.
- **Encourages** extensive contributor participation. For example, comments can be entered as done in Facebook.
- **Scalable and affordable**. easycrit uses one of the biggest datacentres network in the world: Microsoft Windows Azure. And everything in an affordable price, starting just at 100 € per month.

Easycrit helps to increase the efficiency through all the steps of the innovation process

STRATEGIC APPROACH
Easycrit allows to guide the generation of ideas that respond to the aspirations of management, reflected in:

Objectives. Strategic lines. Plans and guidelines.

That result from applying the innovation and IPR plan,in a discretional way.



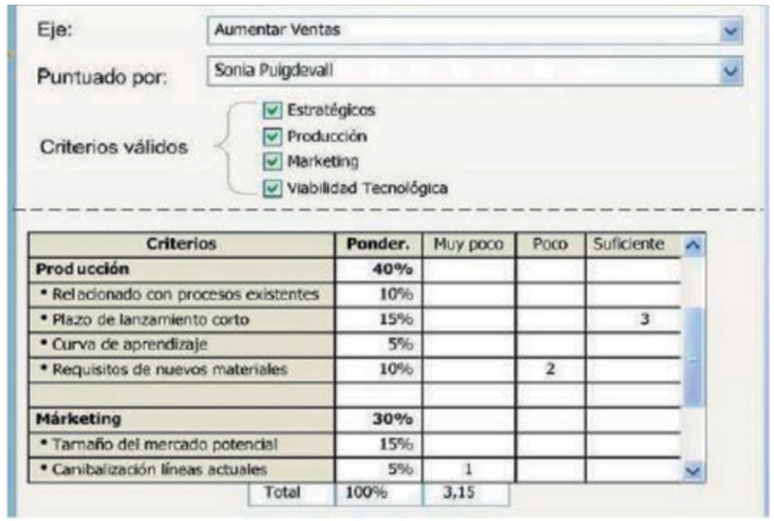
IDEAS GENERATION

The spontaneous ideas from employees are extremely easy to be captured by the system, and it exists even a specific screen to capture ideas generated in creativity workshops.:

- Title
- Description
- Steps
- Factors against
- Objectives aimed by the idea

PROJECTS SELECTIVITY

The ideas valuation and selectivity is essential in any innovation system. Easycrit can be customized reaching all needs that any company or institution requires.



Criterios	Ponder.	Muy poco	Poco	Suficiente
Producción	**40%**			
• Relacionado con procesos existentes	10%			
• Plazo de lanzamiento corto	15%			3
• Curva de aprendizaje	5%			
• Requisitos de nuevos materiales	10%		2	
Márketing	**30%**			
• Tamaño del mercado potencial	15%			
• Canibalización líneas actuales	5%	1		
Total	100%	3,15		

ACTORS IN THE INNOVATION SYSTEM

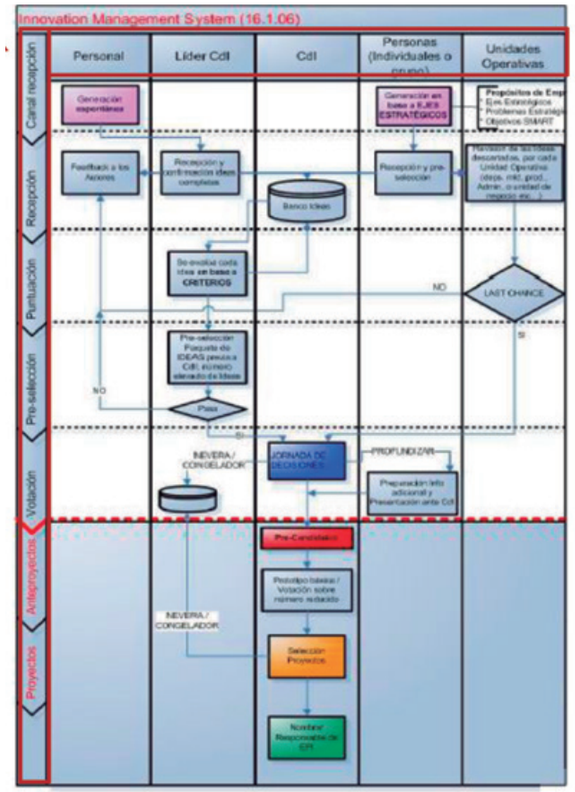
It is a systematic process with broad participation of various individuals and units with responsibilities within the innovation process.

Phases of the innovation process that can derive from two origins:

1. Spontaneous generation of ideas (but guided)
2. Planned generation (creativity workshops)

An accessible database is easily created to members of the innovation committee.

The innovation committee coordinator can provide feedback to authors of ideas confirming that they are well explained and have complete information to advance the process.



FROM COLLECTING IDEAS FROM EVERYWHERE TO ANALYZING, VOTING AND SELECTING NEW PROJECTS.

Based on management methods, developed at the IESE Business School and co-created with highly innovative companies

3 role players:

Participants	Participants (employees) in easycrit can contribute with new ideas, collaborate on ideas of others, give their opinion (I like, I don't like), they can follow their own ideas.
The Innovation Council	The Innovation Council or the Improvement Council can vote, thanks to a fast and easy way, the best ideas. They also can monitor progress of the studies and projects that easycrit holds.
Idea Manager	Idea Managers have full control of the overall process. Can configure new challenges, prepare a new idea voting for the Council (in just a minute!) and report the benefits of the innovations and improvements

4. Best practice: Clincubator – Software for Intellectual Property managing and New Technologies evaluation

This software is built on open source technologies, this makes it expandable in functionality and allows it to be customized for other environments.
Clincubator is an application used to manage R & D in the health sector.

Clincubator software is structured in two main parts:
- **ideas**
- **technologies**

Each of these parts has a different business logic and data persistence.

3 role players:

Administrator
Manager
User →

Users can belong to several institutions with different percentages of allocation to each institution. The ideas may be associated with these institutions so that the application has to take into account all these distribution percentages when calculating the allocation of users to ideas.

A technology/idea has a high amount of data, this is why it includes an orderly way of entering all the data based on a defined work-flow based on screens:

IDEAS
- **screening**
- **result**
- **team**
- **management**
- **Evaluation**
- **documents***
- **accounting**

*The documents of the ideas have their own workflow. Moreover, expense or income reports can be attached to them.

TECHNOLOGY
- **screening**
  - **external user**
  - **internal user**
- **result**
- **team**
- **management**
- **evaluation**
- **documents**
- **meetings**
- **economic impact**
  - **analysis**
  - **contract**

Clincubator software offers a number of features that differentiates it from its competitors, being mainly:

Main features:

- The application has a scheduling system (crontab) which alerts by email of different stages.
- The implementation of the application supports the customization of fields and workflows.
- Accounting reports are implemented (with export to Excel) and graphics that help the organization staff to assess each of the projects.
- Automatic calculation of patent holders based on the percentage of each inventor invention and its percentage of belonging to different employers.
- Health technology assessment module where, through a structured methodology can analyze and prioritize the introduction of new health technologies to a hospital.
- Screening questionnaire designed specifically for healthcare innovations.
- Prioritizing new health innovations module for transfer and incorporation of new technologies in a hospital environment.

CHAPTER III
Innovation and IPR management plan

Contents

CHAPTER III
Innovation and IPR management plan

Contents

1 Introduction

The present document is Phase 3: "Strategic Innovation and IPR Management Plan"

Additionally, the document includes a SWOT analysis with CIBICAN members' and the External Advisory Board's inputs.

2 SWOT Analysis

Based on the results so far, the following SWOT analysis was done

STRENGTHS

- **Qualified research and scientific staff.**
- Good quality of **core facilities.**
- **EU funding for IMBRAIN.**
- **Small distances,** close to patients and hospitals.
- **Synergies** with other scientific disciplines (in Tenerife or Gran Canaria).
- **Hospital capacities, good record in clinical trials.**
- **Biobanks** in the hospital**, rare and metabolic diseases.**
- **Quality assessment** prior to screening.
- **Brain bank.**
- Access to an ample biodiversity in **collaboration with Latin America countries.**
- **Cabildo – local political partnership.**
- Proximity to the **IAC and other singular facilities as supercomputing.**

WEAKNESSES

- **Lack of structure and legal status.**
- Lack of **recognize reputation and brand.**
- Lack of **long term commitment of institutions.**
- Lack of **training and leadership.**
- Strategies for long term financing. **Lack of funding & additional budgetary pressures.**
- **Geographic isolation.** No direct flight from USA**.**
- Lack of spread **knowledge of English.**
- Lack of **sabbatical structure or exchange of staff.**
- Lack of **meaningful international collaborations and industrial partnerships.**
- **Awareness of innovation issues / Understanding of innovation processes.**
- Unfamiliarity with **drug development.**
- Lack of **IP process and lack of BD process.**
- Lack of **innovate culture.**
- **Lack of research management programs or careers.**
- **Fragmented research groups.**
- **Small size of** research groups.
- **Irrational criteria for funding at regional level.**
- **Lack of life sciences industry** and investors in the region.

OPPORTUNITIES

- High number of **transplant**.
- Opportunities for **specialized clinical** trials (isolated genetic population, good clinical capacity).
- **Drug library potential.**
- Neglected **rare diseases**.
- **Strong collaborating** groups in medicinal chemistry, clinical/translational medicine, basic biomedicine.
- Possible collaboration with **IPNA/CSIC in chemical medicine**.
- Collaboration **on e-health and telemedicine**.
- **Optical instrumentation, imaging and cryogenic** (e.g. in collaboration with IAC).
- Floating **foreign population** (research but also private point).
- **Ageing population**.
- Broader collaborations. **Africa and/or Latin America** w/added value (e.g. biodiversity).
- Unique European status as outermost region.
- Unique **funding opportunities for facilitating research**.
- **Funding via emerging economie**s.

THREATS:

- Potential **lack of collaborative support from labs**.
- Finance – **lack of long term finance**, no support for continuation after Project.
- Red tape, **excessive regulation and bureaucratization**.
- Potential **failure to establish legal status or structure**.
- CIBICAN **unable to develop its own model**
- **independent of the public administration**, and ends up using same structure and rules of the university/ public system.
- Management & decision **making power/structures not defined secured**.
- **Unrealistic expectations** at different levels.
- Potential lack of differentiation on research lines/capacities.
- **Lack of input from PIs regarding scientific/research lines/capacity review.**
- Lack of capabilities to realize potential for differentiation.
- **Intra-regional rivalry** (GC vs TF).
- **Insular mentality** and unwillingness to go abroad.

3 Mission, vision and values of CIBICAN

The MISSION, VISION and VALUES of CIBICAN in terms of innovation have been defined, aligned to the SWOT analysis conclusions and taking into account the external interviewee's opinions from the benchmarking done

PROPOSED METHODOLOGY

CIBICAN Present Situation: SWOT ANALYSIS

BENCHMARKING

→ **MISSION, VISION AND VALUES**

What will be CIBICAN's mandate of in terms of innovation?

CIBICAN's mandate in terms of innovation will be to carry out an effective transfer of research and development results

CIBICAN AIMS

The scientific coordination of centers and institutions that are integrated in it.

Interdisciplinary and multidisciplinary research promotion in biomedicine, with a translational approach.

Biomedical Innovation promotion and possible transfer to the productive sector, opening the door to new perspectives for innovation and diversifying the economy of the Canary Islands.

Collaboration with institutions and companies interested in the development of biotechnology applications.

Centers and institutions members of CIBICAN promotion as an opened and competitive bioscience pole, encouraging and coordinating technology transfer resources. That would facilitate trade relations with related industries and foster and promote the generation of new business initiatives.

CIBICAN coordination and relationship with other structures and similar scientific and technological initiatives.

Lines of grants and subsidies establishment to individuals and to legal entities related to specific programs of scientific and technologicalndevelopment.

Development of specialized training courses.

CIBICAN INNOVATION MANDATE

Identification, protection, development and commercialization of discoveries and inventions that are made in CIBICAN research groups, ensuring that inventions finally benefit the society.

Management of public-private relationship concerning patents, spin-offs, licensing, fundraising, public and private development of innovation projects in its field.

Strengthen partnerships with other canary agents in the innovation field:

- IPNA and IAC.

Develop culture of innovation in CIBICAN's R&D field.

R & D (in CIBICAN's field) attraction and channeling internationally: South America and Africa

Repeated interactions between researchers and industry promotion in the short term, in order to foster opportunities within the European Funding

Be sustainable in the long term focusing in wider deals, which returns are going to be eventually better.

The following MISSION, VISION and VALUES were defined for CIBICAN:

MISSION

To build innovation culture and to advance the biomedical research that provides benefits to society, patients and industry capturing the value of it.

VISION

To build a powerful R&D&I model concentrated in certain topics involved in "exploitation" of results with international impact

VALUES

Independence

Internationalization

Cooperation/collaboration

Visibility

Efficiency and sustainability

Economic impact

Return to society

Integration of local assets: biodiversity, biomedical research and health tourism

4 Innovation and IPR Management Plan

CIBICAN Innovation Strategic Plan will be based on 5 strategic axes and 1 cross-pillar

PILLAR: INTERNATIONALIZATION

AS IS situation

SWOT analysis

AXIS 1: Governance
Its aim is to provide a legal structure and a framework for relations with its members to CIBICAN that enables it to carry out its mission in the innovation field.

AXIS 2: Structure and processes in innovation
Its aim is to define CIBICAN's organizational structure, functions and main processes that take place in the innovation field.

AXIS 3: Specialization and Concentration
Its aim is to identify areas with the greatest potential for innovation within CIBICAN innovation.

AXIS 4: Communication and dissemination
Its aim is to promote international CIBICAN's visibility and enhance a collaboration network.

AXIS 5: Human resources and talent
Its aim is to generate sufficient knowhow in CIBICAN that enables CIBICAN to develop effective innovation.

TO BE situation

Mission, vision and values definition

For each of the strategic objectives various plans of action are proposed that act on those areas where a need of improvement has been identified

Within each action plan the following parameters will be defined: the person responsible of each plan, what are the objectives, the scope of the action, the actions to take, the participants involved and monitoring indicators. Moreover, for the proper implementation of the proposed plans a series of recommendations are done.

- **STRATEGIC AXES, STRATEGIC PILLAR AND OBJECTIVES**
- **ACTION PLANS**
- **RECOMMENDATIONS**

The innovation strategic plan has been defined by 10 action plans

PILLAR: Internationalization (10th PLAN)

AXIS 1: Governance	1st PLAN: CONSOLIDATION AND AUTONOMOUS LEGAL STRUCTURE
AXIS 2: Structure and processes	2nd PLAN: DEFINITION OF THE INNOVATION ORGANIZATIONAL STRUCTURE 3rd PLAN: DEFINITON OF INNOVATION PROCESSES
AXIS 3: Specialization & Concentration	4th PLAN: INNOVATION NICHE IDENTIFICATION 5th PLAN: SYNERGIES DEVELOPMENT AND COLLABORATIONS 6th PLAN: AN INNOVATION OBSERVATORY DEPLOYMENT
AXIS 4: Communication and dissemination	7th PLAN: MARKETING AND COMMUNICATION
AXIS 5: Human resources and talent	8th PLAN: TRAINING OF THE MANAGEMENT STAFF 9th PLAN: EDUCATION OF INNOVATION TO CIBICAN'S RESEARCH STAFF

In each action plan, organized by strategic axes, the main goal is identified as well as the main activities to accomplish

AXIS 1: GOVERNANCE

1st PLAN: CONSOLIDATION AND AUTONOMOUS LEGAL STRUCTURE

Objective:
Its aim is to provide a legal structure and a framework for relations with its members to CIBICAN that enables it to carry out itsmission in the innovation field.

Main activities:

Signing of the CIBICAN creation agreement dated on May 2013.

Meeting of the Commission established on the creation of CIBICAN agreement for the provision of legal and organizational structure of CIBICAN.

Draft letter from the SC to CIBICAN and the ULL, Cabildo and Gobierno de Canarias and two Ministries, specifying need for legal **status.** Recommendations of some key criteria regarding structure, autonomy, and decision-making.

Elaboration and **signing of a characterization agreement**:

R Assignment of CIBICAN mandate regarding the entities that comprises: SCS , University of La Laguna, CSIC, etc.

R Defining the legal and organizational structure of CIBICAN .

Appointment and Meeting of the direction and advisor bodies of CIBICAN.

Formal presentation of CIBICAN.

CIBICAN's participation promotion in the IIS' structures established in the Canary Islands.

Identification of the entities with which is necessary to **maintain institutional contact**: Cabildo , ASIIS , MSSSI , MINECO, etc.

- In this context, for the Canary Islands Government is important to participate in the **"Research and Innovation Strategies for Smart Specialization. Cohesion Policy 2014-2020"**, through which it is intended that Member States and EU regions identify specializations of knowledge that best meet their innovation potential , based on its assets and capabilities.

Establishment of **partnerships/agreements with them** to CIBICAN institutional recognition .

Additionally, in order to make the Strategic Plan deployment easier and easier to monitor it, main related actions and indicators were defined

AXIS 1: GOVERNANCE	1st PLAN: CONSOLIDATION AND AUTONOMOUS LEGALSTRUCTURE		
ACTIONS	**INDICATORS**	**TERM**	**SIGNIFICANCE**
To sign the agreement creating CIBICAN	Signature of the present agreement	SHORT	HIGH
To define the legal and organizational structure	Minutes of the Committee for the definition of the structures	SHORT	HIGH
To sign the agreement of CIBICAN's characterization	Signature of the bylaws / CIBICAN agreement	SHORT	HIGH
Appointment and Meeting of the direction and advisor bodies of CIBICAN.	Number of appointments made.	SHORT	HIGH
To formally introduce the center	Number of assistants to the meetings	SHORT	MEDIUM
To establish institutional relationships with other entities	Number of partnerships / agreements established	SHORT	MEDIUM

Term:
Short: in 1 year time
Medium: in 2-3 years time
Long: in 4-5 years time

Importance:
High, medium, low

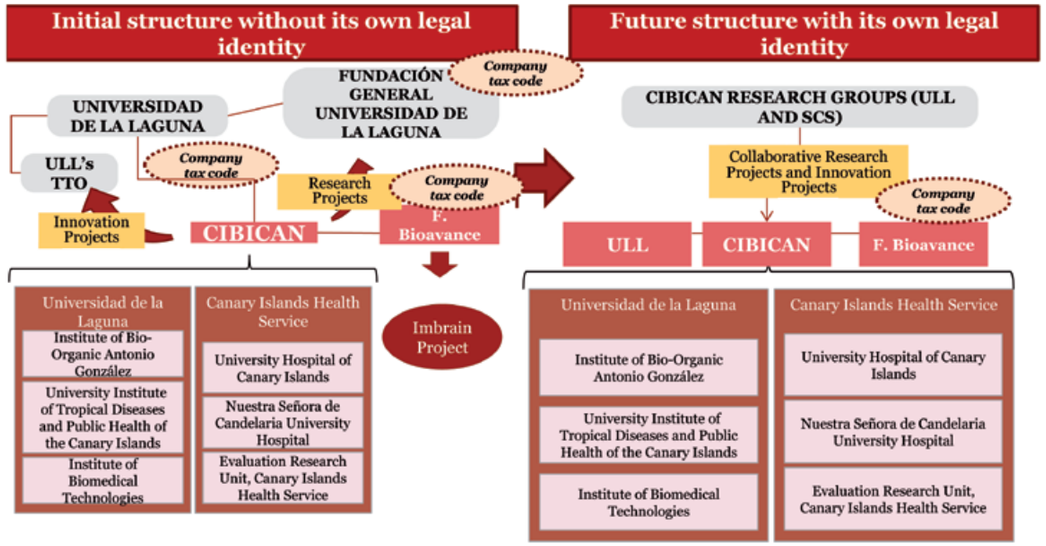
In each action plan, organized by strategic axes, the main goal is identified as well as the main activities to accomplish

RECOMMENDATIONS: CONSOLIDATION AND AUTONOMOUS LEGAL STRUCTURE

CIBICAN must have a legal structure that ensures independence and offers flexibility in managing intellectual property.

It is proposed that CIBICAN will be the management body for innovation and intellectual property of the research groups.

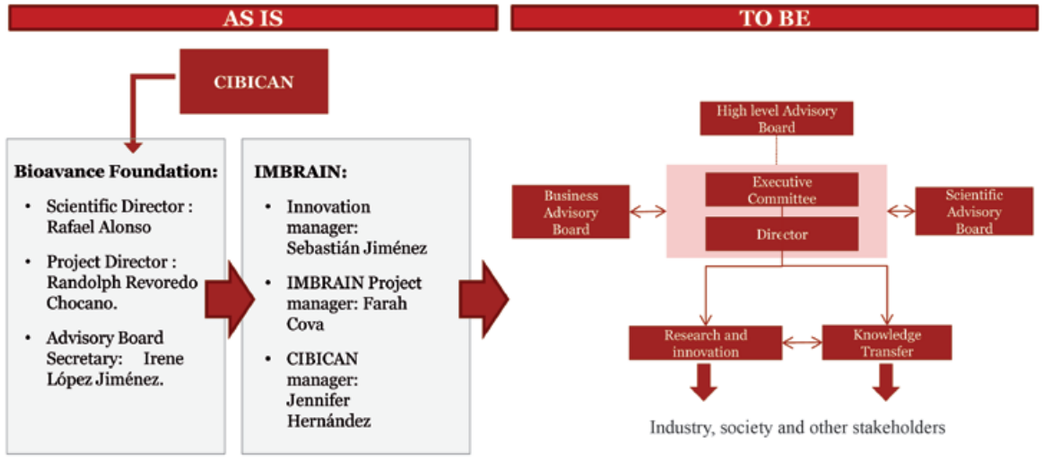
LEGAL STRUCTURE OF CIBICAN



It is recommended that CIBICAN has an **organizational structure according to the legal identity defined, with the following bodies**:

- **High level Advisory Board**: To advise and support the mission of CIBICAN.
- **Executive Committee: Composed by the Institutions (CIBICAN, ULL Institutes and Hospitals)**. Oversight and major strategic decisions.
- **Director**: Executive management to achieve the mission and make recommendations of strategic decisions.
- **External Advisory boards**: Business and Scientific Boards, advise the Director and Executive Committee to achieve the goals.
- **Operational team**.

STRUCTURE OF CIBICAN



AXIS 2: ORGANIZATION AND PROCESSES

2nd PLAN: DEFINITION OF THE INNOVATION ORGANIZATIONAL STRUCTURE

Objective:
Its aim is to define the organization of CIBICAN in the field of innovation capabilities, roles and functions.

Main activities:
Development of an international benchmarking in order to identify best practices in innovation management.

- Identification of the centers selected as best practices
- Development of a questionnaire
- Interviews to CEO's or another person responsible of the center

Organizational structure analysis of selected centers.

Identification of best practices applicable to CIBICAN.

Identification of **skills that a TTO as CIBICAN must have**.

R Definition of the **required roles and those services likely to be outsourced and definition of the organization structure of the innovation area**.

Functions definition and mapping.

Profiles recruitment.

Additionally, in order to make the Strategic Plan deployment easier and easier to monitor it, main related actions and indicators were defined

AXIS 1: GOVERNANCE	2nd PLAN: DEFINITION OF THE INNOVATION ORGANIZATIONAL STRUCTURE		
ACTIONS	**INDICATORS**	**TERM**	**SIGNIFICANCE**
To develop an international benchmarking	Number of organizations contacted	SHORT	MEDIUM
To identify best practices applicable to CIBICAN	Number of roles identified.	SHORT	MEDIUM
To identify required roles and those services likely to be outsourced	Number of functions outsourced	SHORT	HIGH
To define organization structure of the innovation area	Number of positions defined	SHORT	HIGH
To recruit profiles	Number of assistants to the meetings	SHORT	HIGH

Term:
Short: in 1 year time
Medium: in 2-3 years time
Long: in 4-5 years time

Importance:
High, medium, low

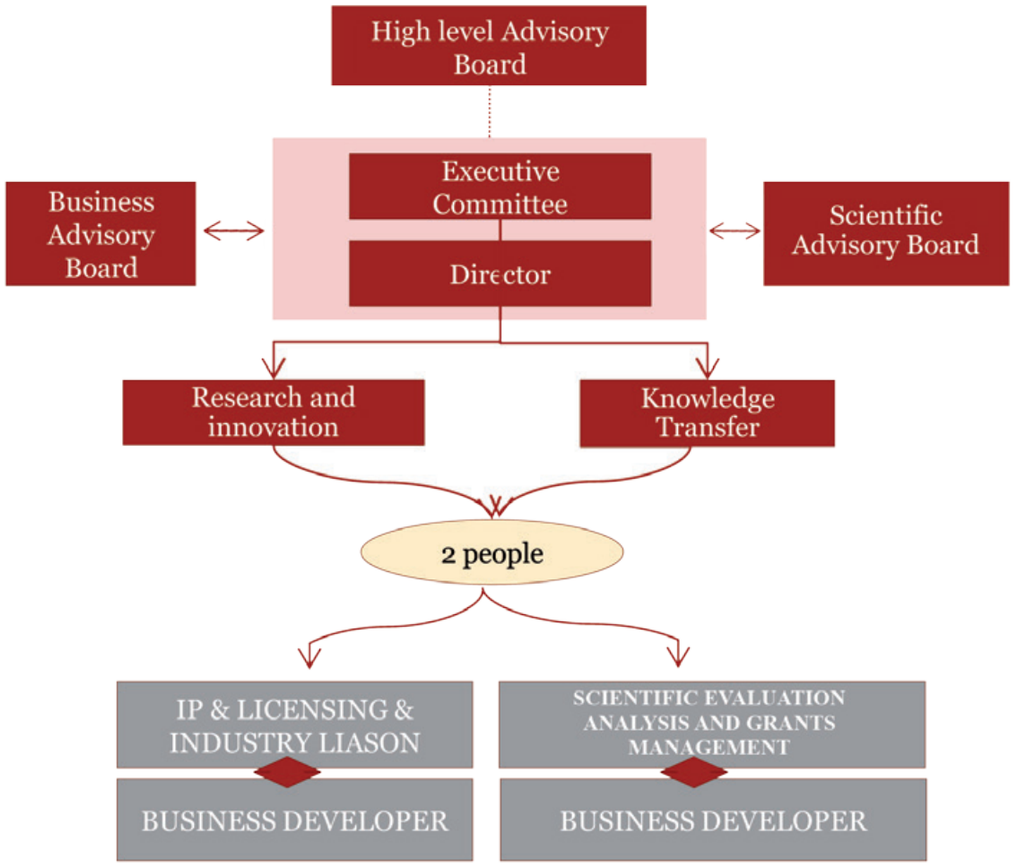
In each action plan, organized by strategic axes, the main goal is identified as well as the main activities to accomplish

RECOMMENDATIONS: PLAN OF THE INNOVATION ORGANIZATIONAL STRUCTURE DEFINITION

CIBICAN (with an autonomous legal identity) should cover all the functions and expertise required for identification, protection and commercialization of discoveries at the same time as developing a deep understanding of the science and the market.

In the short term, most of these functions should be externalized. **A two person team should be in house** supported by a **IP Committee and both Scientific and Business Advisory Boards**.

CIBICAN INNOVATION ORGANIZATIONAL STRUCTURE



FUNCTIONS THAT SHOULD BE DONE INTERNALLY (in collaboration with External Advisory Boards):

- Overall management of CIBICAN
- Budget and financial planning
- The communication with the external organizations, external laboratories and investors and external experts
- Grants management
- Portfolio management
- Collaboration management (MTAs, CDAs)

IP Committee formed by operating team of the office and the EAB.

- Technology and market assessment and scientific evaluation
- The management of the publications and IP (not the patent filing, which should be done by the lawyer) and innovation processes

FUNCTIONS THAT SHOULD BE EXTERNALIZED:

- Tasks done once CIBICAN has decided to protect IP as:
- Once appropriate, market research, reasonable prior art search, patentability and freedom to operate reviews
- Protect IP
- Development and exit strategy

Ideally, the **staff would have a double profile**. The staff would have a scientific/academia profile as well as an industry profile.

In each action plan, organized by strategic axes, the main goal is identified as well as the main activities to accomplish

3rd PLAN: DEFINITION OF INNOVATION PROCESSES

Objective:
Its aim is to define the main processes that take place in the innovation field.

Main activities:

International benchmarking of best practices (done).

R **Define CIBICAN key processes** in the innovation field :

- Identification of ideas.
- Development of innovation projects.
- Exploitation of results.

R Define **support processes** as:

- Search for funding.
- Legal Support.
- Communication.

R Identify **initiatives to make operative the processes identified** (see following slides).

R Define the **employees responsible** for each one.

Define the **measure of success indicators** in the defined processes.

Annual Tracking of the indicators, and implementation of corrective measures if needed.

Term:
Short: in 1 year time
Medium: in 2-3 years time
Long: in 4-5 years time

Importance:
High, medium, low

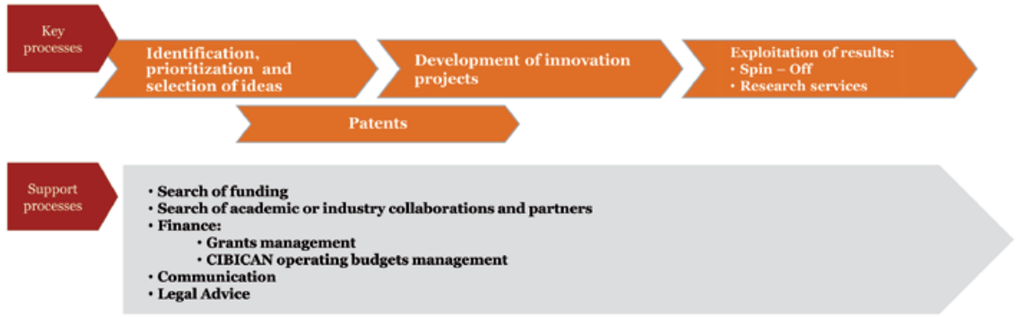
Additionally, in order to make the Strategic Plan deployment easier and easier to monitor it, main related actions and indicators were defined

AXIS 2: ORGANIZATION AND PROCESSES	3rd PLAN: DEFINITON OF INNOVATION PROCESSES		
ACTIONS	**INDICATORS**	**TERM**	**SIGNIFICANCE**
To develop an international benchmarking	Number of organizations contacted	SHORT	MEDIUM
To define CIBICAN key processes (in – house and outsourced)	Number and quality of processes identified.	MEDIUM	HIGH
To define CIBICAN support processes	Number and quality of processes identified.	MEDIUM	MEDIUM
To operationalize the processes through the design of initiatives for each process.	Number of approved and implemented initiatives.	MEDIUM	HIGH
To define CIBICAN's Grants Management.	Process defined.	MEDIUM	HIGH
To define CIBICAN's TTO operating budgets management.	Process defined.	MEDIUM	HIGH
To define the guidelines on how to regulate intellectual property, in terms of owning and profit sharing.	Guidelines defined.	MEDIUM	HIGH
To sign an institutional agreement setting the guidelines on how to regulate intellectual property, in terms of owning and profit sharing.	Agreement signed.	MEDIUM	MEDIUM
To define employees responsible	Number of processes with an employee assigned	MEDIUM	LOW
To define the measure of success indicators	Number of processes with an indicator defined	MEDIUM	LOW
To track indicators annually	Number of monitoring records	MEDIUM	LOW

RECOMMENDATIONS: PLAN OF MAJOR INNOVATION PROCESSES DEFINITON

It is recommended the following process map for CIBICAN:

CIBICAN PROCESS MAP



Throughout all of these processes, it will be essential the knowledge sharing with experts, consultants and other international TTO's.

In the short term, several of these processes might be externalized.

All processes must have an international characterization in order to success.

In each action plan, organized by strategic axes, the main goal is identified as well asthe main activities to accomplish

RECOMMENDATIONS: PLAN OF MAJOR INNOVATION PROCESSES DEFINITON

BEST PRACTICES TO MAKE OPERATIVE THE IDEAS IDENTIFICATION, PRIORITIZATION AND SELECTION PROCESS

Best practices

CIBICAN has to **establish stable and continuous mechanisms of identification, prioritization and selection of ideas**.

It is proposed to undertake the following practices:

1. Specific innovation calls for researchers. The development of these initiatives aims to bring out all the ideas that a priori may have a potential for innovation.

Three types of aid for different purposes are proposed:

- **Internal Calls (small funding)** in which CIBICAN researchers present their technology, and small amounts of funds are given to most of them:
  Funds to enhance technology or commercial advice. Marketing plans, business contact or take it to Asebio.

- Technology Acceleration Program: It is funded by the institution's funds or by any other external institution. Performances are funded to advance the project to the next milestone. The selection in these calls is done by a Business Advisory Board and by other external staff deemed interesting at the time of the event.

- **Working with big initiatives such as cluster initiatives, EU Framework, and so on.**

In this context, it is proposed to take advantage of the development of financial instruments to promote knowledge-intensive business projects, including the EU Smart Specialization Strategy 2014 – 2018 by the ASIICI.

In order to success in these processes, CIBICAN should train its researchers in the culture of innovation (an specific plan is developed for this purpose).

It is proposed to undertake the following practices:

2. Proactive activities of innovation promotion:

- Brainstorming with groups and selecting through business model innovation (http://alexosterwalder.com/)

- Regular direct contact with the group leaders. Meeting with Institutions and staff looking for interesting ideas, with commercial value.

- Activities based on the experience of the licensing associate and market analysis researcher

- The innovative internal projects need to be identified from their original ideas and preliminary observations. In order to accomplish that, there has to be professionals that act as **"innovation antenna/observatories"**.

3. Focused networking and relationship building with potential partners to obtain a deeper understanding of the projects/technologies they want.

In all these processes two main points will be essential: **the expertise the Business Developers will acquired and to count on a Business Advisory Board**.

Staff in charge	Indicators
Business Developers	Number of initiatives undertaken.
Business Advisory Board.	Number of projects in each phase.
Depending on each individual case, Innovation Area may include external advisor staff.	Customer satisfaction.

BEST PRACTICES TO MAKE OPERATIVE THE PROJECT DEVELOPMENT PROCESS

Best practices

Market analysis, focused networking (previously identified by the External Advisory Board) and relationship building with potential partners to obtain a deeper understanding of the projects/technologies they want.

Design of the innovation project in collaboration with the Area of Innovation:

- Project planning (objectives, responsible staff, activities, tasks, schedule, etc.)
- Definition of objective indicators
- Definition of resource requirements (staff, space, time, funding)
- **Definition of the need of ideas protection**
- **Search for partners to develop products, ideas, prototypes**
- **Identification of tasks where externalization is needed**

Internationalization, international conferences to network to promote projects in early stages.

Focused marketing, marketing via email, databases, phone calls, investors contacts with companies.

In addition, if further work is required on a project to make it attractive to partners, CIBICAN could assist on finding further funding.

Existence of an advisory board to give contacts with the business world.

Staff in charge	Indicators
Business Developers Business Advisory Board. Depending on each individual case, Innovation Area may include external advisor staff.	Number of projects designed with a clear picture of the strategy to follow up. Number of projects moved into the next stage of development with an appropriate partner or through another appropriate mechanism (e.g. a start-up company). Amount of funds captured for projects. Ability to raise funds to develop innovation projects (ERG, Botín).

BEST PRACTICES TO MAKE OPERATIVE THE RESULTS OF EXPLOTATION:

Best practices

PATENTS:

Defining a patent policy (operating budget management).

Once CIBICAN has established its legal status, agreements that regulate the intellectual property **should be defined** with each Institution providing staff to CIBICAN:

- University of La Laguna
- CSIC
- Etc.

An **institutional agreement** has to be signed to set the guidelines on how to regulate intellectual property.

In terms of the Patent Act, the employer holds the rights of the invention (IRB, CSIC or UB depending on the project).

If there is more than one institution involved, the **profit sharing is usually equally split between the institutions involved**.

Usually, the **profit sharing policy between the research institution, the department of the researcher and the researchers is 1/3, 1/3, 1/3**.

Additionally, in each project, specific agreements could be signed: project management

PATENT PROCESS:

A **preliminary study of patentability** is done within the Department of Innovation through a first analysis of marketing possibilities.

The **internal committee with both management and external staff make the decision**.

In national stages, the technology must be licensed and the company must accept responsibility of the cost. **The Committee meets at each stage of the process.**

SPIN – OFF

- **Creation of spin - off** in charge of EXPLOITATION OF RESEARCH RESULTS and / or PROVISION OF INTENSIVE KNOWLEDGE SERVICES.
- **Industrial property and spin-off's implementation regulation draft**, which has to be flexible to any situation. The draft should include the regulation of situations as involved researchers from several institutions, the possibility of foreign investors entry, researchers not being investors, etc.
- **Development of models** to accomplish "transfer agreements", "partner agreements", "leave of absence to attend the launch of spin-offs with the position reserved", etc.

BUSINESS INCUBATION:

- **Enable location spaces** for external companies RELATED to CIBICAN RESEARCH LINES.
- **Development of a regulation** which regulates this situation (rights, duties, maximumperiods of stay, requirements, conditions, etc..)
- **Development of a Business Plan** that explains the deductions, etc.

Staff in charge	Indicators
Business Developers	Number of licensed patents.
Business Advisory Board.	Partnerships with companies.
Depending on each individual case, Innovation Area may include external advisor staff.	Spin off's that have raised funds
	(Venture Capital), created jobs and brought a product to market

AXIS 3: SPECIALIZATION AND CONCENTRATION

4th PLAN: INNOVATION NICHE IDENTIFICATION

Objective:

dentify **areas of excellence that give CIBICAN its mark of innovation quality**. These identified areas will be differential niches within the business areas of CIBICAN, or it can be developed, allowing the center to be internationally competitive. Its choice will **be based on criteria of scientific quality and of strategic opportunity based on ability to attract funds and market potential**.

Main activities:

Performing an **internal evaluation of each of CIBICAN areas/group**s identifying the most promising areas of innovation.

Selection of niches of excellence by trying to match future market needs (identified by KOL's) with CIBICAN capabilities

Developing **international collaboration to strengthen these capacities**.

Elaboration of a **dossier of enhancement of the capabilities of the Canary Islands**. Initially, the dossier should focus on those that are differential in other regions.

CIBICAN actions focus toward innovation products on which CIBICAN has expertise and where geographical location is not prohibitive.

- Development of easily exportable innovation activities (software, primary developments) or including partners that replace the absence of agents in the territory.

Additionally, in order to make the Strategic Plan deployment easier and easier to monitor it, main related actions and indicators were defined

AXIS 3: SPECIALIZATION AND CONCENTRATION	4th PLAN: INNOVATION NICHE IDENTIFICATION		
ACTIONS	**INDICATORS**	**TERM**	**SIGNIFICANCE**
To gather qualitative/quantitative information of groups of CIBICAN	Number of groups who provided their information	MEDIUM	HIGH
Meeting of the External Committee for its evaluation	EC Meeting Minutes	MEDIUM	HIGH
To select the niches of excellence by trying to match future market needs (identified by KOL's) with CIBICAN capabilities	Number of identified areas with potential	MEDIUM	HIGH
To identify other groups who can collaborate in these niches	Number of groups identified	MEDIUM	MEDIUM
Elaboration of a dossier of enhancement of the capabilities of the Canary Islands	Portfolio presentation	MEDIUM	LOW

In each action plan, organized by strategic axes, the main goal is identified as well asthe main activities to accomplish

5TH PLAN: SYNERGIES DEVELOPMENT AND COLLABORATIONS

Objective:

It aims to establish a model for synergies and partnerships between CIBICAN groups and canary stakeholders as well as international stakeholders in order to enhance the translation and transfer of results.

Main activities

Strengthen partnerships between CIBICAN groups:

- Conclusion of the **construction of CIBICAN building** to conduct a functional design that promotes the implementation of external companies, as well as the location of spin-off, in order to generate synergies, enhance the development of initiatives, etc.
- Promotion of cooperation between different actors through **meetings that endorse interaction between basic and clinical** researchers.
- Performance of **collaborative research projects**.
- Orientation to **CIBICAN research towards the prioritized niches**.

Strengthen alliances with other canary stakeholders and international stakeholders:

- Identify the **interesting canary stakeholders**: IAC and IPNA.
- Perform a characterization of them in order **to detect the most suitable collaboration** with CIBICAN.

IAC**:**

In 2009 Tecnalia developed a Business Plan for the creation of a technology center: IAC TECH.

IAC Tech will be a private and profitable technological center focused on astrophysics, space and medicine. This are some of IAC medicine capabilities, among others:

- Medical image for diagnosis and prevention, design software for medical applications and medical images capturing

IPNA is really interested in being part of CIBICAN. In this context, it is going to be a formal agreement with CIBICAN.
CIBICAN being able to rely on IPNA research groups and its knowledge is a great opportunity.

Formalize a partnership agreement with them.

Accomplish the **same process for the identified international stakeholders** of CIBICAN's interest.

Additionally, in order to make the Strategic Plan deployment easier and easier to monitor it, main related actions and indicators were defined

AXIS 3: SPECIALIZATION AND CONCENTRATION	5th PLAN: SYNERGIES DEVELOPMENT AND COLLABORATIONS		
ACTIONS	**INDICATORS**	**TERM**	**SIGNIFICANCE**
To place CIBICAN groups in the new building	Number of groups moved	MEDIUM	MEDIUM
To develop meetings that endorse interaction between basic and clinical researchers	Number of interactions developed	MEDIUM	HIGH
Performance of collaborative research projects in prioritize niches by doing an active management of the portfolio.	Number of collaborative projects promoted	MEDIUM	MEDIUM
To formalize a partnership agreement with IAC and IPNA	Number of signed agreements	MEDIUM	HIGH
To interact with other centers at an international level or other stakeholders	Number of interactions with international centers or other stakeholders	MEDIUM	HIGH

In each action plan, organized by strategic axes, the main goal is identified as well as the main activities to accomplish

6TH PLAN: AN INNOVATION OBSERVATORY DEPLOYMENT (LONG TERM PLAN)

Objective:
Its aim is to implement a permanent observatory to capture main trends in innovation in CIBICAN's prioritized niches, in order to be
able to quickly adapt to what is most likely to be transferred.

Main activities

Strengthen partnerships between CIBICAN groups:

Define **the functions to be performed by the observatory**:

- New trends
- Business and society needs in this area, focusing on their area of activity, in order to quickly adapt CIBICAN's work to what is most likely to be transferred.
- Calls.

Search of a **potential private partner to finance** – develop the observatory.

Internal resource allocation to the observatory or the outsource of it.

If the observatory is in-house, **provision of a network of international contacts and working tools**.

Promotion of the observatory between CIBICAN research groups.

Additionally, in order to make the Strategic Plan deployment easier and easier to monitor it, main related actions and indicators were defined

AXIS 3: SPECIALIZATION AND CONCENTRATION	6 TH PLAN: AN INNOVATION OBSERVATORY DEPLOYMENT (long term plan)		
ACTIONS	**INDICATORS**	**TERM**	**SIGNIFICANCE**
To design a functional plan Observatory in collaboration with other european institutions that have identified the same niches as CIBICAN	Functional plan done	LONG	MEDIUM
To find a funding partner	Contributors found	LONG	LOW
Allocation of resources and processes	Number of trends, needs and calls captured	LONG	LOW

In each action plan, organized by strategic axes, the main goal is identified as well as the main activities to accomplish

AXIS 4: COMMUNICATION AND DISSEMINATION

7TH PLAN: MARKETING AND COMMUNICATION

Objective

CIBICAN **corporate image definition and consolidation**. CIBICAN has to be recognized institutionally and **with an international** visibility as it is a context in which effective knowledge transfer in certain areas of knowledge might be accomplished and more public and private funding attracted.
Additionally, CIBICAN has to develop an effective internal communication.

Main activities

Characterization of **CIBICAN's offer/services portfolio** in the innovation field:

- Areas of research/innovation
- Innovation services
- International Contacts Network

This portfolio has to be defined in two different levels (a primary stage portfolio and a collaboration stage portfolio).

Characterization of **CIBICAN's innovation** demand: key customers and needs.

- CIBICAN Researchers
- External groups/centers
- Industry
- Funding bodies

Definition of an internal communication plan

Definition of the **CIBICAN's desired positioning**:

Concerning the above analysis, CIBICAN has to be positioned towards its customers as a **CONTEXT OF DEVELOPMENT OF KNOWLEDGE TRANSFER ACTIVITIES IN HEALTH SCIENCES THROUGH COLLABORATION OF ITS AGENTS AND THE GLOBAL BUSINESS SECTOR, just as mentioned in its mission.**

Marketing Deployment Plan

- PRODUCT STRATEGY

  CIBICAN AS PRODUCT: CIBICAN brand creation.

  INNOVATION CAPACITY AS A PRODUCT:

  - Identification innovation niches.
  - Identification of services and know - how in innovation.
  - Materialization of CIBICAN translation capacity, identifying specific successful cases.

- **PRICE STRATEGY**

  Definition of overheads

  Incubation policy

  Canary tax incentive to encourage entrepreneurship in the Canary Islands. (ZEC zone and RIC)Etc.

- **PROMOTION STRATEGY AND SALES CHANNEL:** Identification of the most appropriate resources to achieve the objectives of dissemination:

  Web page creation.

  Encouragement of including CIBICAN signature in scientific publications.

  Development of a Center Activity Report.

  Establishment of actions aimed at increasing CIBICAN presence in scientific societies, professional and patients associations and among students.

  Press and communication service.

Additionally, in order to make the Strategic Plan deployment easier and easier to monitor it, main related actions and indicators were defined

AXIS 4: COMMUNICATION AND DISSEMINATION	7th PLAN: MARKETING AND COMMUNICATION		
ACTIONS	**INDICATORS**	**TERM**	**SIGNIFICANCE**
To define an internal communication plan	Internal communication plan defined	MEDIUM	MEDIUM
To analyze CIBICAN's supply and demand	Supply and demand analysis made	MEDIUM	MEDIUM
To conduct surveys to identify the needs of internal/external clients	Number of surveys made	MEDIUM	MEDIUM
Development of a marketing plan - outsourcing	Marketing Plan done	LONG	LOW

In each action plan, organized by strategic axes, the main goal is identified as well as the main activities to accomplish

AXIS 5: HUMAN RESOURCES AND TALENT

8TH PLAN: TRAINING OF THE MANAGEMENT STAFF

Objective

Its aim is to **generate sufficient knowhow in CIBICAN** that enables CIBICAN to **develop effective innovation**.
This training is though for **ULL's staff too**.

Main activities

Define the functions to be performed by each of them as well as the capabilities and areas of expertise that should have.

Identify the staff that within the management area will be in charge of innovation:

- IP & licensing - Business Developer
- Industry Relationship - Business Developer

Identify specific training needs for each of them.

Define a **customized training plan** that includes:

- Stays at other institutions: MRCT, Ascenion, RIMS.
- Training courses.
- Inclusion in international networks.
- Deep market knowledge: its stakeholders, their priorities, their motivations, etc.

Identify those **capabilities able to be externalized**.

Additionally, in order to make the Strategic Plan deployment easier and easier to monitor it, main related actions and indicators were defined

AXIS 5: HUMAN RESOURCES AND TALENT	8th PLAN: TRAINING OF THE MANAGEMENT STAFF		
ACTIONS	**INDICATORS**	**TERM**	**SIGNIFICANCE**
To define the functions to be performed by CIBICAN	Number of functions defined	SHORT	HIGH
To identify the staff responsible	Number of staff identified	MEDIUM	MEDIUM
To identify specific training needs for each of them	Number of training needs identified	MEDIUM	MEDIUM
To define a customized training plan	Number of training actions developed. Number of people who received training Internal capabilities developed	MEDIUM	MEDIUM

In each action plan, organized by strategic axes, the main goal is identified as well as the main activities to accomplish

9TH PLAN: BUILDING A SENSE OF INNOVATION TO CIBICAN'S RESEARCH STAFF

Objective

It aims is to build to CIBICAN research groups a culture of innovative.

Main activities

Meetings to present the CIBICAN Innovation Strategic Plan with CIBICAN PI's research groups.

Formal presentation of CIBICAN once it has its final legal status and its mandate approved with its institutions and research groups, including:

- Innovation process.
- Innovation services.
- Innovation lines.
- Calls for funding, etc.

Presentation of the **Business Developers to the research groups**.

Completion of an introductory course on innovation for those researchers who are interested:

- The course design will be according to the identified needs and satisfaction survey conducted by CIBICAN.

Develop routine actions concerning the relationship between the TTO and the researchers , among others:

- Scout
- Discuss invention disclosure with the researchers
- Control the relationship between the inventor and the lawyer

Organize brainstorming meetings to identify identity synergies/actions to foster internal collaborations based on innovation.

Additionally, in order to make the Strategic Plan deployment easier and easier to monitor it, main related actions and indicators were defined

AXIS 5: HUMAN RESOURCES AND TALENT	9th PLAN: BUILDING A SENSE OF INNOVATION TO CIBICAN'S RESEARCH STAFF		
ACTIONS	**INDICATORS**	**TERM**	**SIGNIFICANCE**
To develop meetings to present the CIBICAN Innovation Strategic Plan	Number of presentations made	SHORT	HIGH
To organize a formal presentation of CIBICAN	Number of presentations made	SHORT	HIGH
To develop an introductory course on innovation for researchers	Number of people attending the courses	MEDIUM	MEDIUM
To develop routine actions concerning the relationship between the TTO and the researchers	Number of interactions between researchers and other external stakeholders	MEDIUM	MEDIUM
To organize brainstorming meetings to identify identity synergies/actions	Number of performed brainstorming	LONG	LOW

In each action plan, organized by strategic axes, the main goal is identified as well as the main activities to accomplish

PILLAR: INTERNATIONALIZATION

10TH PLAN: INTERNATIONALIZATION

Objective

To position CIBICAN internationally as a platform that develops an effective transfer of knowledge in health sciences, through the establishment of collaborations with research groups, centers and industry internationally.

Main activities

Create **an international Business Advisory Board** which helps CIBICAN to identify major stakeholders and major innovation initiatives in Europe, USA and worldwide.

Stakeholder identification (EU and USA mainly): presentation to the national R&D Officer, to the REPER representatives, to the R&D&I area of the European Commission and to other international bodies.

Stakeholders contact and CIBICAN presentation (EU and USA mainly) by attending to important meetings of the sector (in Spain as in Europe and in USA)

Additionally, enhance the possibility of the Canary Islands to act as a health sector bridge with Africa.

- Identify partners in Africa, Southamerica, Azores and Madeira.
- Introduce CIBICAN innovation capabilities.

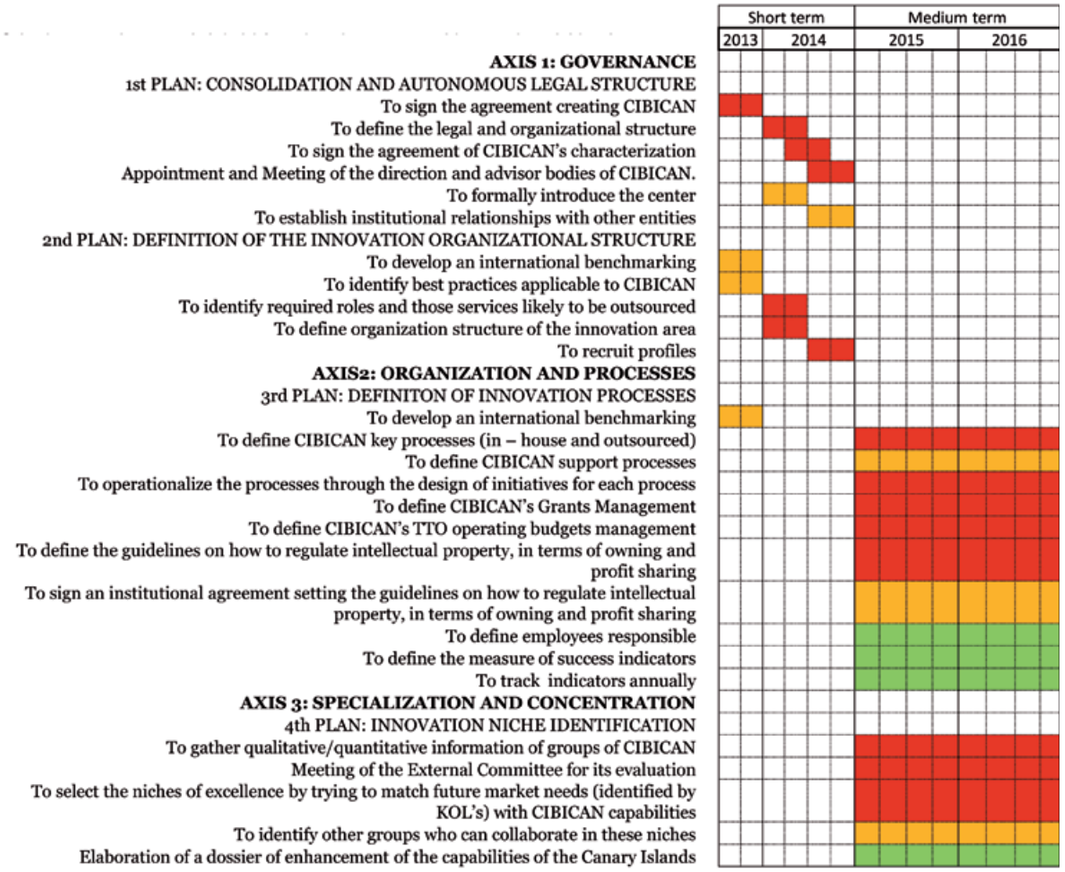
Enhance the H2020 participation as an internationalization mechanism.

Additionally, in order to make the Strategic Plan deployment easier and easier to monitor it, main related actions and indicators were defined

PILLAR 1: INTERNATIONALIZATION	10th PLAN: INTERNATIONALIZATION		
ACTIONS	**INDICATORS**	**TERM**	**SIGNIFICANCE**
To create a Create an international Business Advisory Board (BAB)	Number of members in the BAB	SHORT	HIGH
To report about CIBICAN actions to the national R&D Officer, to the REPER representatives, to the R&D&I area of the European Commission and to other international bodies when it is appropriate	Report done if adequate	MEDIUM	LOW
To contact stakeholders in EU and USA	Number of interactions made.	LONG	MEDIUM
To contact stakeholders in Africa and South America	Number of interactions made.	LONG	MEDIUM

5 Timeline

Strategic Innovation and IPR Plan Timeline



Note: the activities in this timeline are structured in 3 terms (short, medium and long term) and coloured by its importance (red-high;orange-medium;green-low).
Moreover, the activities within the short term have been quarterly detailed.

Strategic Innovation and IPR Plan Timeline

5th PLAN: SYNERGIES DEVELOPMENT AND COLLABORATIONS
To place CIBICAN groups in the new building
To develop meetings that endorse interaction between basic and clinical researchers
Performance of collaborative research projects in prioritize niches by doing an active management of the portfolio
To formalize a partnership agreement with IAC and IPNA
To interact with other centers at an international level or other stakeholders
6th PLAN: AN INNOVATION OBSERVATORY DEPLOYMENT
To design a functional plan Observatory in collaboration with other european institutions that have identified the same niches as CIBICAN
To find a funding partner
Allocation of resources and processes

AXIS 4: COMMUNICATION AND DISSEMINATION

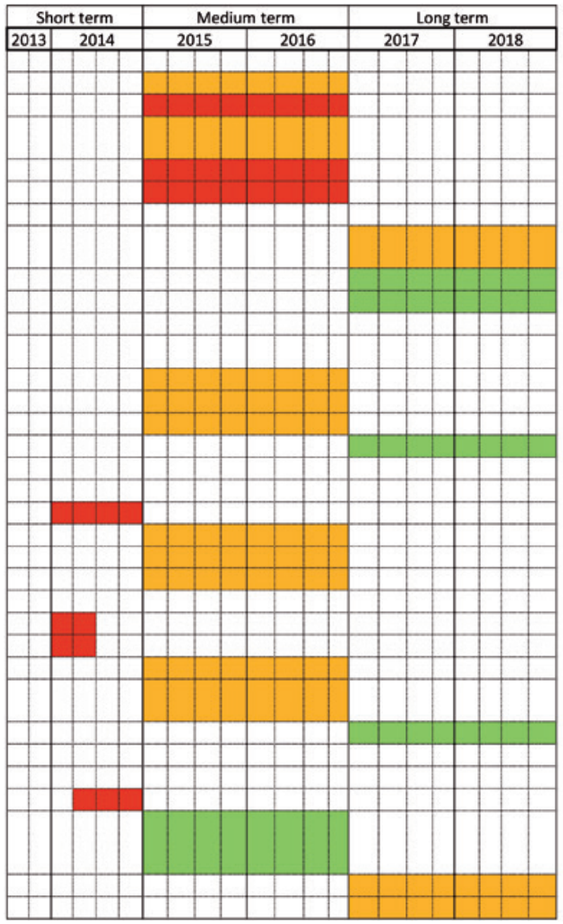
7th PLAN: MARKETING AND COMMUNICATION
To define an internal communication plan
To analyze CIBICAN's supply and demand
To conduct surveys to identify the needs of internal/external clients
Development of a marketing plan - outsourcing

AXIS 5: HUMAN RESOURCES AND TALENT

8th PLAN: TRAINING OF THE MANAGEMENT STAFF
To define the functions to be performed by CIBICAN
To identify the staff responsible
To identify specific training needs for each of them
To define a customized training plan
9th PLAN: BUILDING A SENSE OF INNOVATION TO CIBICAN'S RESEARCH STAFF
To develop meetings to present the CIBICAN Innovation Strategic Plan
To organize a formal presentation of CIBICAN
To develop an introductory course on innovation for researchers
To develop routine actions concerning the relationship between the TTO and the researchers
To organize brainstorming meetings to identify identity synergies/actions

PILLAR 1: INTERNATIONALIZATION

10th PLAN: INTERNATIONALIZATION
To create a Create an international Business Advisory Board (BAB)
To report about CIBICAN actions to the national R&D Officer, to the REPER representatives, to the R&D&I area of the European Commission and to other international bodies when it is appropriate
To contact stakeholders in EU and USA
To contact stakeholders in Africa and South America



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Universidad
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Printed in Spain
July 2016