



Una manera de hacer Europa



BUENAS PRÁCTICAS

Actuaciones Cofinanciadas

“Adaptation of spaces for Research Infrastructures in the Human Brain field”
Universitat Pompeu Fabra (UPF).

Programa Operativo de Catalunya

Año 2019

Fondo Europeo de Desarrollo Regional

The project “Adaptation of spaces for Research Infrastructures in the Human Brain field” is presented as Best Practice

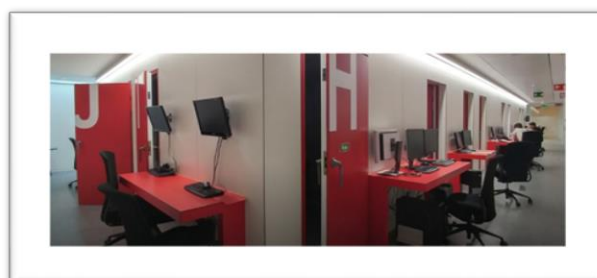
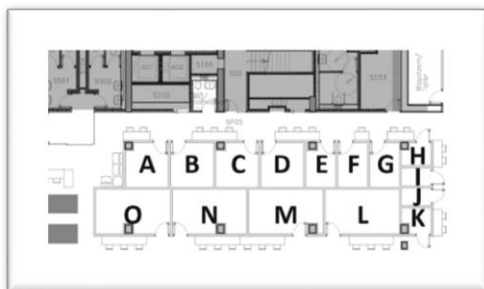
The project, co-financed by the *PO FEDER Catalunya 2014-2020* Program, consists in the adaptation of certain spaces such as laboratories in the research building Mercè Rodoreda 24 of the Campus of Ciutadella at the city of Barcelona, as well as the acquisition of the scientific equipment required to conduct world class research activities in the human brain field, by the groups of the Center for Brain Cognition (CBC) of the *Universitat Pompeu Fabra (UPF)*.

The project is a strategic commitment of the UPF to promote the Brain and Cognition research area that is standing out at the international level, and to foster interdisciplinarity at the Campus of Ciutadella dedicated to the Social and Human Sciences. Thus, we are seeking to maximize the potential of this emerging field and allow the university to improve its position in the rankings and the international visibility in a medium and long term.

The building Mercè Rodoreda 24 at the Campus of the Ciutadella is strategically placed in front of the new research building promoted by the *Fundació Pasqual Maragall (FPM)*. It creates synergies and represents an optimization of resources in the neurosciences research field. Additionally, in a near future, this Campus will be fostered with the development of the “UPF Initiative for the Ciutadella of Knowledge”. This initiative seeks to align the activities of the different institutions based at the Ciutadella park zone in the fields of knowledge, education, research, innovation and culture, with the aim of creating a highly attractive scientific project around the Planetary Wellbeing Project. The initiative will also have its urbanistic reflex, which will be initiated with the spaces annexed to the Campus of the Ciutadella known as “*l’antic Mercat del Peix*”.

The cost of the project amounts to a total of 1.210.000 €, a total eligible cost of 1.000.000 € and a FEDER aid of 500.000 €.

The results of this project have had an impact on the increase of researchers that work in the improved research infrastructures given that they benefit from better spaces to conduct R&D activities. There is a total of 66 researchers that actually occupy the improved infrastructures (31 women, 35 men) and 8 new jobs associated with the project have been created.



This operation is presented as Best Practice because it meets the following criteria:

1.- High diffusion among the beneficiaries, the potential beneficiaries and the general public

The actions below provide details of the communication campaigns carried out:

➤ **ACTIONS OF INTERNAL DISSEMINATION**

Provisional sign during the basement restoration of the research building of Mercè Rodoreda 24.



Permanent explicatory plaque at the door of the laboratories.



Labeling of the scientific equipment installed inside and outside the laboratories (but inside the computer center of the Campus of the Ciutadella).



➤ **ACTIONS OF EXTERNAL DISSEMINATION**

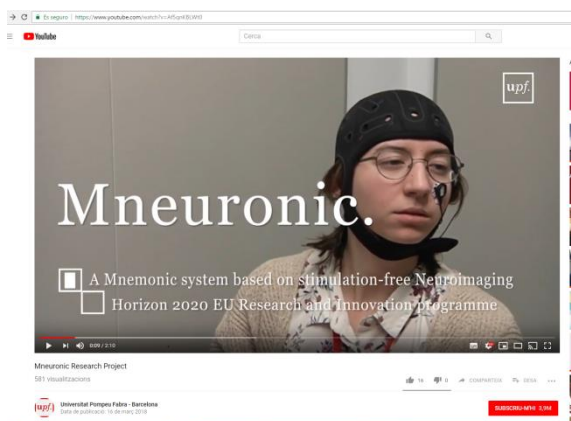
At the CBC website:

https://www.upf.edu/en/web/medicina_comunicacio/noticies/-/asset_publisher/pCRhsl4QpFEZ/content/id/4099193/maximized#.XsxFQxr7Q2w

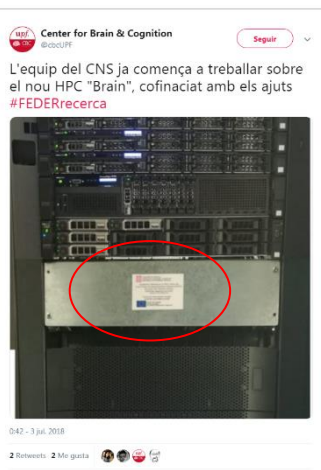


Video of the research project Mneuristic developed in the enabled facilities, with a reference to the FEDER co-financing.

It can be found at the following website address: <https://www.youtube.com/watch?v=Af5qnKBLWt0>



Presence in social networks (Twitter):



2.- Inclusion of innovative elements.

The project is innovative because it locates the university research groups in a single space, providing them the cutting-edge scientific equipment, which facilitates the consolidation and impulse of the investigation conducted by the CBC.

The location of the CBC right next to the FPM fosters synergies and resources optimization in the neuroscience research field, allowing the shared use of the magnetic resonance equipment of the FPM and the laboratories of the CBC by the research groups of both institutions.

3.- Adequacy of the project results reached versus the established objectives:

The aim of the project is the adaptation of spaces such as laboratories and the acquisition of the scientific equipment required to conduct world-class research in the human brain field.

The initiation of this project has allowed to complete several studies that investigate about some areas of the human brain, unexplored until now . For example, there have been studied inherent components to the human species in language and music processing, there have been evaluated the neural networks for a better identification of brain disorders and for a better clinical diagnosis of brain and psychiatric diseases, and it has been studied the origin of the altruistic human behavior and its social conditioning.

4.- Contribution to the resolution of a problem or regional weakness

The understanding of the human brain is one of the greatest scientific challenges of the 21st century. If we are capable to accept that challenge, we would be able to acquire new knowledge about what makes us humans, to develop new treatments for brain diseases and create new synergies between computer-based technologies and biology that will open the door to leading-edge innovations.

However, one of the main obstacles to understand the way the human brain works is the fragmentation of research and the data that the latter produces. Thus, the most pressing need is to set up a coordinated effort that uses information and communication technologies (ICT) to integrate this data in a unified vision of the human brain as a unique multilevel system.

The understanding the functioning of the human brain at the mesoscopic and microscopic level will help us to be more efficient, for instance, in the development of new models of neurological diseases, which is one of the greatest challenges for the actual medicine, as well as the adoption of new therapies from which the whole society can benefit.

This is the reason why it has been created in Catalonia the Clúster Emergent del Cervell Humà (CECH) that seeks an integrative and multilevel understanding of the human brain to impulse new ways to exploit this knowledge, depending on market opportunities, technological needs or new knowledge in collaboration with social and industrial agents of different areas (clinical, educational or technological) that will bring benefits for our society's health. To achieve this general aim, some challenges are raised in different areas with researchers of various disciplines working together such as neuroscience, computation, medicine, biochemistry and neuro-engineering.

5.- Level of coverage of the targeted population

The research carried out by CBC will help scientists identify the complex chain of events that goes from the genes to the cognition, study the biological mechanisms responsible of the perception, the emotions and decision-making, reveal the principles that unify the plasticity of the brain for learning and for the memory, and even open new perspectives to better understand the biological mechanisms that create the human conscience. The long-term objective is to develop a unified and multilevel understanding of the human brain that integrates data and knowledge about the healthy and the sick brain at all levels of the biological organization, from the genes to the behavior.

Additionally, both actual and future projects must promote the development of new markets, through the design of new molecules, bio-markers and protocols of modulation for the neurosensorial answer, that help in the diagnosis and treatment of neurological diseases, as well as new platforms that accelerate the design of new drugs and allow the establishment of protocols for early diagnosis and treatment of diseases, and not only for the Catalan population but also at international level.

6.- Compliance with the horizontal principles (sustainable development, gender equality and non discrimination) and the environmental standards.

The UPF is implementing an action plan about equality called *Pla D'Igualtat Isabel de Villena* as a tool addressed to meet the principle of gender equality and eliminate discriminatory conducts that hinder or prevent women from the exercise of their rights.

The University develops actions around the visualization and sensitization towards gender inequality in communication, job access and promotion in professional careers, in a balanced representation in governing, decision-making and advisory bodies, and in the reconciliation of work and family life.

Regarding sustainability, the UPF carries out the tasks of the strategic plan *Agenda 21* that sets forth in the acquired compromises of the University in the environmental sphere, and establishes three major challenges: make the university management sustainable, raise awareness within the university community to actively engage it in the new sustainable development model, and promote the inclusion of environmental values in educational programs.

7.- Synergies with other policies or public instruments

The implementation of the project allows the creation and strengthening of synergies with other public instruments.

The CBC is part of the flagship initiative *Human Brain (FET Flagship Human Brain)* for the understanding of the human brain, financed by the European Union and the Member States within the H2020 Program, and in which more than 100 partners participate together to develop a new vision for the research in brain at the functional level and its applications.

Furthermore, the UPF, through the CBC, leads the proposal of the CECH, that promotes a multifunctional effort to understand the dynamics of the brain, characterizes its disorders and evaluates therapeutic options with the aim of transferring the results in different societal and industrial fields. These aims will allow to make significant progress and transfer of knowledge in the scientific and academic sector and in the productive sector.

To achieve these synergies and a multidisciplinary strategy, a network of Catalan leading research institutions will be used, formed by recognized research centers, such as *Institut d'Investigacions Biomèdiques August Pi i Sunyer (IDIBAPS)*, *Institut de Recerca Biomèdica (IRB)* or *Vall d'Hebron Institut de Recerca (VHIR)*, as well as the research centers of several renowned hospitals of Catalonia such as the *Hospital Clínic* or the *Hospital del Mar*, and other technological centers with mainly scientific interests.

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