



BoF meeting: Activities of Spain in support the Flagships

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Subdirección General de Proyectos Internacionales.
Dirección General de Investigación Científica y Técnica.
Ministerio de Economía y Competitividad.

- Activities in support HBP Flagship
- Activities in support Graphene Flagship

Spanish participants in HBP Flagship

R&D Non profit organizations
Universidad Politécnica de Madrid
Universidad Autónoma de Madrid
Universidad de Castilla – La Mancha
Universitat de Barcelona
Universitat Pompeu Fabra
Universidad Rey Juan Carlos
Barcelona Supercomputing Center
Universidad de Granada
CSIC

Project	Institution
MULTI-LATERAL	BASQUE CENTER ON COGNITION BRAIN AND LANGUAGE
SloW-Dyn	CONSORCI INSTITUT D INVESTIGACIONS BIOMEDIQUES
SloW-Dyn	FUNDACIO PER A LA RECERCA I LA DOCENCIA SANT JOAN DE DEU (FSJD)
CHAMPmouse	UNIVERSITAT POMPEU FABRA

Only R&D Non profit organizations
Lack of industry participation

Spanish HUB

The Spanish HUB is originated due to the interest of a group of Spanish companies, “To contribute to the strategy of the Human Brain Project and stay close to the results obtained”

This group of companies, all of them important industrial players in the human brain market, also is interested in promoting the participation of R&D projects in the field of HBP in Europe at both national and regional levels

SAF2015-71987-REDE

- First presentation. April 2015.
- Strategic network HUB Spanish Industrial for HBP Flagship
- Duration 2 years
- Start: December 2015
- Coordinator FUNDACION TECNALIA RESEARCH & INNOVATION
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- josemiguel.azcoitia@tecnalia.com

Initial supporting partners

The Group is born with an **open character**.

Originally composed of the following entities:

- **Coordinator:** Tecnalia
- **BIG Industry** (IT, Pharma and R&D): ATOS, LILLY, GMV
- **SMEs Specialized in Health:** ERA7, Bitbrain, Artica, Idener, Insyte
- **Regional SMEs and industrial association:** CTA

Supported by the HBP relevant nodes that will facilitate communication and access to HBP

- Universidad Politécnica de Madrid (UPM) & Cajal Institute
- Barcelona Supercomputing Center (BSC)

And by the Spanish administration (MINECO)



The Spanish HUB proposes a mean to improve the translation of the HBP research findings to society

Objectives. Activities

- The motivation of the proposed network is based in a group of Spanish industrial companies that aims to transfer the results obtained in the HBP project to industries that operates in the area of brain
 - Build ad-hoc access to transfer the HBP results to the society
 - Opportunity to transfer the developed technology to the industrial sector
 - Diffusion of the HBP results in the industrial, academic and social environment
- Build ad-hoc mechanisms for the Spanish HUB participation in research programs promoted by HBP

Objectives. Lobby Activities

- Encourage collaborations agreements and partnerships between the members of the Spanish HUB and the HBP partners.
- Influence the Spanish national and regional R&D programs related to human brain knowledge and its industrial applications
- Remarkable is the cross-cutting nature of the consortium created with companies from technology field and Farma.
- Contribute to improve its competitive position in this field.
- The initiative is to provide an industrial vision to the HBP consortium.

Priorities Areas.

After consulting the Spanish HUB members:

High interest

- Neuroinformatics
- High Performance Computing
- Medical informatics
- Neurobotics

Medium interest

- Strategic Mouse Brain Data
- Strategic Human Brain Data
- Cognitive Architectures
- Mathematical and Theoretical Foundation of Brain Research
- Brain Stimulation
- Neuromorphic Computing

Activities in support Graphene Flagship

Spanish participants in Graphene Flagship

R&D Non profit organizations
CSIC. ICMIM
Universidad Autónoma de Barcelona
Universidad de Castilla-La Mancha
CIC Energygune
Instituto de Ciencias Fotónicas
Instituto Catalán de Nanotecnología
CIC Nanogune
CIBER-BBN
CIC energiGUNE
IDIBAPS
University of Castilla-La Mancha
The University of Zaragoza
Tecnalia Research and Innovation

Profit organizations
Grupo Antolín (GRANPH)
Avanzare
Graphenea
REPSOL
Airbus
IQ Interquímica
nvision systems &

Flag ERA

Project	Institution
TUGRACO	UPC
SOGraph	FUNDACION IMDEA NANOCIENCIA
HiMagGraphene	UAM

Three main actions to support Graphene Flagship

GRAPHENET: the Spanish graphene network



Cluster on Graphene and 2D materials
under preparation

Inter-platform group on Graphene. GRAFIP

GRAPHENET: the Spanish Graphene Network

MAT2015-70333-REDE

- Strategic network linking excellence in graphene
- Duration 2 years
- Start: December 2015
- Coordinator ICMM/CSIC M. García-Hernández
- marmar@icmm.csic.es

GRAPHENET: the Spanish Graphene Network

Initial supporting partners

- **Industrial partners from the FG:** Airbus, Avanzare, Grupo Antolín, Graphenea, Repsol, Interquímica
- **Academics from FG:** CSIC, ICN, ICFO, UniZar, UAB, IDIBPAS, UCLM, CIC Energigune, CIC Biomagune, Cic-Nanogune, CIBER, Tecnalia
- **Others No FG members:** AERNOVA; Aimplas; Andaltec; CIDETEC, Graphenano, Graphene Nanotech; Hércules de Armamento; INDRA; Nanoinnova; Numat Biomedical, S.L., Tekfeninvest, GRAPHENASTUR, ACERLORMITTAL, Abengoa, Dropsense, Ferroatlantica, Biolan, CENER, Eurecat, FLUBETECH, Nanobasque, Instituto Tecnológico de Castilla y León, AENOR
- GRAPHENET is a dynamic and open space. Any Spanish institution or company can incorporate into the network and participate in our activities



40 entities

GRAPHENET: the Spanish Graphene Network

Objectives

- **Creation of the Spanish Industrial group with interest in graphene.**
 - Joint meetings to define a **good practice** leading to an elementary code in the labeling and characterization to grade a variety of graphenes
 - Promoting synergies between academy and industry to apply in all kind of calls related to graphene activity (national and international)
- **Prospective.** Close contact with authorities and decision makers
- **Engaging** the Spanish community in 2D in activities at national or international levels
- **Consolidation and integration of Spanish groups in the Graphene Flagship** in successive core projects as well as in Flagera calls ,Eol or as associated members



EUREKA Clusters are long-term and strategically significant initiatives that develop technologies of key importance for European competitiveness.

8 clusters:
PENTA;
METALLURGY
EUROPE;
ITEA 3;
EUROGIA 2020;
EUROPIDES;
CELTIC PLUS;
CATRENE;
ACUEAU

EUREKA Clusters are essential in order to:

- Accelerate the introduction of R&D&I results to the market
- Share research and development cost and results
- Facilitate consortia involving partners along the entire value chain
- Create an industrial network for long term win-win collaboration

Proposal for
An European cluster on graphene and 2D materials
under preparation

Complements the Graphene Flagship



An European cluster on graphene a 2D materials *under preparation*

- **INDUSTRIAL & TECHNOLOGICAL CHALLENGES**

Mass production of high quality graphene .

- Scaling up*
- Industrial applications*

- **IP Scenario**

- Patenting in graphene has risen rapidly in recent years . Leading of South Korea entities.*
- Chinese influence since 2013 has continued to grow*

- **RESEARCHING IN EU**





An Eureka cluster on Graphene & 2D materials (I/II)

- **NECESSITY**

- I. *A complementary enabling instrument to further take graphene from the mature research developed at academy's laboratories into the society.*
- II. *To elaborate and foster industrially-driven innovation strategies taking advantage of the existing excellent science and transnational platforms in Europe .*
- III. *To focus on solving current challenges which are limiting the time to market and business growth of grapheme-related EU companies.*

- **MAIN OBJECTIVES**

- I. *Generation of close-to-market industry-driven R&D projects*
- II. *Boosting the graphene industry of the Eureka Countries.*

An Eureka cluster on Graphene & 2D materials (II/II)



- **MAIN R&D TOPICS // MAIN R&D RESEARCH AREAS**

- i. Standardization
- ii. Production (Scaling up).
- iii. Applications
 - i. Electronic devices.
 - ii. Biomedical applications.
 - iii. Energy.
 - i. Bulk graphene for energy applications.
 - iv. Graphene Composites.
 - i. Composites production and processing.

- **SCIENTIFIC & TECHNOLOGICAL IMPACT**

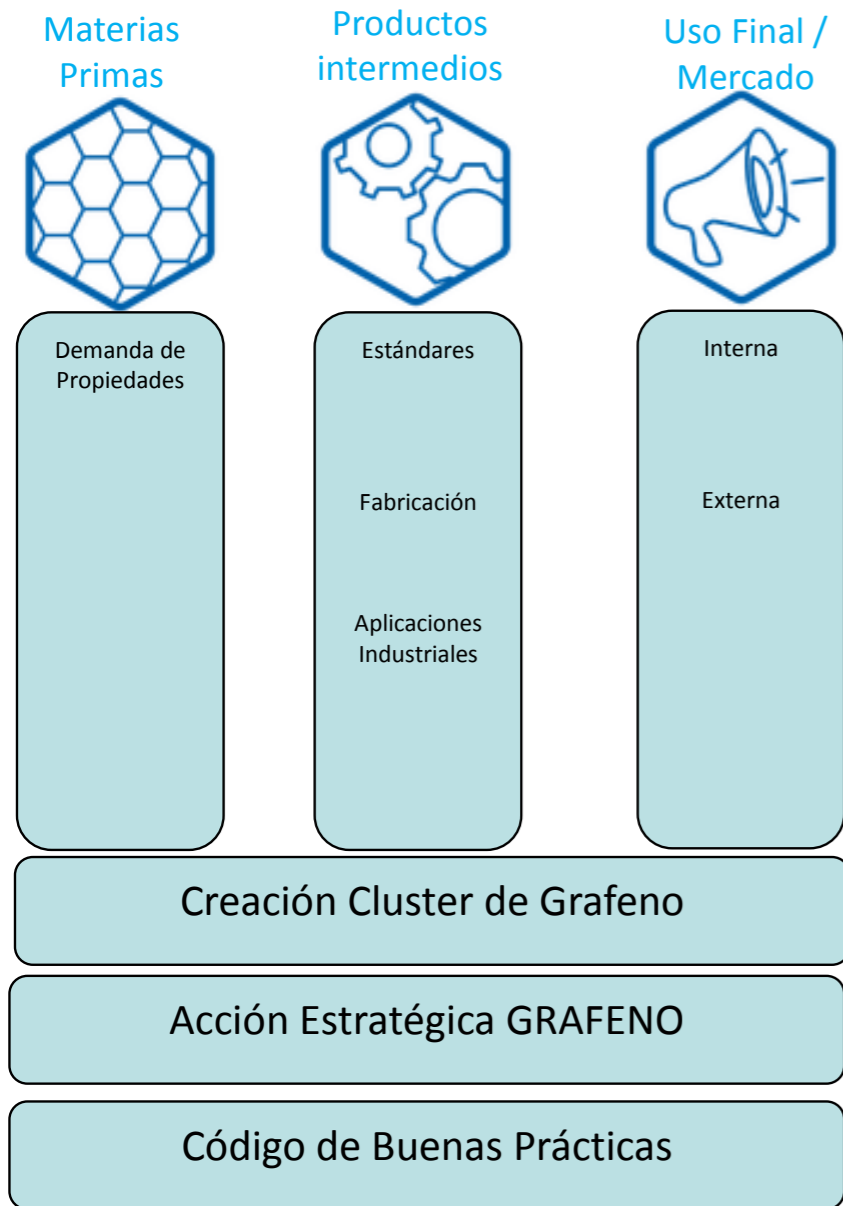
- i. Technological push & pull approach: taking advantage from existing knowledge and also inspiring future scientific research.
- ii. Elaboration of a value chain in chosen industrial sectors with market and commercial capability.
- iii. Complementarity EU GRAPHENE FLAGSHIP.



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Activities in support Graphene Flagship

Inter-platform group on Graphene. GRAFIP



PLATAFORMAS TECNOLÓGICAS ESPAÑOLAS	
Materiales Avanzados y nanomateriales. MATERPLAT	http://www.materplat.com/
Energía Solar de Concentración	http://www.solarconcentra.org/
Hidrógeno y Pilas de Combustible	http://www.ptehpc.org/
FOTOPLAT (Fotovoltaica)	http://fotoplat.org/
REOLTEC (Eólica)	http://reoltec.net/
AEROESPACIAL	http://www.plataforma-aeroespacial.org/
Ferroviaria Española. PTFE	http://www.ptferroviaria.es/
Automoción y Movilidad – Move to Future M2F	http://www.move2future.es/
3NEO (Tecnologías de Impresión)	http://www.3neo.org/
Envase y Embalaje – PACKNET	http://www.packnet.es/
Química Sostenible	http://www.suschem-es.org/
Fotónica - FOTONICA 21	http://www.fotonica21.org/
Acero - PLATEA	http://www.aceroplatea.es/
Construcción	http://www.plataformaptec.com/
Domótica y Ciudades Inteligentes - Smart Living Plat	http://smartlivingplat.com/
Nanomedicina	http://www.nanomedspain.net/

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¡Gracias!

