DIGITAL INNOVATION HUB
The strategy for digital ecosystem development
and relationship model

24 April 2017
BASQUE DIGITAL INNOVATION HUB

A Facility Network to experiment with Advanced Manufacturing and test digital innovations is being set up in the Basque Country.

This DIH will consist on a digitally linked network of Competence Centers with R&D infrastructures, pilot lines and technical expertise specialized in different areas of Advanced Manufacturing.

The network is co-owned by companies, R&D Centers, Professional Training Centers and Universities and supported by regional public institutions.

The aim of this initiative is to provide industrial companies, specially SMEs, with the technological capabilities required to face the Industry 4.0 challenges.

The network will be used for developing R&D projects, for scaling up industrial projects, as a showroom of cutting edge technologies, and also as training resource and start-up accelerator.
Industrial focus

€32,500  GDP per capita  122% (UE28=100)

22.8%  Industrial GDP  (EU28=19.3%)

128.5  Productivity per employee

31.9%  Exports to GDP ratio

2.09%  R&D expenditure on GDP

30,000  People in R&D
AV Distribution by sector (%, 2012)*

- Electrical energy, gas and vapour: 12%
- Extractive industries: 0%
- Manufacturing industry: 85%
- Water supply and sanitation: 3%
- 0% Pharma
- 1% Coking plant/Refineries
- 1% Textil
- 2% Electronics
- 3% Chemical
- 4% Furniture
- 5% Electrical material
- 6% Foodstuffs
- 8% Wood/paper
- 9% Transport
- 10% Machinery and equipment
- 10% Rubber plastic and other non-metallic products
- 27% Metallurgy and metallic products

Distribution of the manufacturing GAV by activities (%, 2012)

- Metallurgy and metallic products: 32.3%
- Rubber, plastic and other non-metallic products: 12.3%
- Machinery and equipment: 11.9%
- Transport material: 11.2%
- Food industry, drinks, tobacco: 7.6%
- Wood, paper and graphic arts: 6.7%
- Electrical equipment and material: 6.1%
- Furniture and other manufacturers: 4.6%
- Chemical industry: 3.1%
- IT products and electronics: 2.3%
- Textile, tailoring, leather and footwear: 0.8%
- Coking plants and petrol refineries: 0.7%
- Pharmaceutical products: 0.5%

(*) basic prices and current euros (base 2010) Source: Eustat
Industrial policy

The Basque Country is usually seen as a successful industrial transformation and innovation upgrading.

But... in 2014, a moment of reflection and change to align Basque industry with a strategy of re-industrialization... through the upgrading and focusing on the higher added value activities.

6% less of manufacturing share in GDP

Evolution of manufacturing's share of Basque GDP (Millions of current Euros, %, 2005-2012)*

<table>
<thead>
<tr>
<th>Year</th>
<th>GVA</th>
<th>Percentage of manufacturing GVA</th>
</tr>
</thead>
<tbody>
<tr>
<td>2005</td>
<td>50,706</td>
<td>25.6%</td>
</tr>
<tr>
<td>2006</td>
<td>54,496</td>
<td>24.9%</td>
</tr>
<tr>
<td>2007</td>
<td>58,884</td>
<td>24.4%</td>
</tr>
<tr>
<td>2008</td>
<td>61,260</td>
<td>23.1%</td>
</tr>
<tr>
<td>2009</td>
<td>58,293</td>
<td>19.1%</td>
</tr>
<tr>
<td>2010</td>
<td>59,051</td>
<td>20.0%</td>
</tr>
<tr>
<td>2011</td>
<td>59,822</td>
<td>20.1%</td>
</tr>
<tr>
<td>2012</td>
<td>58,993</td>
<td>19.7%</td>
</tr>
</tbody>
</table>

CARG 05-12: 2.2%
CARG 05-12: -1.5%
Priority domains are a combination of technologies, products, processes and services from the different sectors and knowledge areas to give response to the opportunity areas.

RIS3 strategy is a natural extension of Basque historical policies in this area.

Basque Country has a long history defining economic development strategies over the last 35 years. Consecutive plans and strategies, responding to specific needs of each stage, have progressively sought modernization, competitiveness, specialization, diversification and sophistication of Basque economy.
ADVANCED MANUFACTURING is a multisector priority with plenty of economic agents to be taken into account

<table>
<thead>
<tr>
<th>Materials</th>
<th>Processes</th>
<th>Means</th>
<th>Systems</th>
</tr>
</thead>
<tbody>
<tr>
<td>Materials and their transformation processes</td>
<td>Manufacturing processes</td>
<td>Products and production tools</td>
<td>ITC support equipment to optimize the manufacturing resources</td>
</tr>
<tr>
<td>Transformation of raw materials into materials suitable for use in manufacturing processes</td>
<td>Set of phases necessary for the transformation of raw materials</td>
<td>The means utilized for carrying out the various manufacturing processes</td>
<td>Intelligent support tools for design, development, production and integrated manufacturing management</td>
</tr>
</tbody>
</table>

“A main bet in the Basque Country's Industrial strategy”
Joining visions, steps and strategies requires a really intensive-cooperation driven process

**Advanced Manufacturing Strategy Mission**

To strengthen the position of the Basque Country as an economy with an industrial base through the promotion of knowledge intensive manufacturing

**Strategic Objectives**

SO1. To help and guide Basque companies towards more knowledge intensive manufacturing activities which have greater added value

**Integration of KETs**

SO2. To promote multi-disciplinary and technological convergence in a structured fashion so as to develop best-in-class manufacturing capacities and solutions while optimizing existing resources

**Global value chains – Cluster 2.0**

SO3. To integrate local and international value chains to meet the challenges of Advanced Manufacturing using the sum of the particular capacities of each sector and its companies

**Scaling Up**

SO4. To foster collaboration and support as a catalyst for the industrialization of the results of R+D+i in Advanced Manufacturing

SO5. To support education and job training in technologies and management systems related to Advanced Manufacturing
REGIONAL ECOSYSTEM DEVELOPMENT AND RELATIONSHIP MODEL
A commitment to technological development in Advanced Manufacturing is crucial to maintain competitiveness in industry and to secure positioning in market niches with greater added value.
Coordination of a Manufacturing Community made up of clusters, scientific-technological agents and institutions around a public-private collaboration scheme: BASQUE INDUSTRY 4.0 STEERING GROUP

Relationship model

Customers

Suppliers

Scientific-technological Agents

Technologies Advanced Manufacturing

Energy

Transport

Biosciences

Other sectors

Primary Transformation

Advanced Services

Means and systems of production

Production of materials

Advanced Materials

Biotechnology

Nanotechnology

Microtechnology

ITCs
8 Strategic Initiatives capable of transforming Basque industry to “Basque Industry 4.0”

**Talent initiatives**
- SI14: Stem Subjects in Secondary Education
- SI13: Smart Training Network

**Core Initiatives**
- SI1: Connected Assed Network in Advanced Manufacturing
- SI2: Basque Open Industry Platform 4.0
- SI8: Advanced Services 4.0

**Efficiency and sustainability initiatives**
- SI6: Offshore 4.0
- SI15: Circular Economy
- SI7: Exploitation of heat

**International positioning**
- SI9: International positioning
BASQUE DIGITAL INNOVATION HUB
The aim of the hub is to provide easy and cost-efficient access to Basque industrial fabric, especially SMEs, to innovative and excellent scientific-technological capabilities in the Advanced Manufacturing environment, enabling it to evolve and become more competitive.

Currently, a virtual space is being built (www.basqueindustry.eus) as a showcase for the contents and resources offered on the HUB.
To date, an initial "Asset Catalog" has been built with System agents: technology centers, Advanced Manufacturing Centres, universities, Education centers.

- Capitalization: taking advantage of investments already made.
- Excellence: provision of state-of-the-art technologies.
- Connectivity: means to connect to a digital network platform.
- Multisectoriality: ability to operate for several sectors.
- Testing: possibility to test a process / service.
- Integration: accessible to various types of agents (applicants, manufacturers, R&D centers, universities, FP centers, etc.).
- Internationalization: connectable with other European hubs by reference.
- Sustainable: with energy efficiency, less environmental impact.

Comprehensive response to the foreseeable demands of Basque companies, particularly SMEs through:

State-of-the-art physical assets spanning the value chain from the raw material to the part. Logical assets, based on software and ICT libraries, supporting the design, process simulation and process monitoring system, artificial vision; 3D scan...
Flexible Robotics
Big Data Analytics
Additive Manufacturing
New Materials
Cybersecurity
Smart and Connected Machines
3D

R&D pilot projects
Product/process/service Pilots
Industrial Scaling
Showroom
Outward looking: Interregional cooperation

Efficient and sustainable manufacturing

Advanced manufacturing for energy applications in harsh environments

Catalonia  Lombardy  Basque Country  Scotland