RIS3 EUSKADI & ADVANCED MANUFACTURING STRATEGY
Basque Industry 4.0
MANUMIX INTERREG EUROPE
1st Learning Journey

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1. Overview of the regional RIS3
2. Scope of advanced manufacturing in the region
   • Priority areas
   • Actors involved
   • Main challenges
## Basque Country's General Figures

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>GDP per capita</td>
<td>€30,459</td>
</tr>
<tr>
<td>(119 EU 28: 100)</td>
<td></td>
</tr>
<tr>
<td>Productivity per employed person</td>
<td>130</td>
</tr>
<tr>
<td>EU 28:100</td>
<td></td>
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<tr>
<td>Industrial GDP</td>
<td>23.5%</td>
</tr>
<tr>
<td>(EU average: 19.3%)</td>
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</tr>
<tr>
<td>Internationalized Companies</td>
<td>1,660</td>
</tr>
<tr>
<td>Exports to GDP ratio</td>
<td>31.9%</td>
</tr>
<tr>
<td>R&amp;D expenditure on GDP</td>
<td>2.03%</td>
</tr>
<tr>
<td>Human Development Index</td>
<td>0.981</td>
</tr>
<tr>
<td>Researchers</td>
<td>30,000</td>
</tr>
</tbody>
</table>

### Map
- Population: 2,173,210
- Surface: 7,234 sq. Km.
- Market access within a radius of 1,000 km: 507,416,607 inhab.
Basque Country’s general figures

**GAV Distribution by sector (% 2012)**

- Extractive industries: 12%
- Electrical energy, gas and vapour: 9%
- Transport: 6%
- Foodstuffs: 6%
- Wood / Paper: 6%
- Electrical material: 5%
- Electronics: 3%
- Furniture: 4%
- Textile: 1%
- Pharma: 0%
- Coking plants / Refineries: 0%
- Metallurgy and metallic products: 27%
- Water supply and sanitation: 3%

**Manufacturing industry 85%**

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

- Metallurgy and metallic products: 32.3%
- Rubber, plastics 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
## Basque Country: leading hub

<table>
<thead>
<tr>
<th>Sector</th>
<th>Jobs/Investments</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ENERGY</strong></td>
<td>68,000 Jobs, €44,000 M IBERDROLA, GAMESA</td>
</tr>
<tr>
<td><strong>AUTOMOTIVE</strong></td>
<td>36,583 Jobs, €15,004 M CIE, GESTAMP, MERCEDES</td>
</tr>
<tr>
<td><strong>AEROSPACE</strong></td>
<td>12,546 Jobs, €1,755 M ITP, ROLLS ROYCE, SENER</td>
</tr>
<tr>
<td><strong>RAILWAY</strong></td>
<td>14,176 Jobs, €2,600 M CAF, TALGO; BOMBARDIER</td>
</tr>
<tr>
<td><strong>MARITIME</strong></td>
<td>14,210 Jobs, €2,150 M VICINAY, ZAMAKONA</td>
</tr>
<tr>
<td><strong>MACHINERY</strong></td>
<td>5,672 Jobs, €1,180 M DANOBAT; IBARMIA</td>
</tr>
<tr>
<td><strong>ELECTRONICS &amp; ICT</strong></td>
<td>10,840 Jobs, €2,840 M IBERMatica; EUSKALTEL; ZTE</td>
</tr>
<tr>
<td><strong>ECOINDUSTRIES</strong></td>
<td>20,000 Jobs, €4,000 M IDOM; ACCIONA; FCC AMBITO</td>
</tr>
<tr>
<td><strong>BIOSCIENCES</strong></td>
<td>2,700 Job, €376 M GRIFFOLS; ROXALL; NORAY</td>
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</tbody>
</table>
Industrial Policy in Basque Region

- 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.
Three smart specialization priorities have been selected: Advanced Manufacturing, Energy and Biosciences (mainly human health). Additionally, some niches related with the Territory have been identified.
### Main challenges identified during the Advanced Manufacturing Strategy definition

#### Manufacturing main challenges

<table>
<thead>
<tr>
<th>Final challenges (Basic strategy)</th>
<th>Action challenges (Action lines)</th>
<th>Support challenges (Governance)</th>
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<td>To shorten the deadlines from knowledge generation to the market</td>
<td>To train, educate and attract the needed professional profiles</td>
<td>• To improve the effectiveness and efficiency of policies to boost R&amp;D in manufacturing</td>
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<td>To industrialize in large scale products and processes based on emerging technologies</td>
<td>To generate infrastructures for the development of pilot experiences</td>
<td>• To use the challenges posed by global megatrends (aging, climate change, resource scarcity) to design and develop competitive technologies, products and processes.</td>
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<td>• To coordinate business sector, scientific and technological agendas</td>
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<td>• To advance in agent cooperation within and across sectors as well as locally and internationally</td>
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<td>• To deepen the value of intangibles associated with the design and generation of brands</td>
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</table>
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

Advanced Manufacturing Strategic Objectives

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

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

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

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
The aim of the Steering Group is to define and implement an **orderly action plan** aimed at responding in the short and medium-term to technological, business, organization and talent development priorities established by tractor industrial sectors in Euskadi, for increase their competitiveness and take advantage of future opportunities presented globally.
RIS3 Implementation
Stakeholders involvement

Levels
1. General Information Dissemination (Priority Lines, Actions, Progress)
2. Detailed Information Exchange with Representative Agents
3. Identification of Challenges, Opportunities and Priority Action Lines (Global Action Strategy)
4. Identification & Design of Collaborative Projects and Initiatives
5. Development and Execution of Collaborative Projects

Participants per Level

Cluster Organisations
Leading Tractor Companies
SMEs
RTOs
RIS3 Implementation
16 action lines – 6 core themes

1. Support for scientific-technological Agents within the Manufacturing Community
2. Support for Excellence in Basic Directed Research
3. Support for R+D projects: Strategic industrial research; Business product development R+D; Company start-up R+D
4. Help and support for the introduction of TEICs (Electronics, IT and Telecommunications Clusters)
5. Design and support for Advanced Manufacturing Centres (CFAs)
6. Setting up a network of show-rooms pilot plants. Basque Digital Innovation Hub
7. Help and support for design
8. Setting up Models of Advanced Management in companies
9. Training of high-level researchers
10. Training and enablement in design
11. Training and enablement in business models and manufacturing management (postgraduate in manufacturing)
12. Dual FP- (professional training)
13. Teaching and Learning Factories- CFAs
14. Clusters policy
15. Coordination with and participation in European R+D+I programs: Basque Contact Points
16. Advanced Manufacturing Steering Group

Applying a transversal approach involving various Government Departments and public companies to undertake responsibility for the programmed actions
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.
RIS3 Implementation Instruments

R&D support instruments have been focused on the support of knowledge generation within the Basque Science and Technology Networks and support of R&D activity within firms.
Technology Transfer Projects of "technological suppliers" (such as agents of the Basque Science, Technology and Innovation Network) to manufacturing industrial companies, in the area of EICTs (Electronics, Information and Communications Technologies) applied to Advanced Manufacturing, which have a demonstration effect and which will therefore accelerate the transfer to the market of the results of R&D projects in EICTs.
RIS3 Implementation
New Instruments
Technology transfer R&D in EICTs towards Industry

1 TECHNOLOGY AND INNOVATION
Basque Industry 4.0

PURPOSE
Support for Industrial Research and Experimental Development Projects that involve technology transfer from technology suppliers to industrial companies, in the realm of EICTs applied to Advanced Manufacturing, which have a demonstrative effect and make it possible to accelerate the transfer of results from R&D projects on EICTs into the market.

INTENDED FOR
Industrial manufacturing companies

SUBSIDY DESCRIPTION
The Projects must be related with one of the following areas, within the scope of the CPSs (Cyber Physical Systems) applied to advanced manufacturing: Cybersecurity and Industrial Communications - Cloud Computing - Big Data - Advanced Analytics and Business Intelligence - Collaborative Robotics - Augmented Reality - Artificial Vision - Sensor Systems - Design and Additive Manufacturing in metallic and advanced materials (ceramics, composites, etc.).

Subsidy figures: 25% of the eligible expenses and investments approved + 15% when the project involves effective cooperation between a company and one or more research and knowledge dissemination entities, up to a limit of €150,000 per project.

Eligible expenses and investments:
- Hourly-based work time expenses of the "R&D Agent" (for example, the agents in the Basque Science, Technology and Innovation Network), including assistance and consultation at the industrial plant.
- Hourly-based work time expenses of the "implementer" (consulting and engineering firms).
- Costs of acquiring Industrial Property offered by the RIVCTI agent.
- Investments and/or expenses on hardware and software.
- Internal personnel costs of the beneficiary company assigned to the project which is given the Subsidy.

The maximum annual funding per company shall be €200,000.

The projects must be classified from a level of TRL 5 to TRL 9. Minimum budget of the projects: €75,000

Year 2017 Subsidies Brochure
902 702 142 | info@spri.eus
RIS3 Implementation
New Instruments

ADVANCED MANUFACTURING CENTRE MODEL

PUBLIC-PRIVATE COLLABORATION

- Public support for initial investment
- Cluster manages the infrastructure
- Research Entity operates the facility
- Industry Consortium supports operation
- Open access to any user

TRL 1: Basic principles observed and reported
TRL 2: Technology concept and/or application formulated
TRL 3: Analytical and experimental critical function and/or characteristic proof of concept
TRL 4: Component and/or breadboard validation in a laboratory environment
TRL 5: Component or breadboard validation in a relevant environment
TRL 6: System/subsystem model or prototype demonstration in a relevant environment
TRL 7: System prototype demonstration in an operational environment
TRL 8: Actual system completed and qualified through test and demonstrated
TRL 9: Actual system proven through successful mission operations

“DEATH VALLEY”

Advanced Manufacturing Centres
Test Infrastructures
RIS3 Implementation
New Instruments

The first startup accelerator offering access to high-level Industry 4.0 customers

BIND4.0

STARTUP!
BASQUE INDUSTRY 4.0
ACCELERATOR PROGRAM

Combines 2 objectives

Public-private initiative
International in nature
Industry 4.0

Speeds up startups by collaborating with large companies
Companies committed to the country + interested in drawing talent from startups
RIS3 Implementation
New Instruments

BDIH consists on a digitally linked network of Competence Centers with R&D infrastructures, pilot lines and technical expertise specialized in different areas of Advanced Manufacturing.
RIS3 Implementation Instruments

Interregional cooperation

Efficient and sustainable manufacturing

Advanced manufacturing for energy applications in harsh environments

Catalonia, Lombardy, Basque Country, Scotland
Main challenges

- Main challenges identified during the Advanced Manufacturing Strategy definition and relation with Basque Industry 4.0 strategy

### Manufacturing main challenges

**Final challenges (Basic strategy)**
- To shorten the deadlines from knowledge generation to the market

**Action challenges (Action lines)**
- To train, educate and attract the needed professional profiles

**Support challenges (Governance)**
- To improve the effectiveness and efficiency of policies to boost R&D in manufacturing
- To use the challenges posed by global megatrends (aging, climate change, resource scarcity) to design and develop competitive technologies, products and processes.

**Steering group, working groups, rebumping of BSTIN, new instruments**
- SO2. Integration of KETs: To industrialize in large scale products and processes based on emerging technologies
- SO4. Scaling Up: To develop the means to produce and industrialize products and services based on emerging technologies
- SO5. Education & Training: To generate infrastructures for the development of pilot experiences

**SO2. Integration of KETs**
- Steering group, working groups, rebumping of BSTIN, new instruments

**SO3. Global Value Chains**
- Steering group, working groups, rebumping of BSTIN, new instruments

**SO4. Scaling Up**
- To coordinate business sector, scientific and technological agendas
- To advance in agent cooperation within and across sectors as well as locally and internationally
- To deepen the value of intangibles associated with the design and generation of brands
Thank you
Eskerrik Asko
Muchas Gracias

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