Catalan Innovation Ecosystem and opportunities for cooperation- Catalonia experience with smart specializations

Michał Chabasiewicz
Director, ACCIÓ Poland

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CATALONIA IN THE WORLD
Catalonia: main figures

Dynamic Economy
- Area: 32,108 Sq. km
- Population: 7.5 million
- GDP: €209.3 billion (2015)
- GDP per capita: €28,181 (2014)
- Companies: 586,443

Open & Global (2014)
- Tourists: 18.3 million/year
- Exports: €60.2 billion
- Imports: €71.9 billion
- Foreign companies: 6,454 (2015)
- Foreign Direct Investment: €4.78 billion (2015)

Innovative (2013)
- 8,206 innovative companies (4,057 with technological innovation)
- 1.50% of PIB dedicated to R&D
- 1.0% of world’s scientific production
- 59.4% exports of industrial products in high and medium-high tech sectors (2014)

Compared to the EU
- 1.5% of EU-28 population (± Denmark, Austria)
- 1.6% of EU-28 GDP (± Finland, Denmark)
- 1.3% of EU-28 exports (± Finland, Hungary)

Compared to Spain
- Area: 6%
- Population: 16%
- GDP: 20%
- Innovative companies: 22%
- Industry: 23%
- Foreign Trade: 26%
- Tourism: 28%
- Foreign companies: 40%
An overview of Catalonia: economic and innovation situation

Barcelona is known for its history, its art, its climate, its landscape and its lifestyle. Catalonia has also a dynamic economy, diversified, industrial and attractive for business.

The Catalan economy is characterized by a good combination of factors that make it competitive.

- Creativity, talent and training. Ethics in the workplace. Competitive salaries.
- International Climate. Commercial dynamism, openness to the outside world and economy attractive for multinational enterprises.
- Diversified industrial network. Strong and productive Industrial Tradition. Quality products and services.
- Business Mentality. Focused on business. Flexibility and innovation.
Barcelona is one of the few cities in Southern Europe with fully integrated intermodal transport: port, airport, highways and railroads, each with global connectivity in a radius of 12 km.

- **Strategic location and global connectivity**
  - 80 airlines
  - 140 destinations worldwide
  - 35 million passengers

Best airport in Southern Europe
Best European cargo airport

Excellent road and rail network
Mediterranean corridor, priority rail project on the UE

One of the main Mediterranean ports, leader in cruise traffic.
First semi-automated port.
Logistics zone of 249 ha.
Internationalization

Record number of exports for the fourth consecutive year: € 60,195 M

Export firms: 47,586 (15,946 record number of regular exporters)
**Scientific infrastructure**

Recognized groups of basic and applied research, encouraging technology transfer and a network of scientific infrastructures and technology centres configure the foundation of research and innovation in Catalonia.

Hospitals, universities and research groups from all areas. Catalan research stand out in fields such as oncology, biological science, nanotechnology, photonics... etc.

TECNIO centres of technology transfer, in different areas, give added value to business projects.
Grants received Horizon 2020 & FP7

€187 Million (on September’15)

- 2014: €143 million
- 2015: €44 million (end of September’15)

Great success participating in competitive EU programmes:
- FP7 Catalonia 2007-13 (competitive): €992 million
- ERDF Catalonia 2007-13 (non competitive): €679 million

Source: CDTI, 2015
Catalan Innovation Ecosystem

- Industrial strategy for Catalonia
- Leading sectors
- Actors of the Catalan Innovation System
Industrial strategy for Catalonia

Why?

Prioritization based on evidence: RIS3 enhance economic specialization and knowledge that are best suited to the innovation potential of each region, on the basis of assets and capabilities.

What?

- Strategy of research and innovation for a smart specialization of Catalonia.
- Defines the strategic framework from which the Government develops R+D+I interventions and programmes for 2014-2020.

When?

2014-2020

Innovation strategies for smart specialization of European regions:

- Complete economical transformation agenda.
- Based on innovation, research and collaboration
- Give coherence in research and innovation investment.
- Optimize the impact on economic and social development from European regions.
RIS3CAT: relationship between the four core areas

- Pillar 1: Leading sectorial areas
- Pillar 2: Emerging Clusters
- Pillar 3: Key Enabling Technologies
- Pillar 4: Innovation environment
Leading Sectors

- Food
- Energy and resources
- Industrial systems
- Design-based industries
- Industries based on sustainable mobility
- Health industries
- Cultural and experience-based industries
<table>
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<tr>
<th>Cross-Cutting Enabling Technologies</th>
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<tbody>
<tr>
<td>ICT</td>
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<tr>
<td>Nanotechnology</td>
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<tr>
<td>Advanced materials</td>
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<tr>
<td>Photonics</td>
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<tr>
<td>Biotechnology</td>
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<tr>
<td>Advanced manufacturing</td>
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</table>
Actors of the Catalan Innovation System

Public

Developers
Research Centers
Universities

Facilitators
TT offices
Incubators
Scientific parks
Development agencies

Private

Developers
R&D corporate labs
R&D Consortia
Technology centers

Facilitators
Venture Capital Funds
Consulting firms
Law firms
Certification agencies

* Source: Managing Technology and Innovation for Competitive Advantage (Narayanan)
Incoming evolution from Advanced Technology Centers by origin

- **€114.7 million** total turnover
  - **€44.5 million** R&D companies turnover
  - **3,313** people employed in TECNIO centres
    (1,229 doctorates)
  - **6,523** clients
  - **8 spin-off** created
  - **44** European patents or PCT applications
  - **20** licensed or transferred patents

**Total incoming TECNIO:**

- **ALTTRES INGRESSOS NO RDI TECNIO**
- **ALTTRES INGRESSOS RDI TECNIO**
- **FACTURACIÓ R+D A EMPRESES TECNIO**
- **ING. PÚBLICS COMP. TECNIO**
- **INGRESSOS PÚB. NO COMP. TECNIO**
2014 - 2016
Integration process of **5 ATCs** in **1 reference Technological Centre**

- **To become the main industrial interlocutor** regarding to the technological development
- **To become a multi-location centre**, focusing every activity site according to their technological specialisation and industrial sectors of reference.
- **To optimize resources and infrastructure**, thus rationalising the usage of public funding
- **To acquire the capacity to compete** for R+D+i resources both at an European and International level, **competing on equal terms with other European centres of reference** such as Fraunhoffer or Tecnalia.
- **To acquire a clear commercial vocation** towards SMEs, acting as the **innovation driving force in Catalonia**
<table>
<thead>
<tr>
<th>Research Centers</th>
<th>Hospital Institutes</th>
<th>Others</th>
</tr>
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<tbody>
<tr>
<td><strong>CERCA:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CIIRC, CIMNE, CRM, CTTC, CVC, IBEC, ICFO, ICIIQ, ICN, ICP, ICRA, IEEC, IFAE, IG, IC3, IREC, i2CAT, CMRB, CREAL, CRESIB, CRG, CTFC, ICCC, IDIBAPS, IMPPC, IRB Barcelona, VHIO, IRTA, CRAG, CRESA, CREF, IDIBGI, RROTECNIO, CED, CREI, ICAC, ICRPC, IPHES, MOVE.</td>
<td>Institut hospitalari Universitat Vall d’Hebron</td>
<td>39 basic research centres, funded by the Catalan Government</td>
</tr>
<tr>
<td><strong>IRTA (Food&amp;Agriculture)</strong></td>
<td>Institut d’investigació Biomedica de Bellvitge</td>
<td>11 Hospital research institutions</td>
</tr>
<tr>
<td>10 own centers + 7 consortia: CRAG, CRESA, CENTA, CREDa, CREAF, Estació Experimental Mas Badia i Semega.</td>
<td>Institut d’investigació sanitària Pere Virgili</td>
<td>19 CSIC centres (Spanish consortia for research)</td>
</tr>
<tr>
<td><strong>TECNIO</strong></td>
<td>Fundació Institut d’investigació en Ciències de la Salut Germans Trias i Pujol</td>
<td>University departments</td>
</tr>
<tr>
<td>University Research Centres</td>
<td>Institut Hospital del Mar d’investigacions Mèdiques</td>
<td>Private R+D centres</td>
</tr>
</tbody>
</table>

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Public and private Universities

Universitat de Barcelona
Universitat Autònoma de Barcelona
Universitat Politècnica de Catalunya\nBarcelonaTech
Universitat Pompeu Fabra
Universitat de Lleida
Universitat de Girona
Universitat Rovira i Virgili
Universitat Ramon Llull
Universitat de Vic
Universitat Abat Oliba CEU

Business Schools

ESADE Business School
IESE Business School
eada business school

ACCIO  Generalitat de Catalunya Government of Catalonia
tecnio.cat
Clusters in Catalonia

Number of clusters identified in Spain

Clusters identified in Catalonia (classification by Cluster Observatory)

<table>
<thead>
<tr>
<th>Industry</th>
<th>IT</th>
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</thead>
<tbody>
<tr>
<td>Construction</td>
<td>Jewellery &amp; precious metals</td>
</tr>
<tr>
<td>Financial services</td>
<td>Leather products</td>
</tr>
<tr>
<td>Pharmaceuticals</td>
<td>Lighting &amp; electrical equipment</td>
</tr>
<tr>
<td>Transportation &amp; logistics</td>
<td>Plastics</td>
</tr>
<tr>
<td>Agricultural products</td>
<td>Power generation &amp; transmission</td>
</tr>
<tr>
<td>Apparel</td>
<td>Processed food</td>
</tr>
<tr>
<td>Automotive</td>
<td>Production technology</td>
</tr>
<tr>
<td>Building fixtures, equipment &amp; services</td>
<td>Sporting, recreational &amp; children’s goods</td>
</tr>
<tr>
<td>Chemical products</td>
<td>Stone quarries</td>
</tr>
<tr>
<td>Construction materials</td>
<td>Telecom</td>
</tr>
<tr>
<td>Distribution</td>
<td>Textiles</td>
</tr>
<tr>
<td>Education &amp; knowledge creation</td>
<td>Tobacco</td>
</tr>
<tr>
<td>Entertainment</td>
<td>Tourism &amp; hospitality</td>
</tr>
<tr>
<td>Farming &amp; animal husbandry</td>
<td></td>
</tr>
<tr>
<td>Heavy Machinery</td>
<td></td>
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Catalan Innovation Ecosystem

Selected Programmes
INNOVATION VOUCHERS

Direct discount and strategic partnership instrument.
INTERNATIONAL INNOVATION PROGRAM

Connect with priority markets through our technology antenna network spread across the world
HORIZON 2020
SUPPORT SERVICE

Training in European projects management and support to prepare and present your projects
INNOVATE THROUGH START-UPS

Source of innovation for consolidated companies
Vanguard Initiative

• Partnership of European regions that want to be frontrunners in the application of smart specialisation as a strategic principle in European innovation and industrial policy to promote new growth through a bottom-up dynamics in the regions.

1st Generation Pilot Projects (Focus on Advanced Manufacturing (ADMA), June 2014)
• High Performance Productions with 3D Printing (South-NL, Flanders)
• Efficient and Sustainable Manufacturing (Lombardy, Catalonia)
• Advanced Manufacturing for Energy Related Applications in Harsh Environments (Scotland, Basque Country)

2nd Generation Pilot Projects
• Innovative use of Bio-mass (South Holland / Lombardy)
• New nano-enabled products (Skåne, Tampere)
SMART SPECIALIZATIONS IN POMERANIA & CATALONIA
SMART SPECIALIZATIONS IN POMERANIA & CATALONIA

- OFF-SHORE TECHNOLOGY & LOGISTICS
  - Ports de la Generalitat

The Port of Barcelona:

- Activities: Port of Barcelona - ship, logistics and intermodal transport service; commercial and entertainment
- Companies employ directly 13,365 people
- Frequent connections with over 300 ports around the world
- Cooperation with specialized engineering companies
SMART SPECIALIZATIONS IN POMERANIA & CATALONIA

- INTERACTIVE TECHNOLOGIES in an environment saturated with information

- Universitat Politècnica de Catalunya - BarcelonaTech (UPC) is a public institution dedicated to higher education and research, specialised in architecture, engineering and technology.

- Potential cooperation field: Space industry
**SMART SPECIALIZATIONS IN POMERANIA & CATALONIA**

- ECO-EFFICIENT TECHNOLOGIES IN PRODUCTION, INDUSTRY, DISTRIBUTION AND CONSUMPTION OF ENERGY AND FUELS

The Catalonia Institute for Energy Research (IREC)

Energetic Efficiency Cluster (CEEC)

IREC Technology and Research Areas:
- Lighting
- Thermal Energy and Building Performance
- Bioenergy and Biofuels
- Offshore Wind Energy
- Electrical Engineering
- Advanced Materials for Energy

- 100 members
- Collaboration with foreign entities
SMART SPECIALIZATIONS IN POMERANIA & CATALONIA

• **MEDICAL TECHNOLOGY FOR LIFESTYLE DISEASES AND AGING PERIOD**

• Health sector in Catala (70 hospitals, 421 medical centres, 3.151 pharmacies)

• Med Tech sector in Catalonia enjoys good health. It has become a reference point in Europe for research in medical technology.

• Catalonia represents 40% of the Spanish market with 200 companies, 5,000 jobs and €1,200 M in turnover.

• 50% of Spanish exports on this sector come from Catalonia.

• 90% of Med Tech companies are located in the Barcelona Metropolitan Area and its most common activity is manufacturing medical devices.

• Catalan companies focus mainly on oncology, nervous system, cardiology and infectious diseases. Most come from an academic environment and from hospitals.
**SMART SPECIALIZATIONS IN POMERANIA & CATALONIA**

- Medical technology in terms of lifestyle diseases and aging period

Major contributors to growth of the Catalan Med Tech cluster
THANK YOU FOR YOUR ATTENTION

PLEASE FEEL FREE TO CONTACT US:

ACCIÓ POLAND
MICHAł CHABASIEWICZ - Director
AL. JEROZOLIMSKIE 61 00-679 WARSZAWA
Tel.: +48 22 843 72 08
Tel. mobile: +48 506 704 178
mchabasiewicz@catalonia.com