Local Knowledge and Innovation Dynamics: A Comparative Perspective Between the European Union and the United States
MAPS-LED PROJECT

FUNDING: HORIZON 2020 MSCA

LIFESPAN: 2015-2019

PARTNERS: 6 UNIVERSITIES (4 EU/ 2 US)

GOAL: IDENTIFY AND PRESCRIBE THE IMPLEMENTATION OF S3 IN TERMS OF SPATIAL, SOCIAL AND ENVIRONMENTAL FACTORS

DRIVERS:
CLUSTER POLICIES, TERRITORIAL MILIEU
Where
The contexts of innovation
EU FUNDING

€ 213,8 Billion
2014-2020

Total EU investment according to different scheme of funding, including Financial Instrument

Innovation policy

Horizon 2020 and SMEs
EUR 80 billion of EU funding available over 7 years (2014 to 2020)

European Structural and Investment Funds
EUR 110 billion to innovation activities, ICT, SME competitiveness and the low carbon economy.

European Fund for Strategic Investments
64 €9,3bil
RIS3 Infrastructure and innovation projects
185 145800 Agreement SME STARTUP
€3,5bil
€100bil Total Expected Investment triggered

Access to finance
Micro, Small, SME, Mid-cap
Research, development, innovation Start-up, early stage
INNOVATION SCOREBOARD 2017

Population with tertiary education; Lifelong learning; Scientific co-publications; Most-cited publications; R&D expenditure public sector; R&D expenditure business sector; Non-R&D innovation expenditures; Product or process innovators; Marketing or organisational innovators; SMEs innovating in-house; Innovative SMEs collaborating with others; Public-private co-publications; EPO patent applications; Trademark applications; Design applications; Employment medium and high tech manufacturing & knowledge-intensive services Exports medium and high tech manufacturing; Sales of new-to-market and new-to-firm innovations

A 87% Innovation Distance • 2017
B 80% Innovation Distance • 2013
C 79% Innovation Distance • 2009
Cross-Sectoral Clusters
European Cluster Observatory

Cross-Sectoral Clusters / Emerging Industries
Total number of stars in a region where stars are defined for the ten Cross-Sectoral Clusters / Emerging Industries

Cluster strength in a region

Innovation HUB.

172

Sectoral Clusters
Total number of stars in a region where stars are defined for the 51 Sectoral Clusters.
Six points

Investing in the Building Blocks of Innovation
- Research
- Education
- Infrastructure investment
- Digital Infrastructure

Creating Quality Jobs and Lasting Economic Growth

Fueling the Engine of Private-Sector Innovation
- Private-sector investments in R&D (tax credit)
- Innovative Entrepreneurs (startup)
- R&D commercialization: Incubators
- Empowering Innovators with Open Federal Data
- Regional Innovation Ecosystems (cluster initiatives)

Empowering a Nation of Innovators
- Creativity
- Crowdsourcing
- Design Strategies to Co-create With the Public

Delivering Innovative Government with and for the People
- Toolkit for Public-Sector Problem-Solving
- Innovation Labs
- Digital Service Delivery
- Social Innovation

Catalyzing Breakthroughs for National Priorities
- Tackling Grand Challenges (world)
- Targeting Disease with Precision Medicine
- Neurotechnologies
- Innovations in Health Care
- Smart Cities (services)
- Clean Energy

$589 Billion
From 2015

GRANT COMPETITIONS
The Regional Innovation Strategies (RIS) Program, a catalytic national grant program focused on regional capacity-building.

i6 Challenge - Funding to build regional capacity to translate ideas and inventions into products, services, companies, and jobs.

Seed Fund Support - Funding to support availability of and access to regional risk capital for early-stage companies.
High Employment Specialization in a region (in the top 25% of all regions by specialization, and also meeting minimum criteria for employment and establishment; see: Specialization).

Industries located in regions with strong clusters experience higher growth in new business formation and start-up employment.
Traded vs. Local Share of the U.S. Economy

**Traded Industries**
- ‘Spiky’ across space; 2/3s of all traded industry employment is concentrated in strong clusters
- Serve national and global markets
- Exposed to competition from other regions and nations
- Critical for prosperity through higher wages, productivity, and innovation; growth potential set by the global market

**Local Industries**
- Present everywhere, proportional to overall size
- Serve exclusively the local market
- Little exposure to cross-regional competition
- Important for jobs but have lower wages; growth potential limited by size of the local market

Delgrado, 2015
The innovation policies in EU-US contexts
Comparing US and EU in innovation policy

**US**
- Regional Innovation Strategies Program (RIS).

**EU**
- Research Innovation Smart Specialization Strategies RIS3.

### I6 GRANT PROGRAM
Funding to build regional capacity to translate ideas and inventions into products, services, companies, and jobs.

### SEED FUND SUPPORT (SFS) GRANT COMPETITION
Funding to increase availability of and access to regional risk capital for early-stage companies.

**2014**
- **ESI Funds**
  - Under the broad theme of “research and innovation” the ERDF and EAFRD invest in a range of investment priorities and union priorities to strengthen research, technological development and innovation. (Under other themes the ESF through investment in labour market, education and training also contributes to human capital development.)

**2016**
- **Recipients**
  - Cities
  - Universities
  - Non-profit Organization
  - Start UP

<table>
<thead>
<tr>
<th>2014</th>
<th>2016</th>
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<tbody>
<tr>
<td><strong>ESI Funds</strong></td>
<td><strong>Recipients</strong></td>
</tr>
<tr>
<td><strong>4804</strong> firms receiving support</td>
<td><strong>SME</strong></td>
</tr>
<tr>
<td><strong>1574</strong> Start-Up</td>
<td><strong>Universities</strong></td>
</tr>
<tr>
<td><strong>441</strong> New direct jobs</td>
<td><strong>Research Center</strong></td>
</tr>
<tr>
<td><strong>€ 183m</strong> Private match investment</td>
<td><strong>Start UP</strong></td>
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- Funding rounds awarded: **3**
- Applicants: **626**
- Federal request: **$245m+**
- Committed local match: **$290m+**
- Jobs created: **2000**
Regional innovation clusters

Geographic concentrations of interconnected businesses, suppliers, service providers, coordinating intermediaries, and associated institutions like universities or community colleges in a particular field.

By facilitating such dynamics as labor market pooling, supplier specialization, and knowledge spillovers, industry clusters benefit all sorts of firms and regions by enhancing the local and innovation potential, encouraging entrepreneurship, for job creation.

Cluster Initiatives

Are formally organized efforts to promote cluster growth and competitiveness through collaborative activities among cluster participants.

Cluster initiatives and cluster initiative programs supporting multiple initiatives are run by governments. Cluster initiatives may sponsor education and training activities, encourage relationship building, or facilitate market development through joint market assessment and marketing.

Competitiveness

Is the result of both top-down and bottom-up processes in which many companies and institutions take responsibility.

Economic development is a collaborative process involving government at multiple levels, companies, teaching and research institutions, and private sector organizations.

Why Innovation policy

What is the distinctive competitive position of the geography given its location, legacy, existing strengths, and potential strengths?

– What unique value as a business location?

– For what types of activities and clusters?

What elements of the business environment can be unique strengths relative to peers/neighbors?

What existing and emerging clusters represent local strengths?.
Smart specialisation strategies are about enabling regions to turn their needs, strengths and competitive advantages into marketable goods and services.

Place-based
Focus on R&D and Innovation
Cross-sectorial connection
Key role of entrepreneurial actors
Critical mass and scale of activity

Step 1: Analyse the regional context and potential for innovation; Step 2: Ensure participation and ownership; Step 3: Elaborate an overall vision for the future of the region; Step 4: Identify priorities; Step 5: Define a coherent policy mix and action plan; Step 6: Integrate monitoring and evaluation mechanisms.

Economic development is a discovery process to structure and integrate the entrepreneurial knowledge which is dispersed and fragmented towards the desirable area of change.

RIS3 are regional Plan to improve design and implementation of future innovation, research and related strategies, and the subsequent development of smart policy mix at multiple governance levels.

Why Innovation policy
How to promote efficient, effective and synergetic use of public investments and supports countries and regions in strengthening their innovation capacity, while focusing scarce human and financial resources in a few globally competitive areas in order to boost economic growth and prosperity?
Comparing US and EU in innovation policy

US
Regional Innovation Strategies Program (RIS).

EU
Research Innovation Smart Specialization Strategies RIS3.

CLUSTER-based analysis
- provides a conceptual framework to describe and analyze important aspects of modern economy
- potential elements of a regional innovation eco-system
- the cluster approach facilitates analysis of innovation needs to improve innovation policy and can serve as a useful framework for coordinating policies.

Entrepreneurial discovery
- allows to generate new specialties through the discovery of new domains of opportunity and the local concentration and agglomeration of resources and competences in these domains.

Place-based approach
Innovation ecosystem
The shift from success factors of cluster (that are naturally included when a cluster is identified) to the business atmosphere (as defined by Schumpeter), which is due for the presence of cluster (the innovation concentration) or affects the innovation when is concentrated, led to define two related research questions:

1. what happens when innovation is concentrated and why it happens
2. To booster research and innovation, as precondition of S3 implementation, what are the factors that can affect innovation process in a particular context.
The MAPS-LED vision: NEED FOR APPLIED METHODOLOGY

Based on a multidisciplinary approach in combining urban-regional science with research-innovation dynamics, a novel methodology has been delivered to spatialize clusters in Boston and San Diego, as expression of how innovation is experimented in the modern economy and how the place works.

How cluster performance factors can be combined with the context characteristics by highlighting the spatial implications of knowledge dynamics?

the geographic concentration of cluster is characterized by a *multiscalar* and *multivariable* geography:

in each territorial dimension (from *state* level to *city* level), the cluster provides a conceptual framework to describe and analyze important aspects of modern economies of that territorial dimension.

Its role is not to define a specific area, but to characterize the specific geographic area in terms of innovation, specialization and capacity to activate competitive and comparative advantages.

According to the applied spatialisation methodology, the cluster even with a physical configuration acquires the connotation of *innovation concentration explanatory*
The methodology’s rationale is based on the explanation that a specific land use code can be combined to a set of economic activities classified within NAICS codes, and subsequently to sub-clusters and then to clusters.

Source: MAPS-LED project elaboration
The link between Clusters and Spatial Planning

The spatialisation at urban level through the association between NAICS and Land Use using the parcels as reference unit allows at detailing the specific localisation of clusters at urban level.

This association yielded our research team to produce maps of Cluster spatialization in the cities of Boston, Cambridge, and San Diego.
The MAPS-LED vision
Cluster spatialization at city level and innovation spaces
The emerging places in which innovation is concentrated, from clusters’ spatialisation, are urban areas subjected to urban regeneration initiatives, some of them explicitly finalized to innovation districts.

**Urban Planning tools**
(city transformation) **PLACE**

**Target Areas**
(knowledge convergence) **KNOWLEDGE**

**Cluster spatialisation**
at urban level  **INNOVATION**
The MAPS-LED vision: FOCUS ON CLUSTER INITIATIVES

The perception of space/place MEMBERS

Company and Business

40 Interviews.

1 What type of company do you work for?

- Big Company: 3%
- Individual Professional: 18%
- SME: 26%
- Start up: 54%

2 Which business sector do you work for?

- 17% business services
- 15% Life science
- 13% Education
- 12% ICT
- 10% Regional
- 21% National
- 26% International

3 What is the geographic scale?

- Variety of businesses concentrated in one HUB: 62%
- Price of office spaces: 21%
- Networking events: 10%

4 What are the main 3 reasons for which your company decided to locate in CIC?

- MIT: 1%
- T Subway: 2%
- SMEs in different sectors: 3%

Scope and importance

- 72% Venture Café
- 50% Networking event
- 25% ad hoc meeting local events
- 29% ideas through knowledge sharing and collaboration with Research centers
- 39% Create, test and experiment new products
- 42% Generate new ideas through knowledge sharing and collaboration with other companies
- 42% Improve business process to increase efficiency

How does your company intend to be innovative and more competitive.

- What are the most important events that facilitate your interaction with comp., members and visitors

29%
The MAPS-LED vision: FOCUS ON CLUSTER INITIATIVES
The perception of space/place VISITORS

Company and Business

1. Are you a....
   - Big Company: 7%
   - Founder/director/team leader/empl. SME: 7%
   - Individual professional: 20%
   - Founder/director/team leader/empl. STARTUP: 33%
   - Student/researcher/Academic: 33%

2. Which business sector do you work for?
   - 30% IT
   - 20% Financial Services
   - 20% Marketing
   - 10% Biopharma

3. What is the geographic scale?
   - International: 80%
   - National: 10%
   - City: 10%

Scope and importance

1° Networking opportunity
2° Sharing ideas
3° Training and education

1. What are the most important services provided
   - 50% Attract big company in the area
   - 33% Create new jobs
   - 42% Contribute to local economic development
   - 67% Attract and retain local new graduate and local innovative companies
   - 83% Provide a meeting place for the larger community

2. What are the main contribution that the place makes to the local community
   - 50% Attract big company in the area
   - 33% Create new jobs
   - 42% Contribute to local economic development
   - 67% Attract and retain local new graduate and local innovative companies
   - 83% Provide a meeting place for the larger community

40 Interviews.
The MAPS-LED vision
How to Measure EDP

Output Indicators

1. Place
   - square meters of sites for innovation
   - New urban facilities
   - Innovative public service (i.e. outsourcing, wireless broadband availability and coverage)
   - Mixed used and mixed income (housing, public service (land capture) business, education,

2. Knowledge
   - Number of networking activities (events) based on multi-domain initiatives
   - Number of visitors/participants to the events
   - Availability of analysis with: big data, open data, data analytics
   - Availability of research facilities

3. Innovation
   - Number of start-ups
   - Variety of business sectors (memberships and visitors)
   - life-cycle oriented Measures in Credit access (joining financial products risk, loan and guarantee)
   - Number of initiatives to avoid credit concentration

Result Indicators

Joint venture (JV) arrangements,
Venture capital involved on total investment
Start up-survival rates after 3 and 5 years ,
Multi-domain initiatives
Public-private partnership budget
2015 -

The key elements that distinguish the smart specialisation approach from earlier, more traditional approaches to regional development or industrial policies are that in its design it is based on a so-called “entrepreneurial discovery process” of possible opportunities for developing new comparative advantages.
EDP is the medium to design tailored policy by acting on the relation among Knowledge Innovation Place.

EDP shall be managed at local level and included in the urban development agenda to reinforce the connections urban-rural.

EDP is activated by urban regeneration mechanisms and simultaneously expands innovation towards urban regeneration initiatives in deprived areas.

The mechanism of urban regeneration allows setting public-private partnerships to filter the innovation. And allows to support the innovative financial instruments because:

Local audit, network effect management, advising the cycle of start up and cluster (need of different financial products – from equity to loans in each stage of their cycle – local credit access.)
The structural transformation literature focuses on the nature of the national economy and the policies set at this level. Location-specific interventions like special economic zones and industrial parks are being discussed but remain a tool of national policymakers.

The competitiveness literature focuses instead on the complementary roles of different levels of government and emphasizes the role of subnational regions in both analysis and action (Ketels, 2017).

The competitiveness literature argues for a focus on upgrading competitiveness fundamentals in a highly context-specific way, using all existing clusters of related industries as platforms to inform and mobilize action to upgrade competitiveness.

The structural transformation literature suggests pushing the development of specific industries perceived to have more development potential, using industry-specific interventions.
THANK YOU

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