



Marie Skłodowska-Curie RISE  
MAPS-LED  
Multidisciplinary Approach to Plan Smart Specialisation Strategies  
for Local Economic Development



# Knowledge Dynamics, Innovation-driven policies and space in the MAPS-LED Project

**Carmelina Bevilacqua**  
*(MAPS-LED Project Coordinator)*  
PAU unit

*First International Workshops*  
**MAPS-LED PROJECT**  
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Università “La Sapienza” of Rome, ITALY

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## Outline

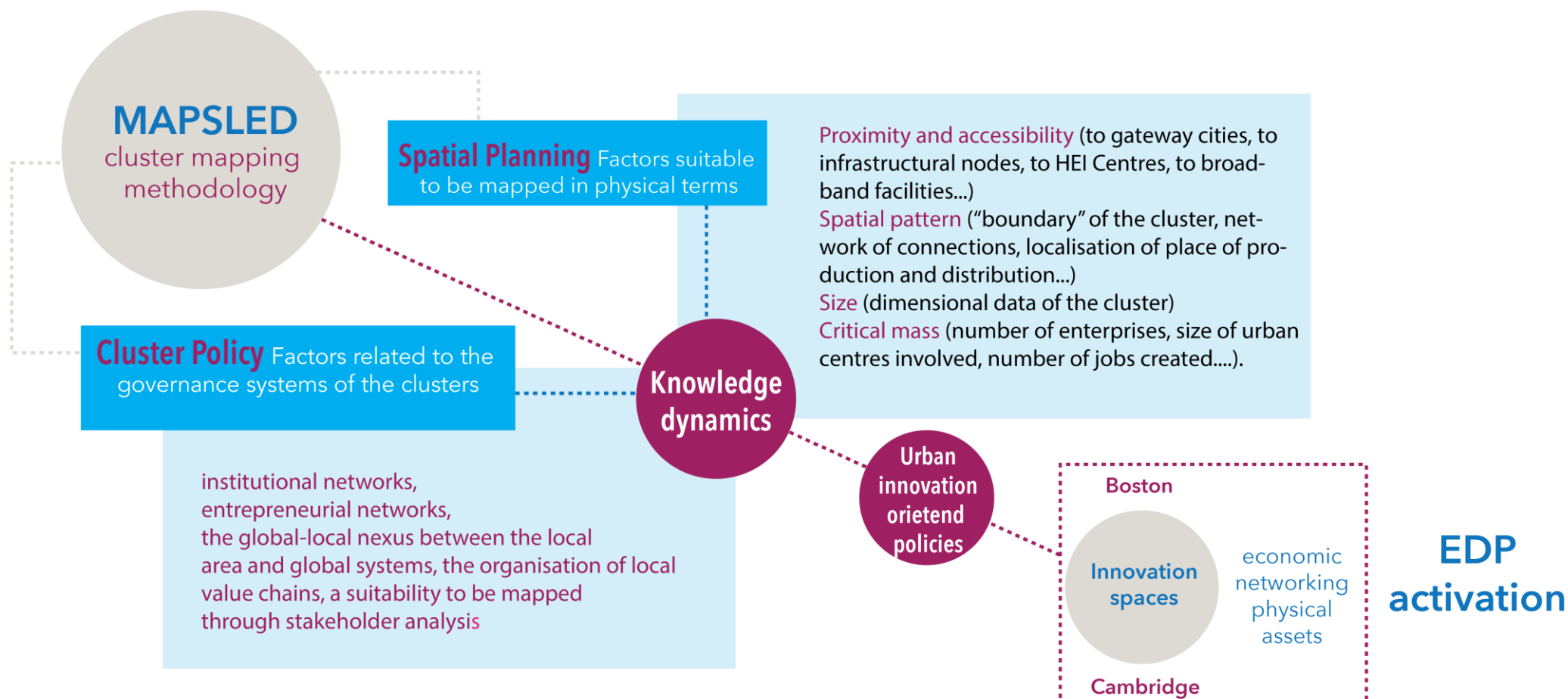
### Introduction

- I. MAPS-LED project: Knowledge dynamics, Innovation and entrepreneurial knowledge**
- II. The centrality of entrepreneurship in EU and US innovation policies**
- III. The spatial perspective for the entrepreneurial discovery process: Knowledge Dynamics, Innovation and Space**

**MAPS-LED: a new urban dimension for S3?**

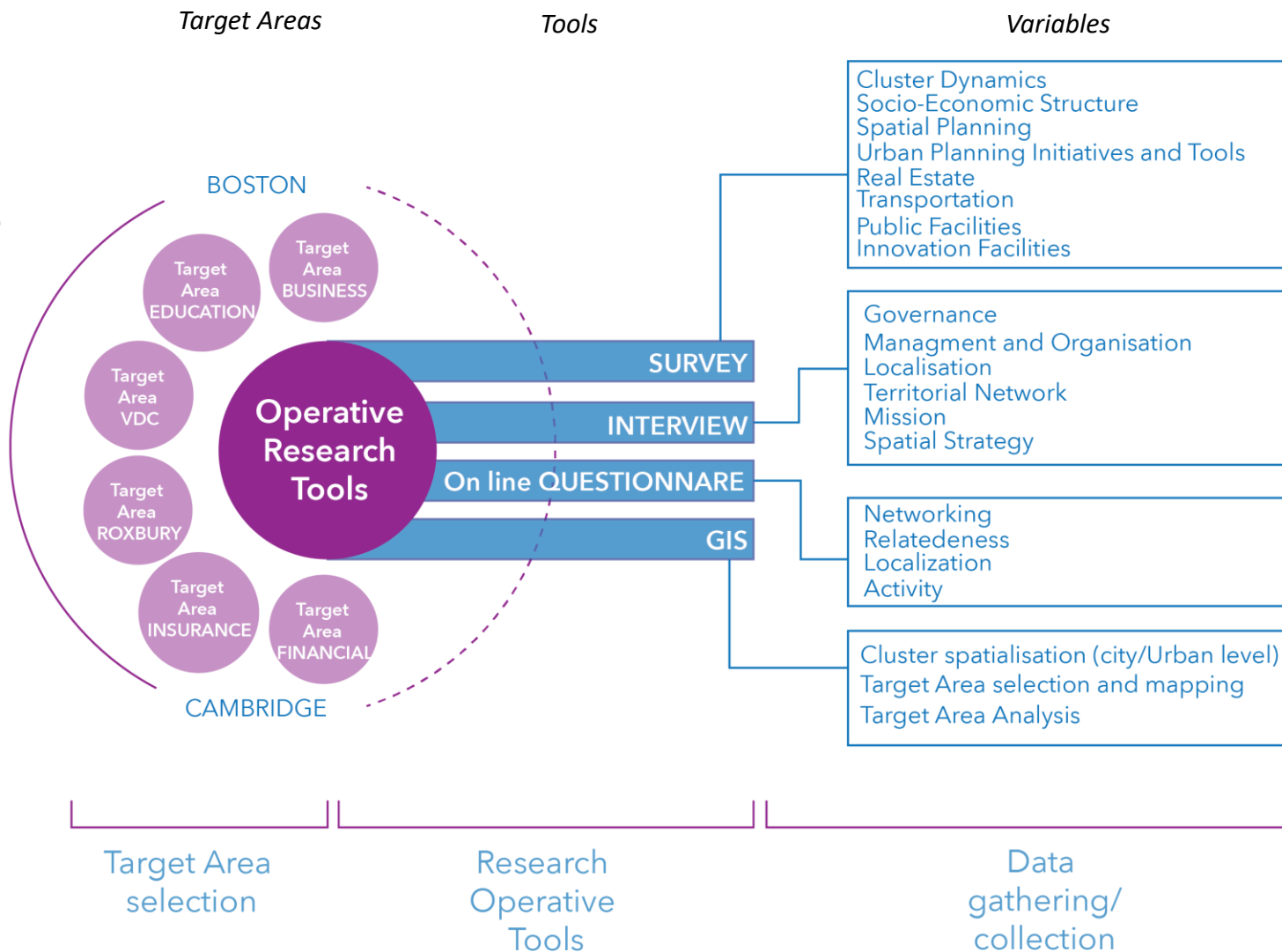
## MAPS-LED insights

- Insights from the MAPS-LED project activities between WP1 (**Research and Innovation Strategies**) and WP2 (**S3: cluster policy and spatial planning**)
- An in depth analysis of **cluster spatialisation at urban level**



# MAPS-LED: Research Operative Tools

- From the MAPS-LED mid-term meeting of Boston to the **Target Area Analysis**
- An in depth analysis of **cluster spatialisation at urban level required the development of a set of Operative Research Tools**





## Introduction

- The main objective of the MAPS-LED Project is to build and test an evidence-based methodology for recognizing and assessing emerging and potential of **S3** by implementing a multidisciplinary approach to ***integrate a spatial/territorial dimension into specialization economies***
- The methodology started from drawing insights from US Cluster. Following Porter's theory, ***clusters*** provide a remarkable ***push for innovation***. The analysis of US Clusters dynamics at urban level has revealed the presence of ***new driving forces*** for social, economic and physical transformation.
- These forces seem to be pushed by ***knowledge dynamics***, which are driving the transitional processes toward a knowledge-based economy and society.



## Introduction

- It is difficult to trace the influence of **knowledge** within the **economy** because of its multiple influences and its evolutionary status
- Knowledge Transformation process evolves into an organisational logic, which can assume **different organisational shapes** (businesses, start-ups etc) and produce **different implications** (social, economic, physical) at **different scales**.
- Knowledge dynamics defined as a continuous, self transcending and **highly dynamic process** are moved by a variety of forces
- **They influences the current economic systems affecting individuals and organisations generating social, economic and physical impacts**



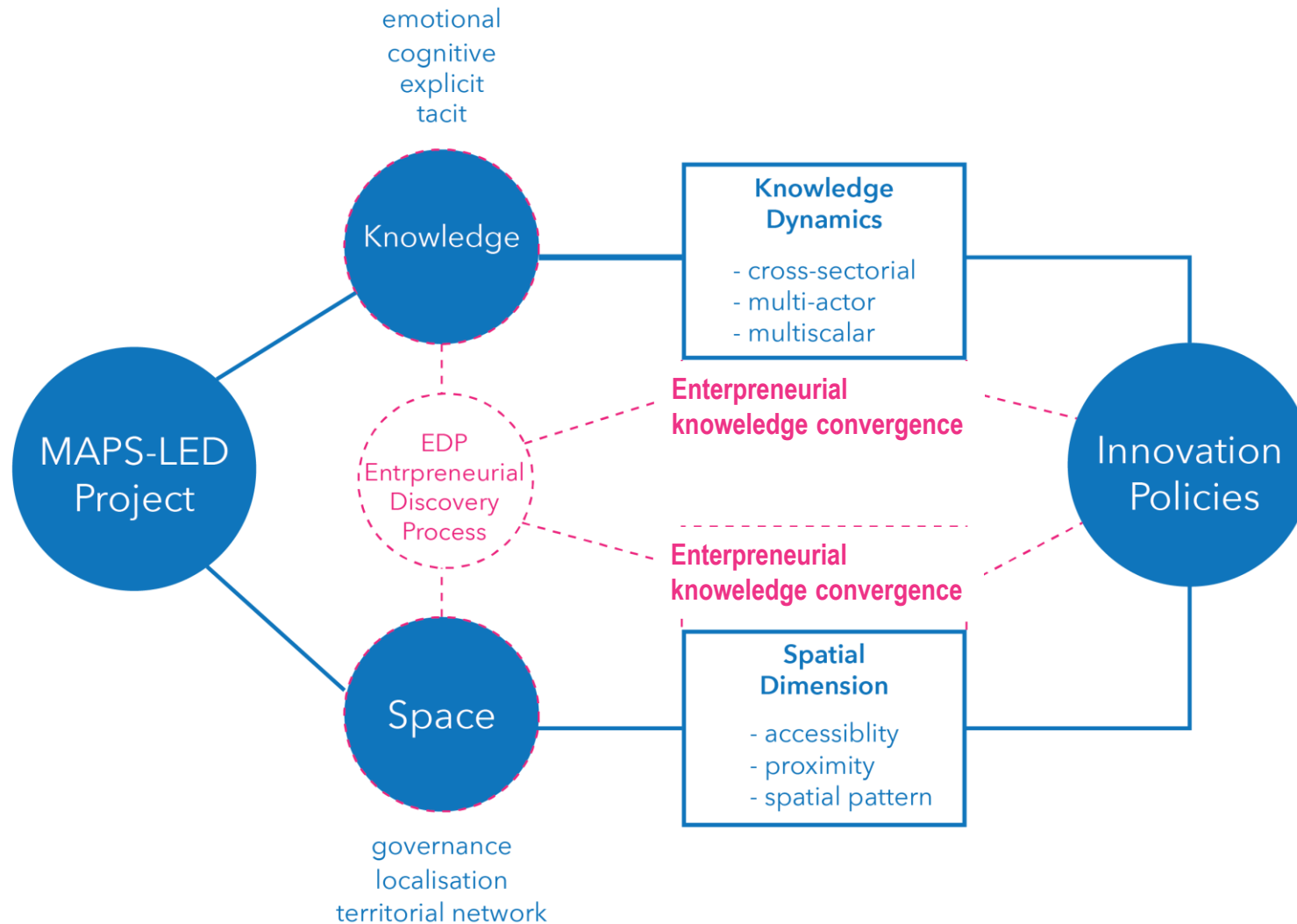
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## Introduction

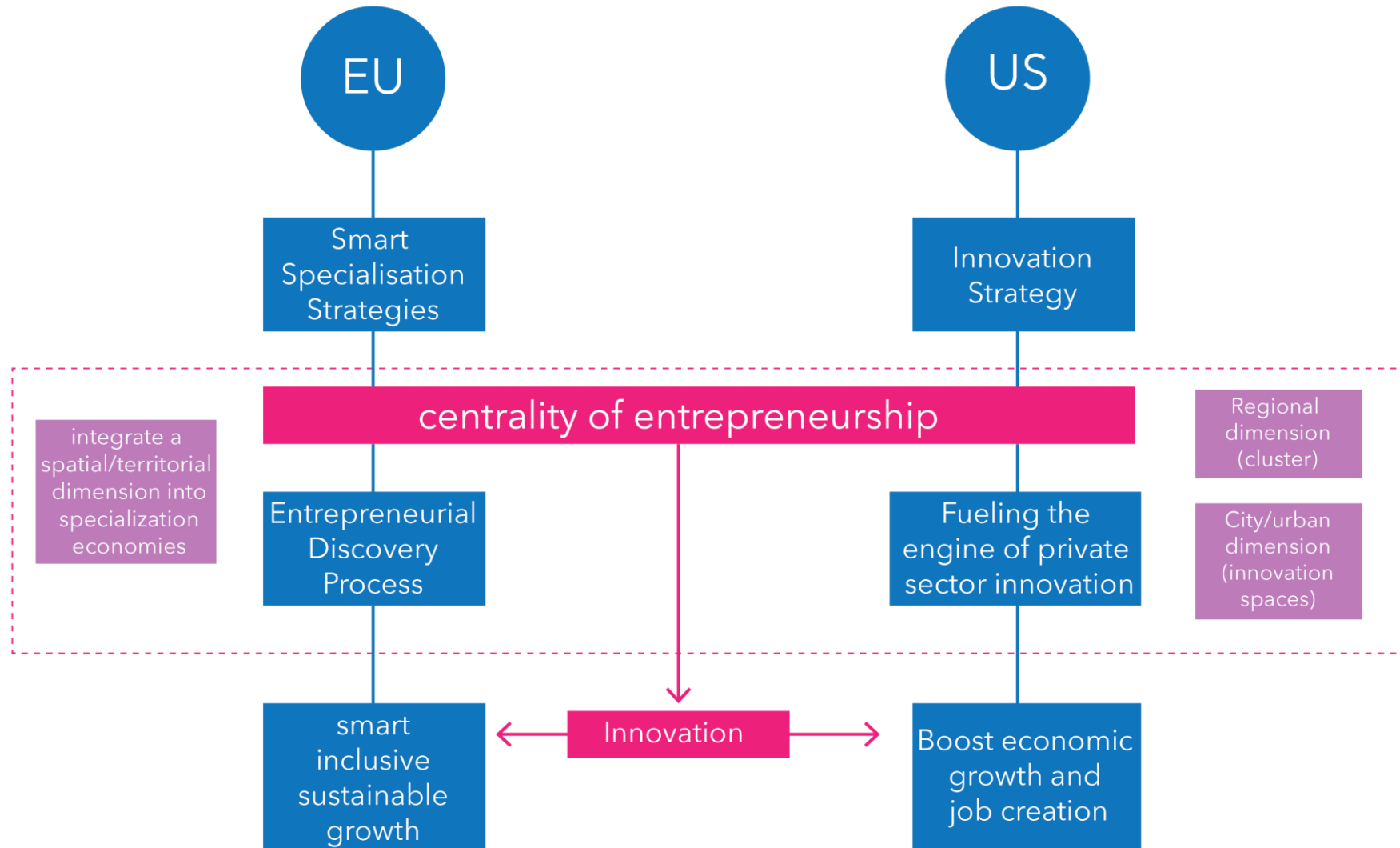
- ***How cluster performance factors can be combined with the context characteristics by highlighting the spatial implications of knowledge dynamics?***

# I. Knowledge and Space in the MAPS-LED Project: the entrepreneurial knowledge





# I. The centrality of entrepreneurship in EU and US Research and Innovation Policies



## II. The entrepreneurial knowledge and its spatial perspective

- The EDP is the core EU research and innovation strategy but it is not investigated in depth in RIS3 plans from a spatial perspective.
- Once EDP is activated it can generate informational spill-overs and bring to the discovery of new opportunities and market domain.
- Knowledge Dynamics, considered their influences (*individual and organisations*) and their impacts (*social, economic and physical*) enable the entrepreneurial knowledge, without which the EDP cannot be activated.
- It could represent the innovative aspect of innovation policies *in structuring the Regional Innovation Ecosystem*

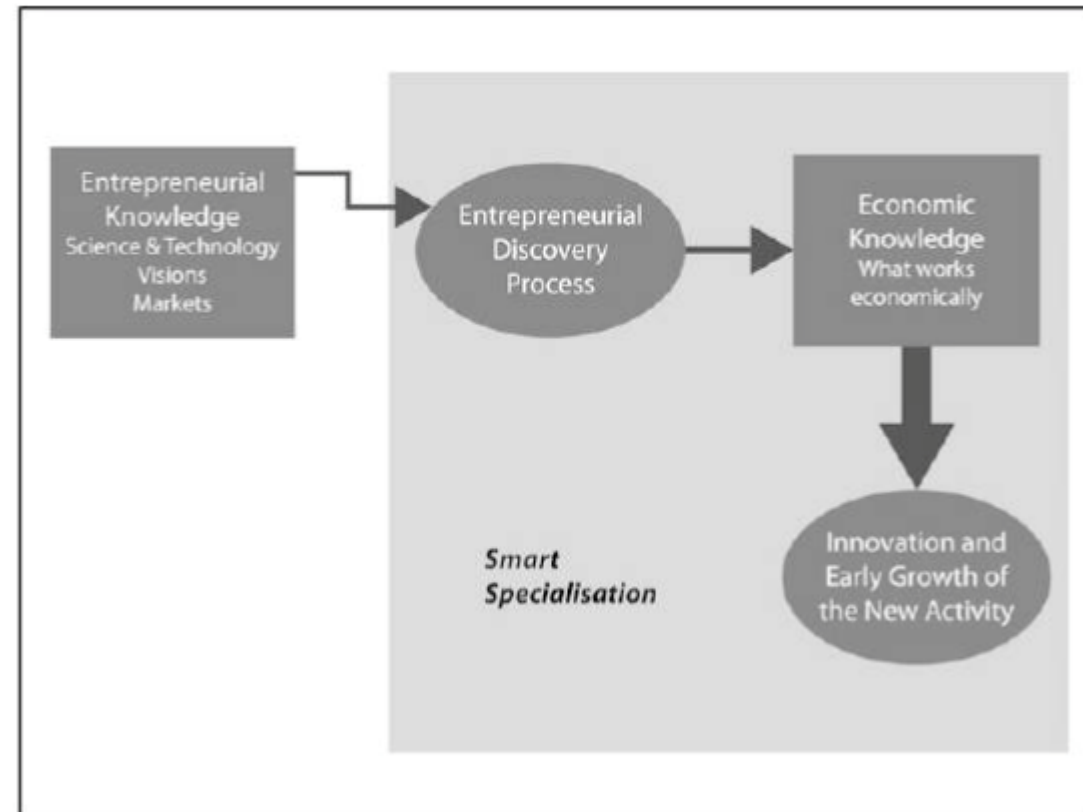


Figure 2.1 Types of knowledge and the entrepreneurial discovery process

Foray D. (2014)



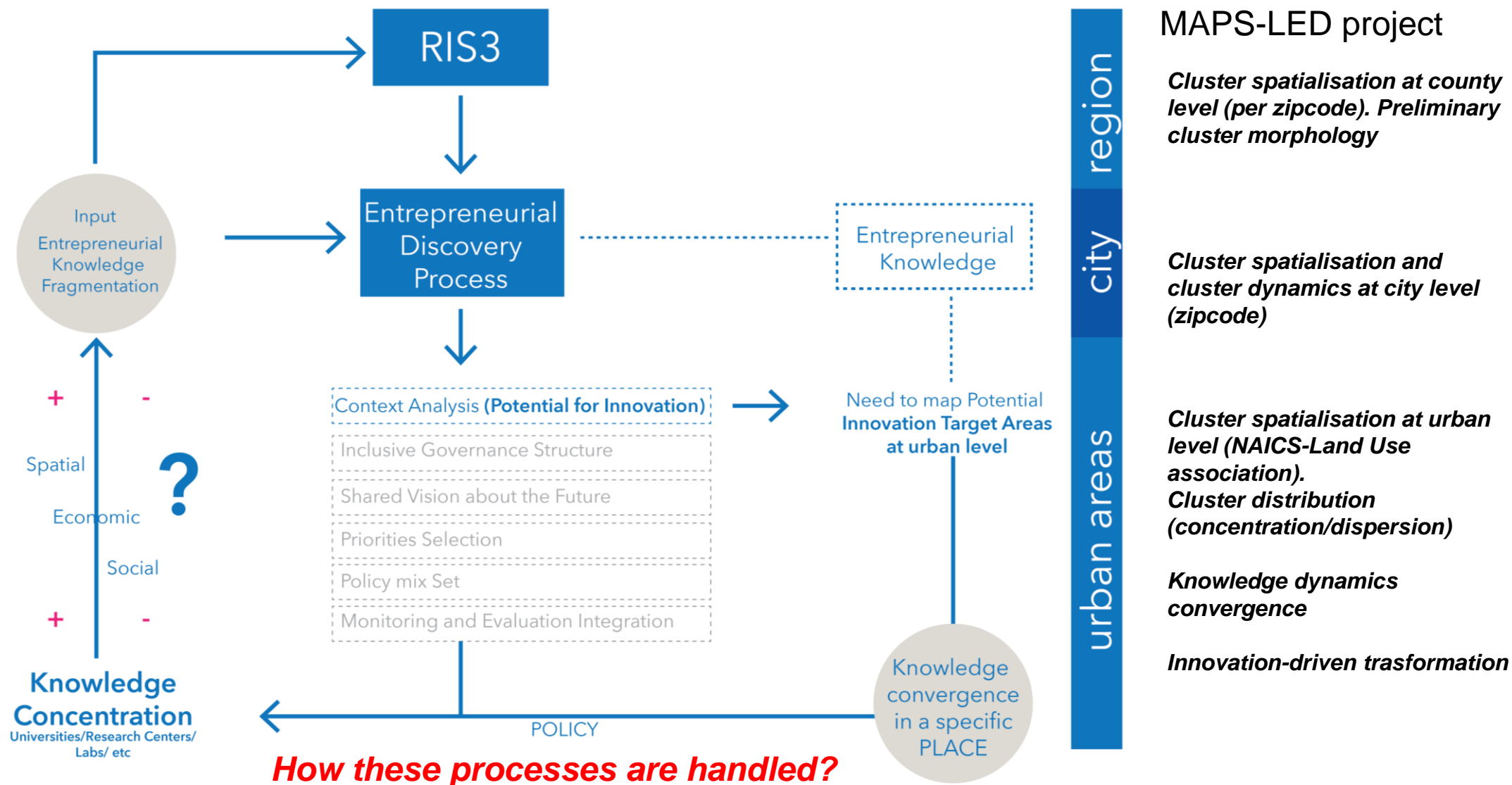
## II. The fragmentation and dispersion of entrepr. knowledge

- Generally, Entrepreneurial knowledge is ***fragmented*** and ***dispersed***
- The scarcity and fragmentation of entrepreneurial knowledge as its certain locability create a strong case for ***policy intervention*** in order to support the generation and/or integration of the knowledge needed for entrepreneurial discoveries
- Foray's questions
- Therefore the main questions for policy makers are: who has, or ***where is, the entrepreneurial knowledge?***
- How can the fragmented knowledge base be integrated so as to generate exploration and discovery project?

(Foray D, 2014)



## II. Knowledge convergence in S3 through entrepreneurial Knowledge



### MAPS-LED project

**Cluster spatialisation at county level (per zipcode). Preliminary cluster morphology**

**Cluster spatialisation and cluster dynamics at city level (zipcode)**

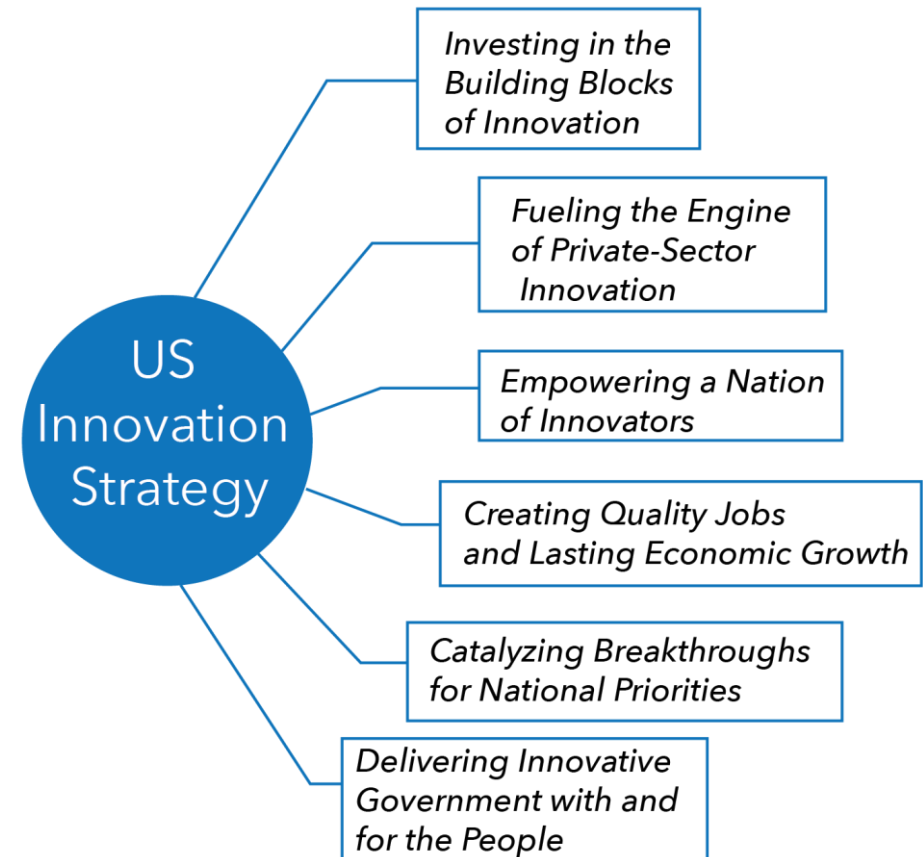
**Cluster spatialisation at urban level (NAICS-Land Use association). Cluster distribution (concentration/dispersion)**

**Knowledge dynamics convergence**

**Innovation-driven transformation**

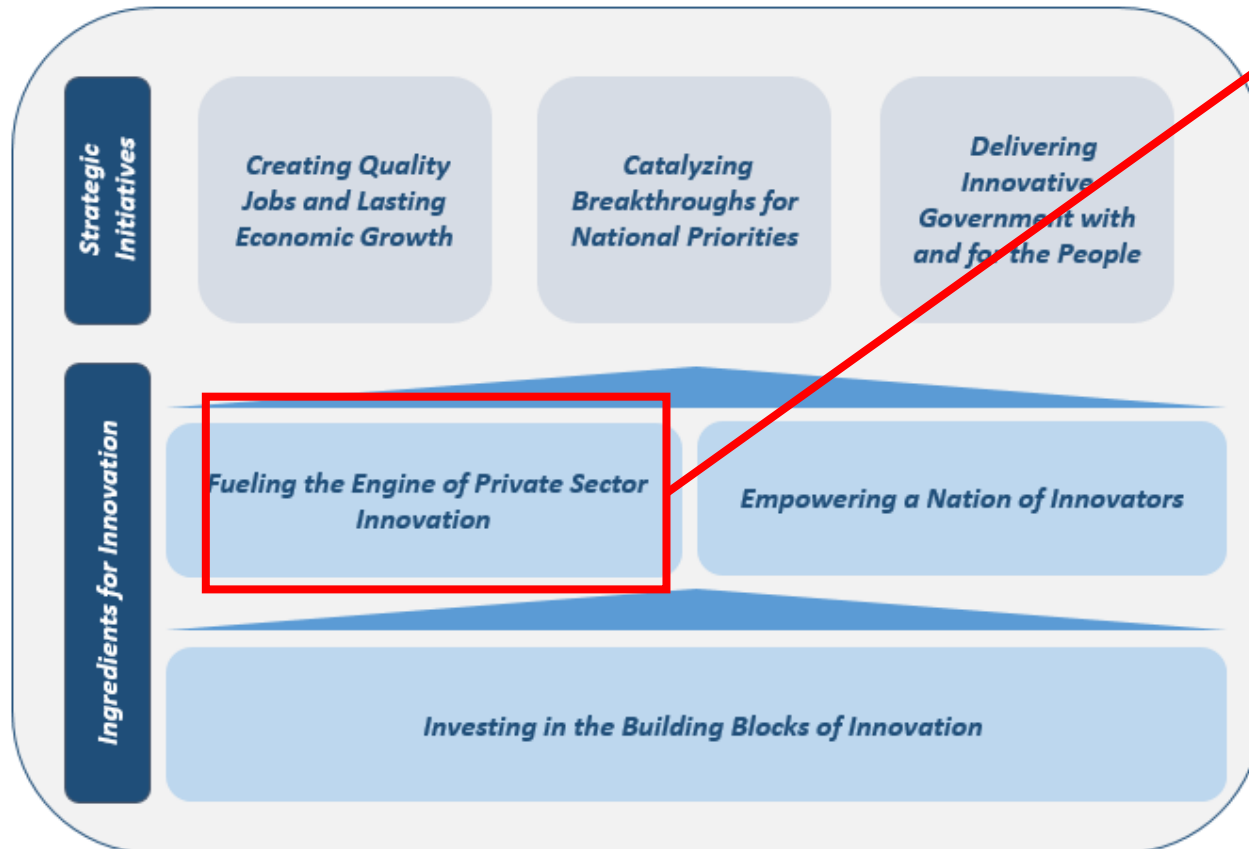
## II. The US Innovation Strategy (White House, 2015)

- ***Innovation is a powerful*** tool for addressing most pressing challenges as a nation, such as enabling more Americans to lead longer, healthier lives, and accelerating the transition to a low-carbon economy.
- The Federal Government will focus on ***stimulate investments*** that will ***enable the private sector*** to create the industries and jobs of the future, and to ensure that all Americans are benefiting from the innovation economy.



*The six key elements of the strategy*

## II. The US Innovation Strategy (White House, 2015)



Supporting the  
Development of Regional  
Innovation Ecosystems:

### Innovation Districts

“Regions are also increasingly working to cultivate *“innovation districts,”* where *research institutions, companies, startups, incubators, and accelerators all coexist in close proximity.* This proximity may *facilitate knowledge spillovers across institutions,* while also supporting open innovation efforts that tap into sources of diverse expertise. *To cultivate these innovation districts, some cities are even taking new approaches to the spatial layout of entire geographic areas.*” (White House, 2015: 60)



### III. Knowledge Dynamics, Innovation and Space: findings from MAPS-LED project

- Knowledge dynamics act at ***different spatial levels*** involving ***multiple actors*** and interesting ***different sectors***.
- The evolutionary nature of knowledge dynamics and their capability to generate innovation is crucial for the entrepreneurial knowledge and ***EDP activation***
- But, knowledge dynamics need a “***good atmosphere***” where flourish. They need ***policy support***, included urban policies in order to ***drive innovation-oriented cities’ transformation favouring knowledge convergence***.



### III. MAPS-LED Project: Why cities?

- The MAPS-LED spatial oriented approach to US cluster, highlighted the relevance of the **urban dimension** in concentrating knowledge resources and linking them to economic activities.
- Particularly, Knowledge dynamics act at urban level involving Higher Research Institutions, local institutions and local community (**entrepreneurs and citizens**)
- Cities offer **proximity, density, variety** and offer **specialised knowledge-based labour force**...they facilitate **networking and knowledge exchange** (Athey, 2008)...and are implementing a **new urban innovation-oriented development paradigm**, characterised by the creation of **innovation district** both in Europe and US
- **In the S3 perspective (place-based approach) innovation-oriented urban policies, which are bottom-up tailor-made policies, can help in driving an innovation-oriented transformation (mettere freccia)**

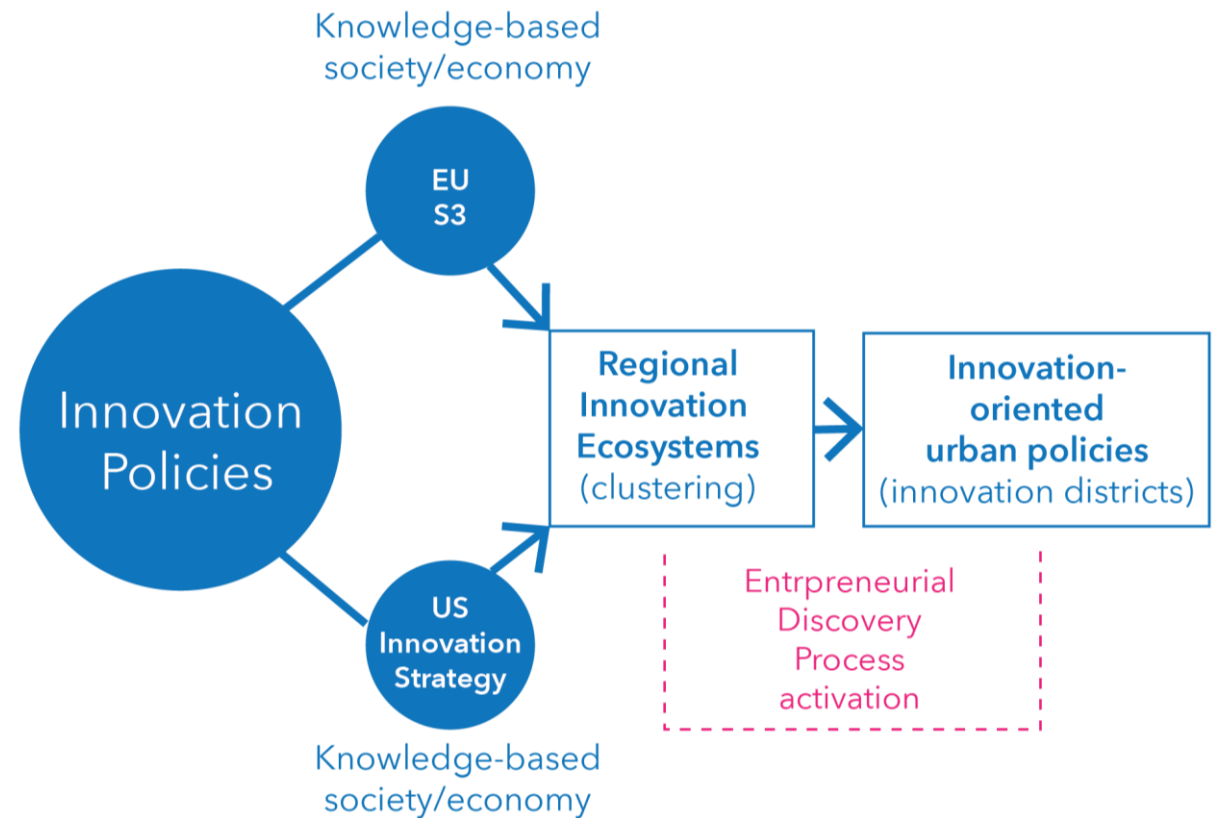


Kendall Square (Cambridge) in the 60s and today  
Example of research and innovation-driven transformation  
(from mass production-consumption to knowledge economy)



### III. MAPS-LED Project: innovation-oriented policies and cities

- Innovation policies aim at the transition toward a **knowledge-base economy/society**
- They affect regions and cities in pushing **a new demand of transformation**: social, economic and physical
- Municipalities, which are tackling problems related to the economic downturn are planning innovation-oriented policies in order to **drive knowledge dynamics** and boost economic revitalisation.
- At urban level, this process is taking the shape of **innovation districts**



### III. The urban dimension of innovation policies in US: innovation districts

- **Innovation Districts** are geographic areas where leading-edge **anchor institutions** and companies **cluster** and **connect** with start-ups, business incubators and accelerators. They are also **physically compact**, transit-accessible and technically-wired and offer **mixed-use** housing, office and retail.

(Katz and Wagner, 2014)

Innovation District typology	Description	urban area typology	Example
Anchor Plus	Large scale mixed-use development catered around major anchor institutions and a rich base of related firms, entrepreneurs and spin-off companies involved in the <b>commercialisation of innovation</b> .	Downtown; mid-town; central cities	<b>Kendall Square, Cambridge (MA);</b> Philadelphia's University; Saint Louis University
Re-imagined urban areas	Areas undergoing a physical and economic transformation to chart a <b>new path of innovative growth</b> . This change is powered, in part, by transit access, a historic building stock, and their proximity to downtowns in high rent cities, which is then supplemented with advanced research institutions and anchor companies.	Historic Waterfront; industrial or warehouse districts	<b>South Boston Waterfront, Boston (MA);</b> San Francisco Mission Bay; Seattle South Lake Union Area; Brooklyn Navy Yard
Urbanised Science Park	These areas are urbanising through <b>increased density and an infusion of new activities</b> (including retail and restaurants) that are mixed as opposed to separated	Isolated areas; sprawl areas	Research Triangle Park (NC)

(Katz and Wagner, 2014)

### III. Why Innovation District?

- Boost up **economic growth** acting as leverage in metropolitan areas
- Empower **entrepreneurs**, considered the key to activate economic growth and job creation
- provide more **accessible jobs** tackling social inequalities and disparities
- boost **sustainability** in reducing carbon emissions
- help cities' finance with **revenues and taxes**

Actors involved in innovation districts

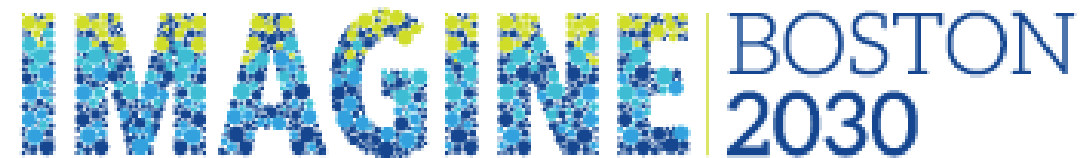


- **critical mass** of economic, physical, and networking assets
- **vitality**
- **competitive advantages** they have in certain economic sectors
- **connectivity, diversity, and quality of place**

**How these processes are driven from a spatial perspective?**

- **Citywide Comprehensive Plan**
- **Zoning**
- **Urban planning tools**

### III. MAPS-LED Project: Cambridge and Boston citywide Comprehensive plan



- Envision Cambridge is a community-wide process to develop a ***comprehensive plan for a more livable, sustainable, and equitable Cambridge.***
- The plan will result in recommendations on a broad range of topics such as ***housing, mobility, economic opportunity, urban form, climate and the environment, and community interaction.***

- Imagine Boston 2030 will ***define a vision*** for Boston and a roadmap to realize that vision.
- As Boston's first ***citywide plan*** in 50 years, Imagine Boston 2030 will create a ***framework to preserve and enhance Boston, while embracing growth as a means to address our challenges and make the city stronger and more inclusive.***

Innovation is not a clear and defined objective but is a ***cross-cutting principle to reach the plan's objectives***

### III. Cluster spatialisation at urban level and urban transformation

Cluster, innovation,  
competitiveness,  
knowledge convergence and  
city transformation

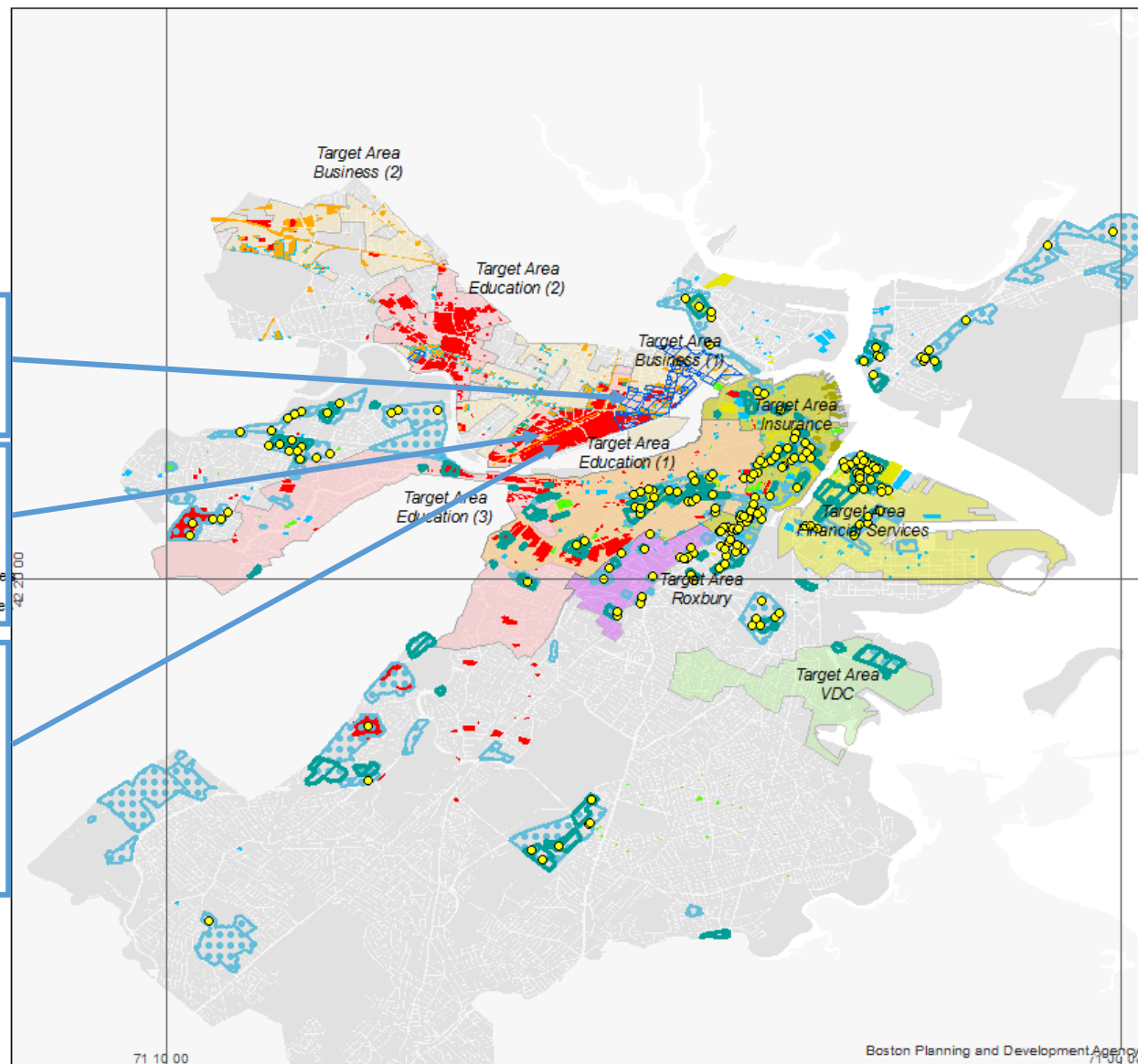
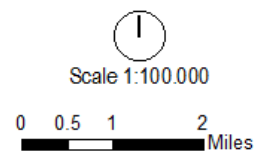
Urban Planning tools  
(city transformation)

Target Areas  
(knowledge convergence)

Cluster spatialisation  
at urban level  
(innovation and  
competitiveness)

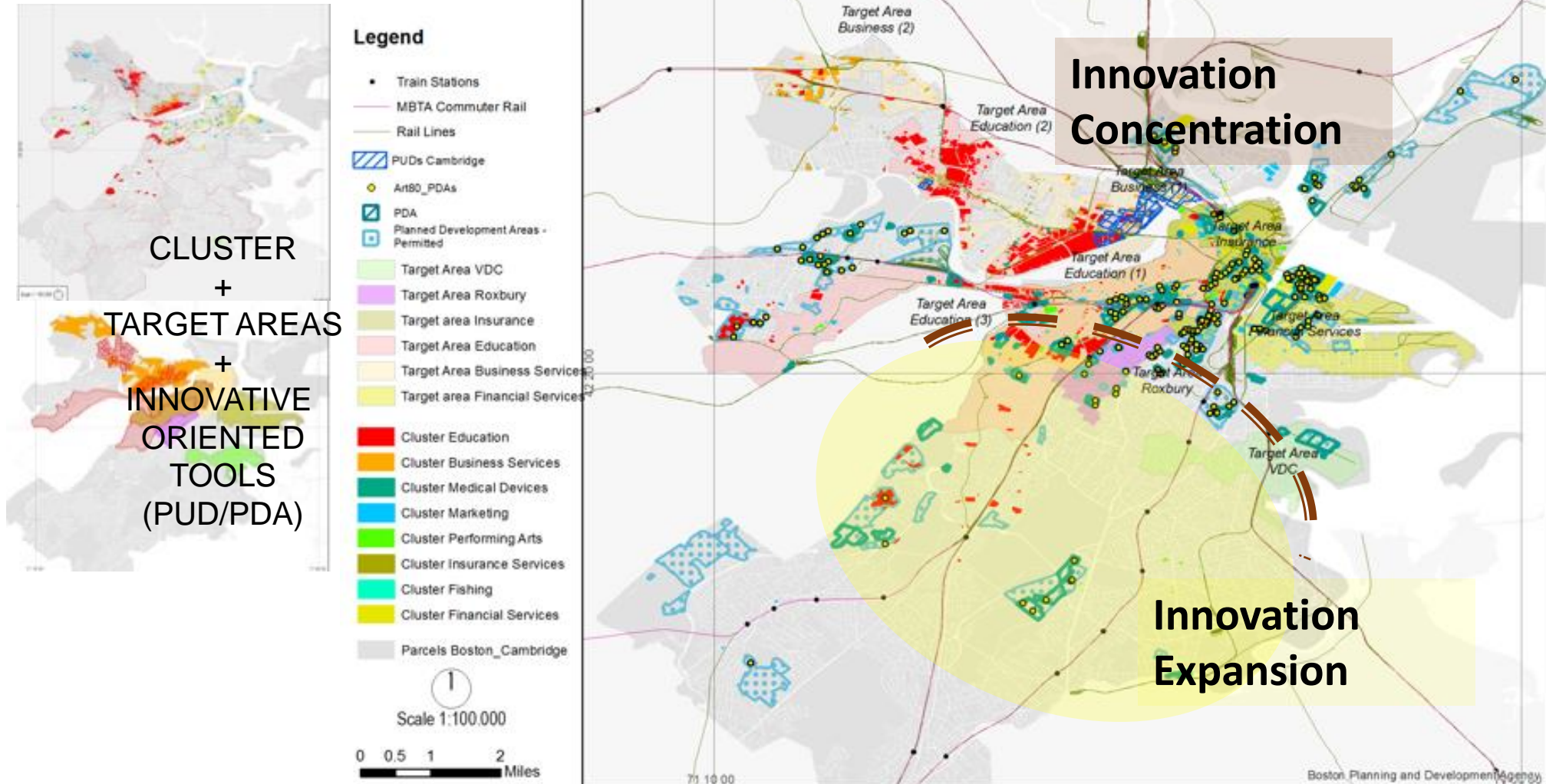
**Legend**

- PUDs Cambridge
- Art80\_PDAs
- PDA
- Planned Development Areas - Permitted
- Target Area VDC
- Target Area Roxbury
- Target area Insurance
- Target Area Education
- Target Area Business Service
- Target area Financial Service
- Cluster Education
- Cluster Business Services
- Cluster Medical Devices
- Cluster Marketing
- Cluster Performing Arts
- Cluster Insurance Services
- Cluster Fishing
- Cluster Financial Services
- Parcels Boston\_Cambridge



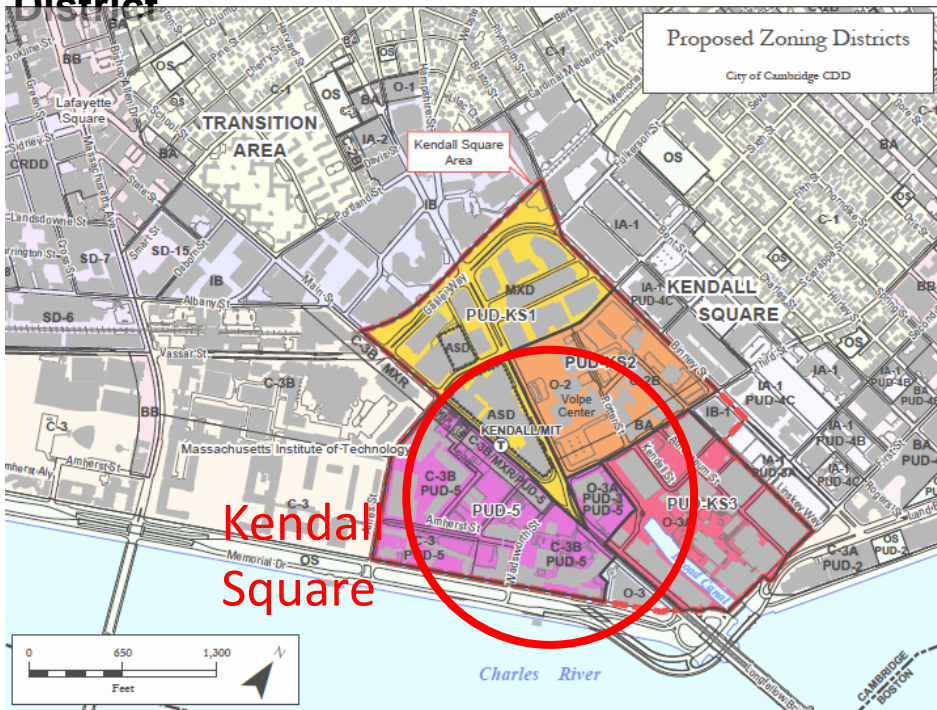


### III. Target Area Analysis -The Urban Dimension of Innovation Policy

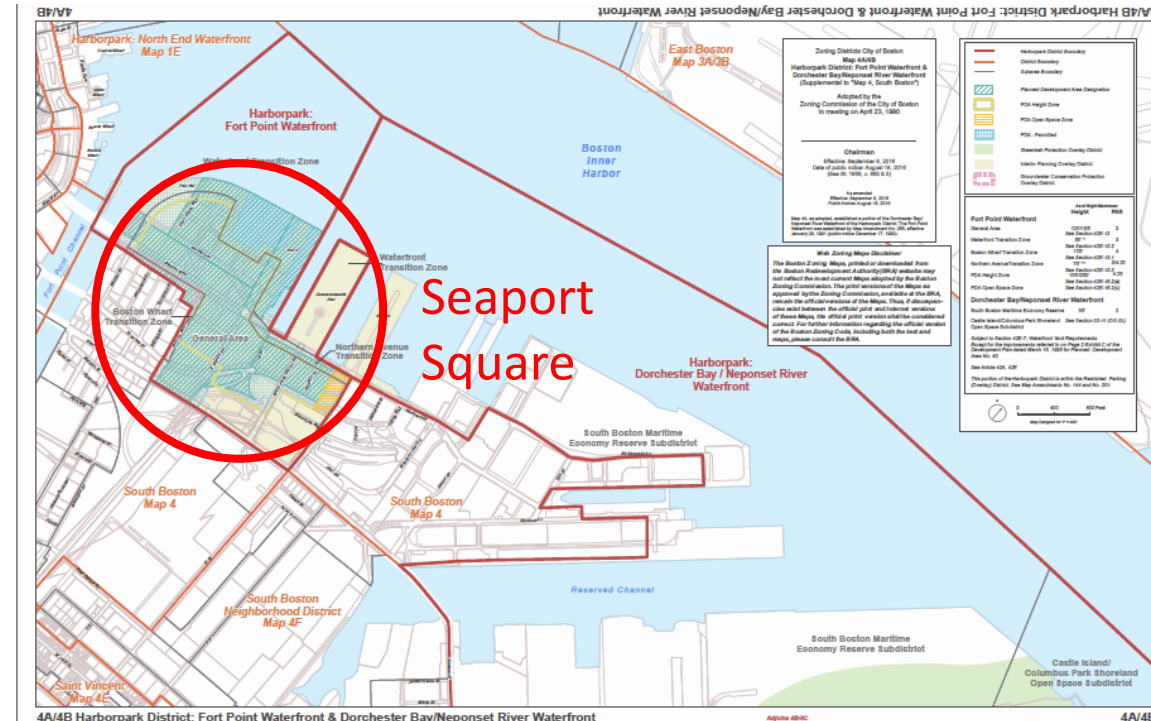




### III. MAPS-LED Project: Innovation-oriented transformation in Kendall Square and Boston Innovation District



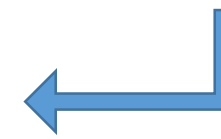
Zoning/Urban Planning tool  
PUD (Planned Unit Development)  
Innovation Space requirement  
Cambridge Innovation Center



Zoning/Urban Planning tool  
PDA (Planned Area Development)  
Innovation Space requirement  
District Hall (public innovation center)

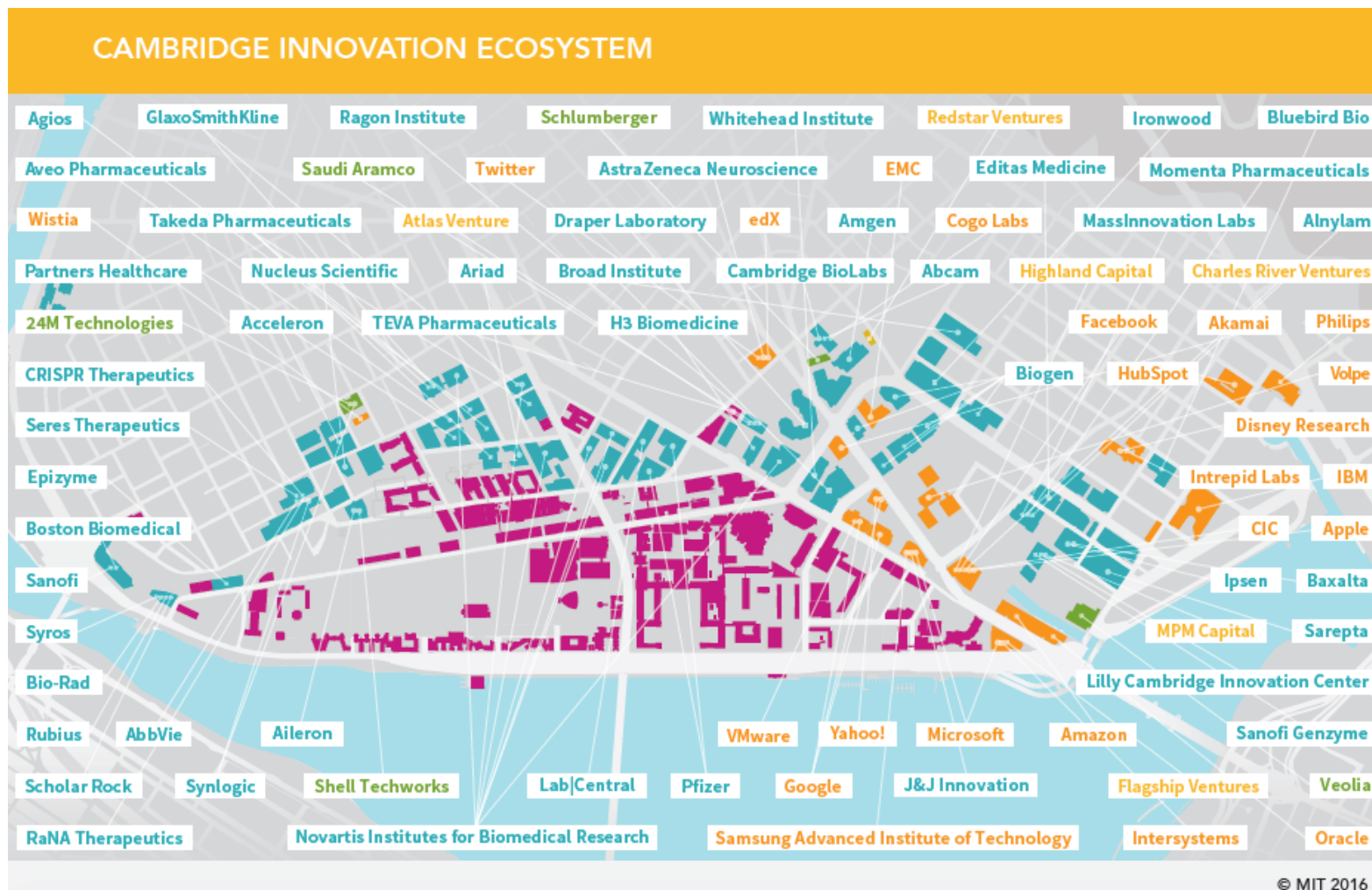


Through the **production/use of innovation and knowledge convergence** led by innovation-oriented urban policies, municipalities favour regeneration and growth





### III. MAPS-LED Project: Kendall Square Innovation Ecosystem



#### Kendall Square

- Mainly **public-driven** with a strong involvement of **private sectors**
- Presence of **Higher Research Institutions** (MIT-Harvard)
- High number of **start-ups and big companies located in the area** about **150 companies** (google, novartis etc.)
- High number of **innovation spaces (9 in kendall square area)**
- located in the area
- Economic and physical transformation of the area through PUD





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### III. MAPS-LED Project: Boston Innovation District ecosystem

#### A Growing Mix of Innovation Businesses



#### Boston Innovation District

- *public driven*
- Presence of **Public Services and infrastructures**
- High number of **start-ups and companies (small-medium)**
- Increasing number of innovation spaces (both public and private)
- **More than 4000 jobs created**
- Economic and physical transformation of the area through **PDA**s

#### Coming soon



## Conclusions: The activation of EDP at urban level through innovation-oriented urban policies

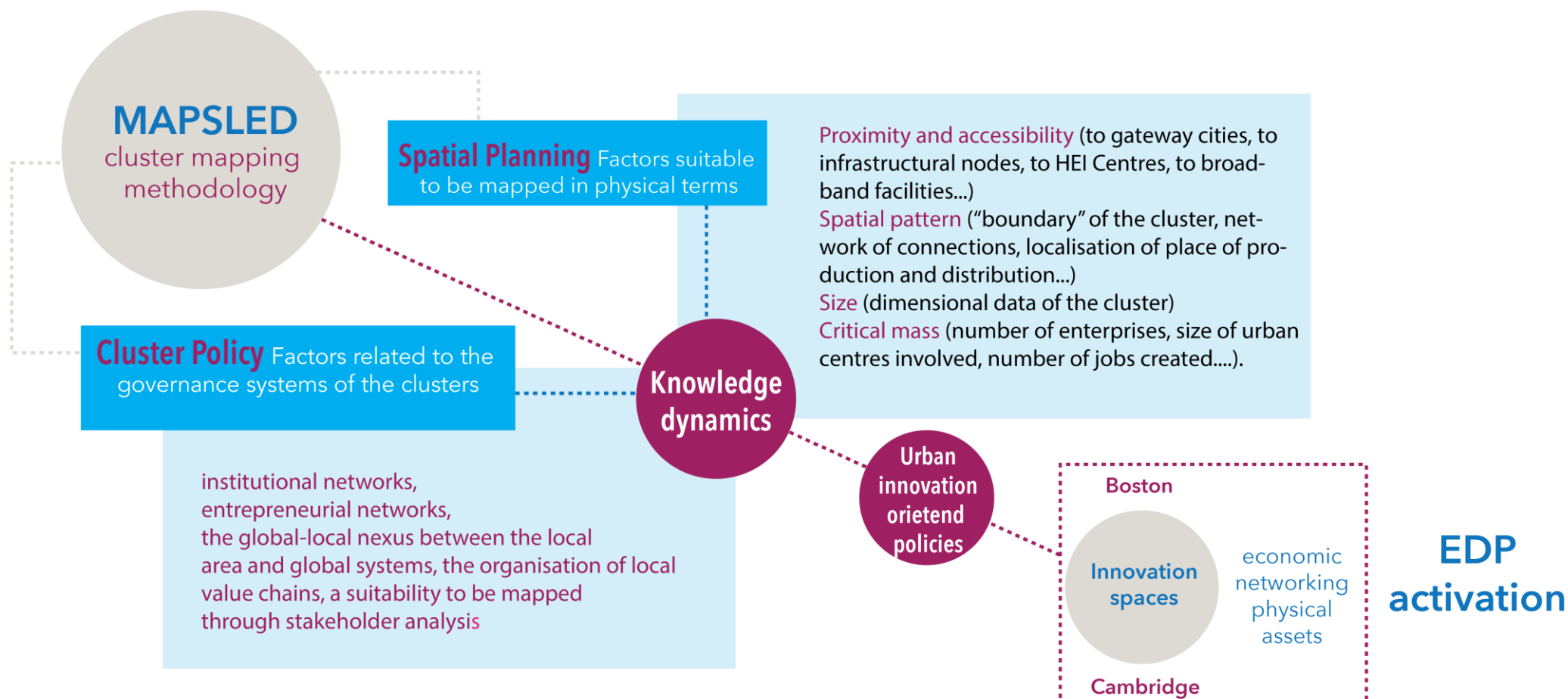


MAPS-LED Project (PAU unit)

- ***The urban dimension of S3 usually is grounded on the concept of smart city.***
- ***Here, another aspect of urban dimension within S3 is introduced, which could be part of the entrepreneurial discovery process activated by bottom-up processes (including innovation-oriented urban policies) and empower local innovation processes and regeneration***

## MAPS-LED insights

- Insights from the MAPS-LED project activities between WP1 (**Research and Innovation Strategies**) and WP2 (**S3: cluster policy and spatial planning**)
- An in depth analysis of **cluster spatialisation at urban level**





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# Thank you