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

The role of public authorities in supporting regional innovation ecosystems: the cases of San Diego and Boston regions (USA)

MAPS-LED Second Mid-term Meeting
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Outline

I. Context

II. Research question

III. What is an innovation ecosystem?

IV. Methodology for the case study analysis

V. Discussion

VI. Findings/Conclusions

Context

Smart Specialisation Strategies (S3)

aim to:

1) EU Regions specialisation (through the entrepreneurial discovery process and use of KETs)

and

2) Agglomeration of related firms (regional clusters)

Context

2016 – EU CoR

Orchestration of Regional Innovation Ecosystems

Global Societal Challenges

Regional Competitiveness

Research Question

Which kind of top-down policies choices have been set up by the U.S. public authorities for the life science cluster of Boston and San Diego' regions?

Research Question

Why the Life Science Clusters of Boston and San Diego?

Opportunity:

- Economic Performance
- Planning aspects

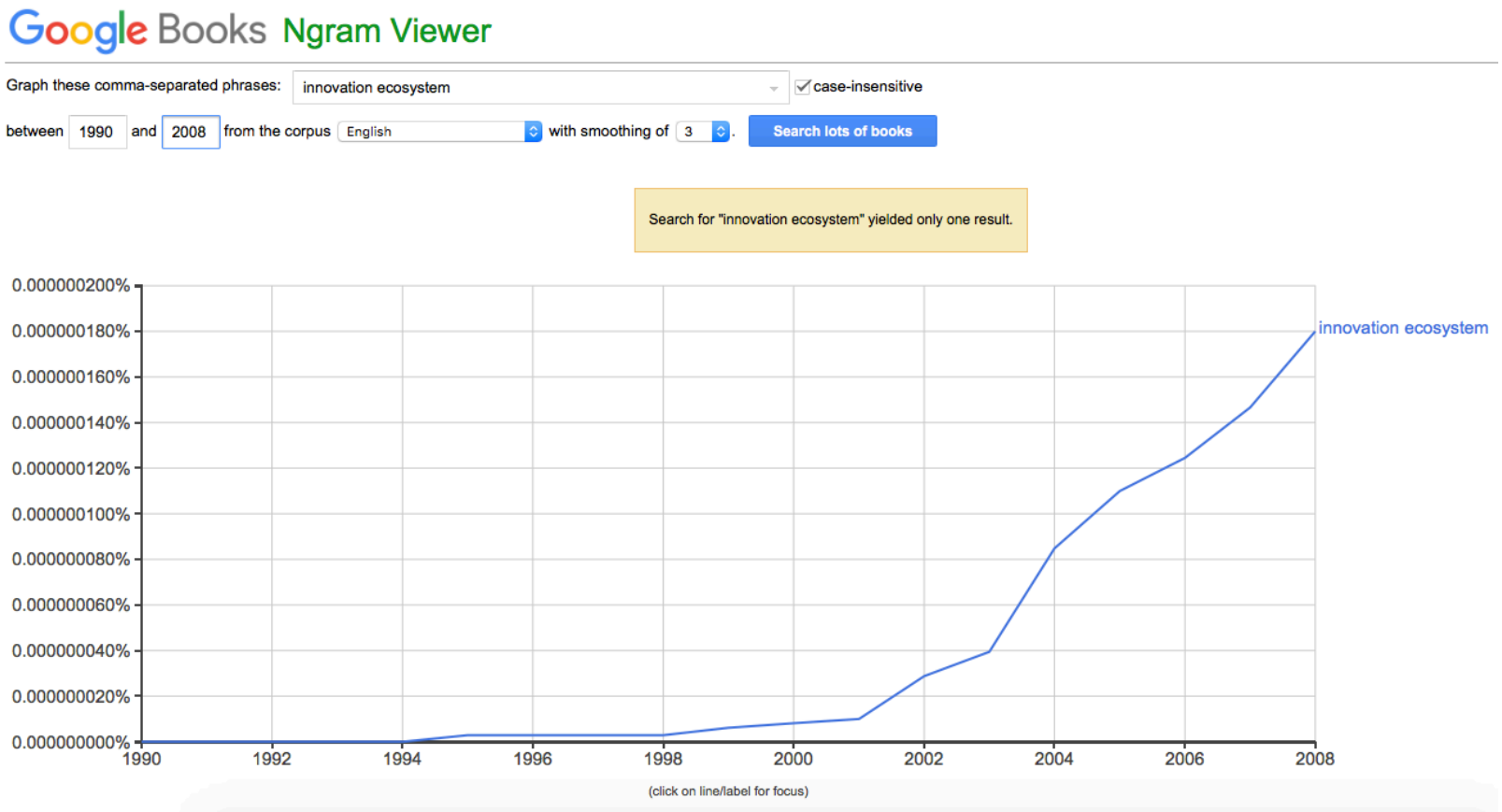
Feasibility

Clusters as a proxy of regional innovation ecosystems.

What is an Innovation ecosystem?

What is an Innovation ecosystem?

Growth rate of the sentence "innovation ecosystem" within all the books scanned by Google from 1990 to 2008



What is an Innovation ecosystem?

Not existing a widely recognised definition of the concept

(Durst & Poutanen, 2013; Oh et al., 2016)

BUZZWORD with NO MEANING?

What is an Innovation ecosystem?

Authors
Jackson, 2011
Mercan & Goktas,
Estrin, 2009
Wang, 2009
Adner, 2006
Moore, 1999
Autio & Thomas, 2014
Nambisan & Baron, 2013
Markkula & Kune, 2015
Lappalainen & Markkula, 2013

Key Concepts emerged
Relationships, Interconnections
Different actors, depending on the geographical scale (from internal business governance to Quadruple Helix)
Collaborative and Competitive (Co-opetition and Open Innovation)
Cross-Sectorial
Explicitly Systemic
From the global to the business geographical scale
Aiming at Innovation Businesses: innovative solution that users wants; Public sector: Innovative solution to societal challenges Civic Society: specific-need based solutions University & R&D: Contribute knowledge and reap new knowledge and insights in return

What is an Innovation ecosystem?

Cluster:
Physical agglomeration of interconnected firms that both compete and cooperate with a **defined spatial dimension** (regional or national)

Innovation Ecosystem:
As multi-scalar concept may

- Contains clusters (Global, National, and Regional Innovation Ecosystems)
- Be part of a cluster (business ecosystem)
- **Be a cluster itself** (Performing arts ecosystem)

What is an Innovation ecosystem?

1. It is supported by the EU Commission:

"Clusters are potential elements of a regional innovation eco-system […]"
(EU Commission, 2013, p. 16).

2. It justifies our choice to focus on the Boston and San Diego regions' life science clusters to investigate the orchestrating role of public authorities

Methodology:

Policy Monitoring – Social Auditing (Dunn, 2012)

POLICY ACTIONS	POLICY OUTCOMES
INPUTS	**OUTPUTS**
Resources used to produce impacts and outputs: time, money, personnel, equipment, supply	**Goods, services and resources received by target groups and beneficiaries**
PROCESSES	IMPACTS
Administrative, organizational and political activities and attitudes that shape the transformation of policy inputs into impacts and outputs	Actual changes in behaviour that result from policy outputs

Tab. 2: Policy Monitoring Methodology

	POLICY ACTIONS		POLICY OUTCOMES	
	INPUTS	**PROCESSES**	**OUTPUTS**	IMPACTS **(JLL, 2015)**
SAN DIEGO REGION	Zoning	Scientific Research Zone	8% land use in University City is zoned to host life science labs.	Employment 64490,00 Emp. Growth rate -3,10% Establishments growth rate 3,00% % VC to total U.S. 6,88% % NIH to total U.S. 7,35%
	Infrastructure provision	Guaranteed Water for Industry Program	Uninterruptible supply of water for manufacturing and R&D firms	
		Public Transportation	Metropolitan Transit Service (MTS) routes that serve the main Life Science R&D and employment centres	
BOSTON REGION	Zoning	Life Science Corridor	Agglomeration of life science firms in the surrounding of the mass transit Red Line - over 27.7 million square feet of Research & Development /Lab (Existing, planned or under construction).	Employment 86235,0 Emp. growth rate 1,30% Establishments growth rate 4,30% % VC to total U.S. 38,01% % NIH to total U.S. 18,72%
	Funding & collaboration	Massachusetts Life Science Centre Programs	Total budget of 1billion $	

Tab.3: The policy monitoring methodology applied to Boston and san Diego life science ecosystems

Discussion:

Selection of the case studies:

i) Opportunity (Performance); ii) Feasibility (Proxy)

U.S. cluster rankings

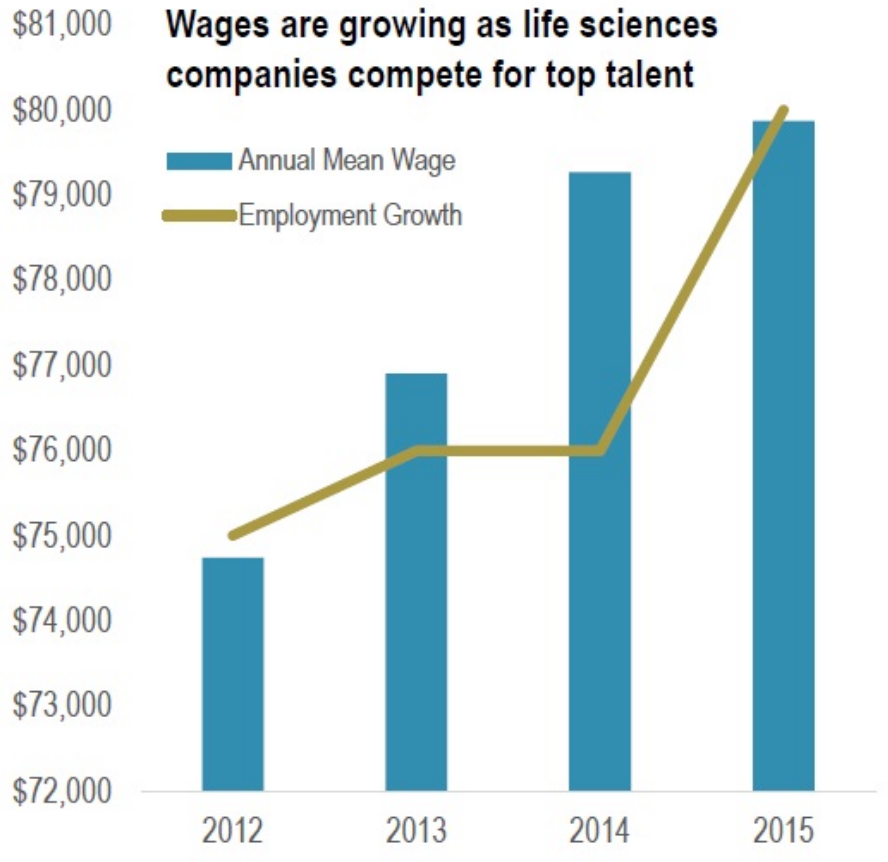
Rank	Cluster	Weighted score
1	Greater Boston	87.5
2	San Francisco Bay Area	75.2
3	Raleigh-Durham	60.7
4	San Diego	58.3
5	Seattle-Bellevue	56.3
6	Maryland Suburbs / D.C. Metro	53.2
7	Philadelphia	49.4
8	Los Angeles / Orange County	44.7
9	Westchester County, N.Y.	41.2
10	New Jersey	40.8
11	New York City	34.7
12	Minneapolis	34.5
13	Denver	34.5
14	Chicago	30.7
15	Central & Southern Florida	30.6
16	Long Island, N.Y.	30.0

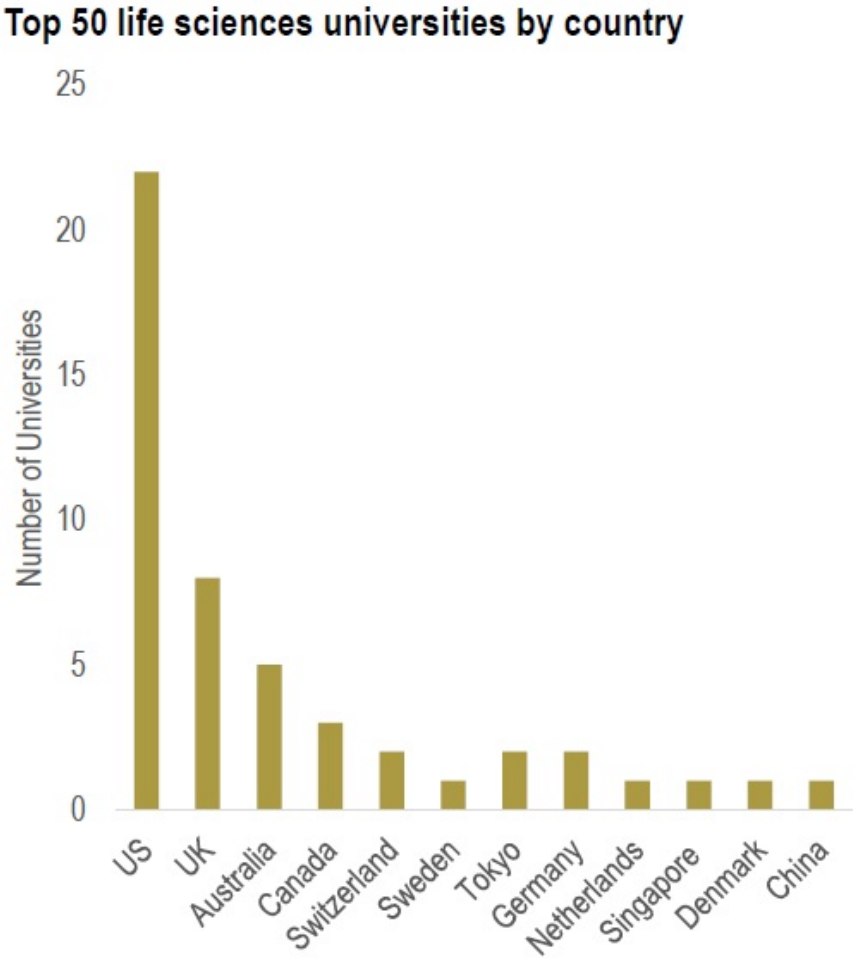
Life sciences employment concentration:
Weight: 20.0%
Measured as the percent of industry employment against total metro private employment.
Life sciences employment growth:
Weight: 10.0%
Life sciences establishment concentration:
Weight: 10.0%
Measured as the percent of industry establishments against total metro private establishments.
Life sciences venture capital funding:
Weight: 15.0%
National Institutes of Health funding:
Weight: 15.0 %
Market Occupancy Rate:
Weight: 10.0%
Average Asking Rent (NNN):
Weight: 10.0%
Rentable Lab Supply:
Weight: 10.0%

Source: Life Science Outlook, United States 2016, JLL

Discussion:

A glimpse to the Life Science Cluster market





Source: Life Science Outlook, United States 2016, JLL

Discussion:

The "Life Science" industry's composition

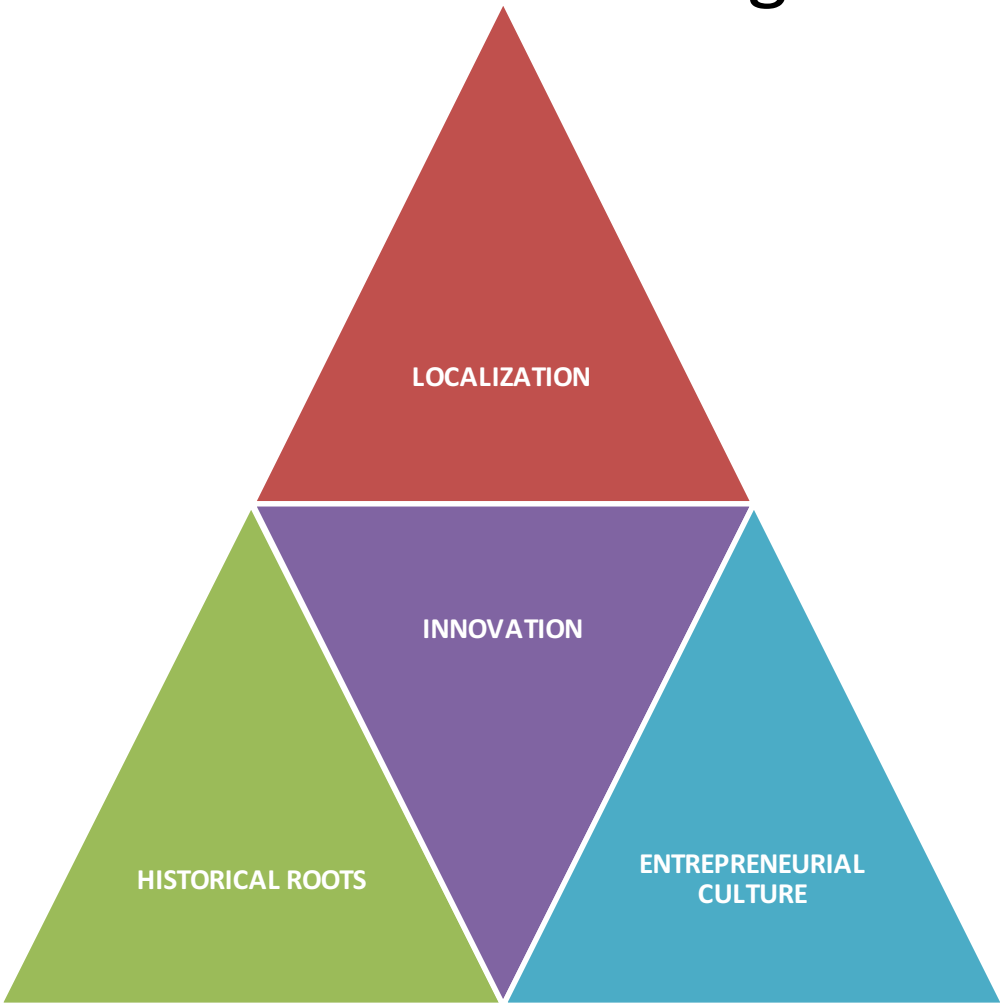
SPECIALIZATION	NAICS CODE(S)
Drugs and pharmaceuticals	325411, 325412, 325413, 35414
Medical Devices equipment	334510, 334516, 334517, 339112, 339113, 339114
Research testing and laboratories	541380, 541711, 621511
Bioscience-related Distribution	423450, 424210

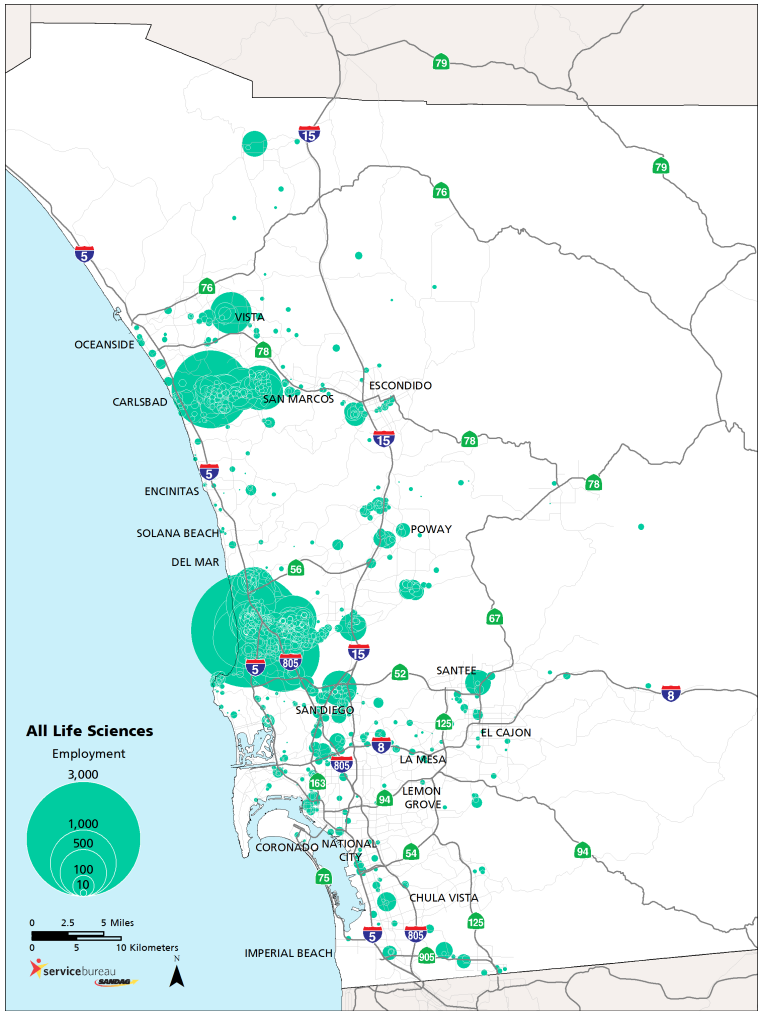
SPECIALIZATION	NAICS CODE(S)
M-Health or Wireless Health	511210, 518210
Agricultural Feedstock and animals	311221, 311222, 311223, 325193, 325221, 325311, 325312
Research, Testing, Medical Laboratories	541712

Sources:
BOSTON - Battelle and the Biotechnology Industry Organization (June 2012)
SAN DIEGO - Life Science: labour market analisys - San Diego Workforce Partnership 2014

Discussion:

The San Diego Life Science Cluster

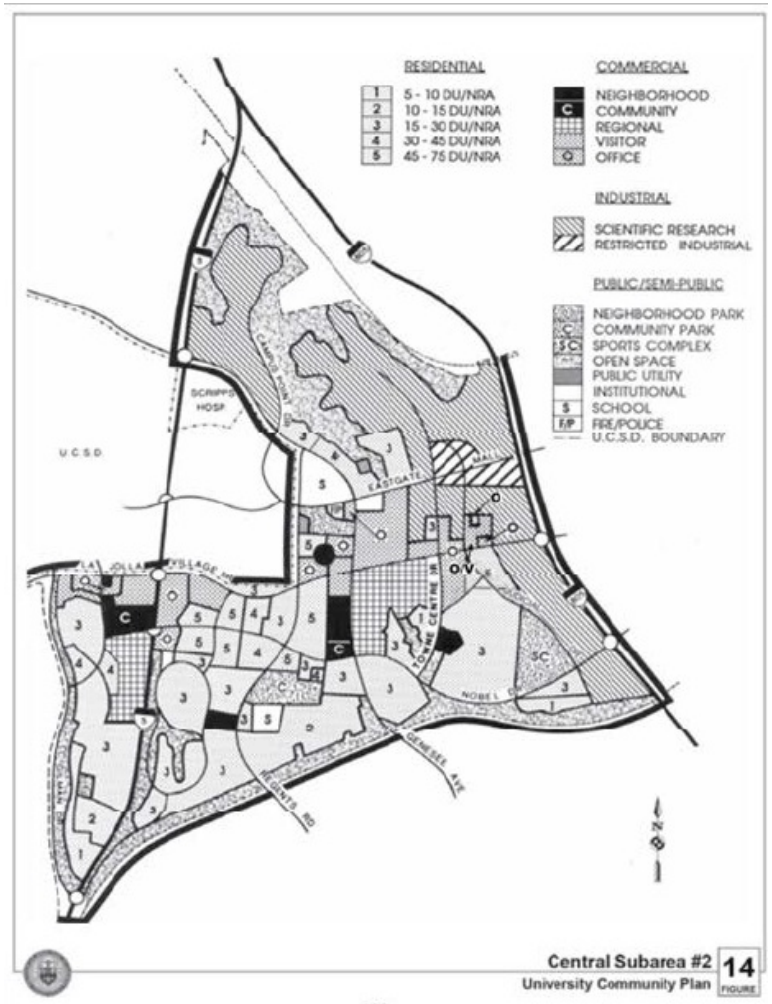




Discussion:

Public policy in San Diego LS RIE

- Local authorities
  - Zoning
  - Infrastructure provision
  - Job/training program
- The State of California
  - Financial Incentives
  - Land Transfer



Discussion:

Public policy in San Diego LS RIE

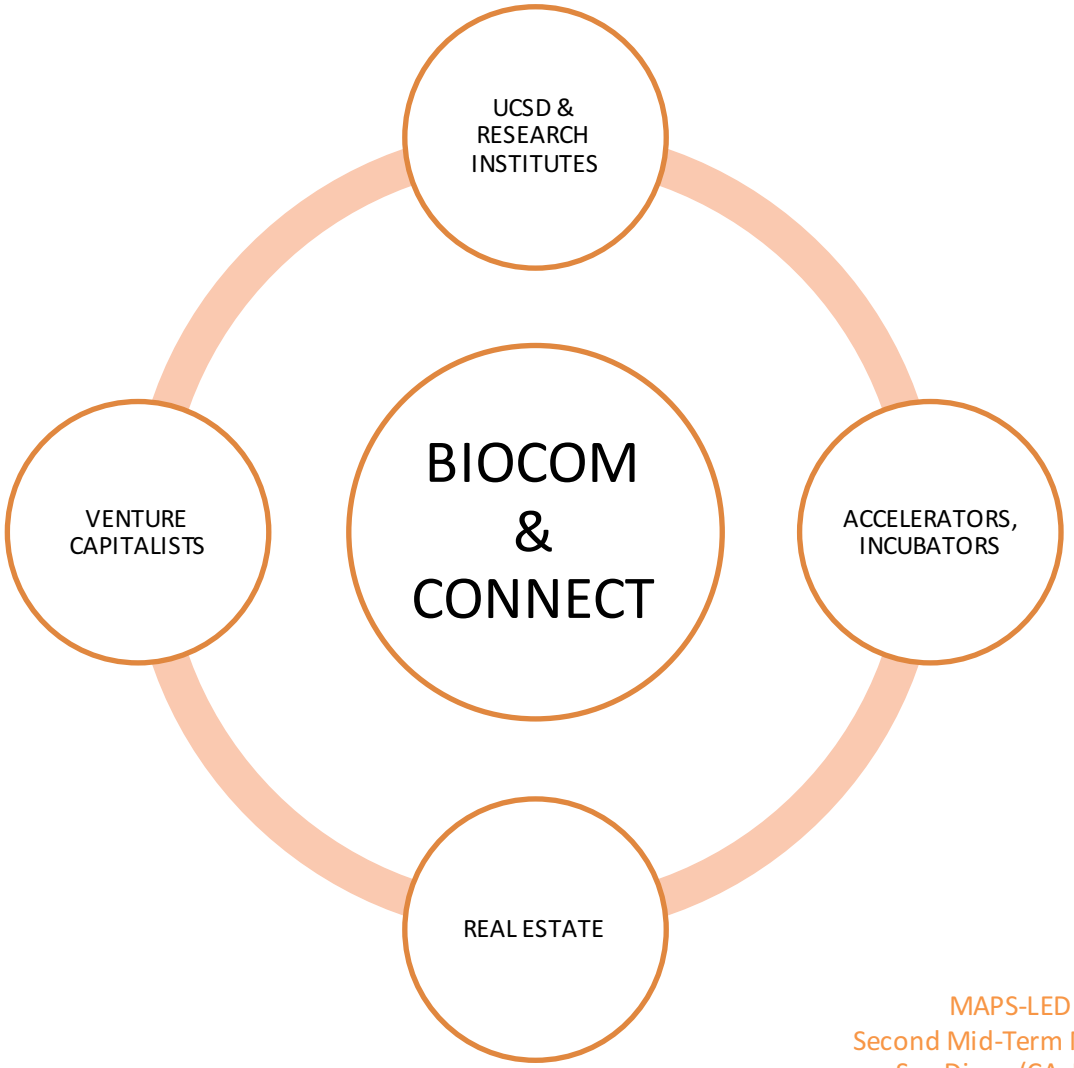
the involvement of the local government was limited primarily to three channels—land use, water supply and local taxes—as recounted by a city official (interview):

"***beyond that, we can't really affect, or we don't try to affect***" (Kim, 2015)

Source: Photo (up) https://www.sdmts.com/inside-mts/mts-express/red-and-green-create-anew-blue Photo (down): https://www.aquaa.com/san-diego-approves-pure-water-project

Discussion:

The role of not-for-profits organizations

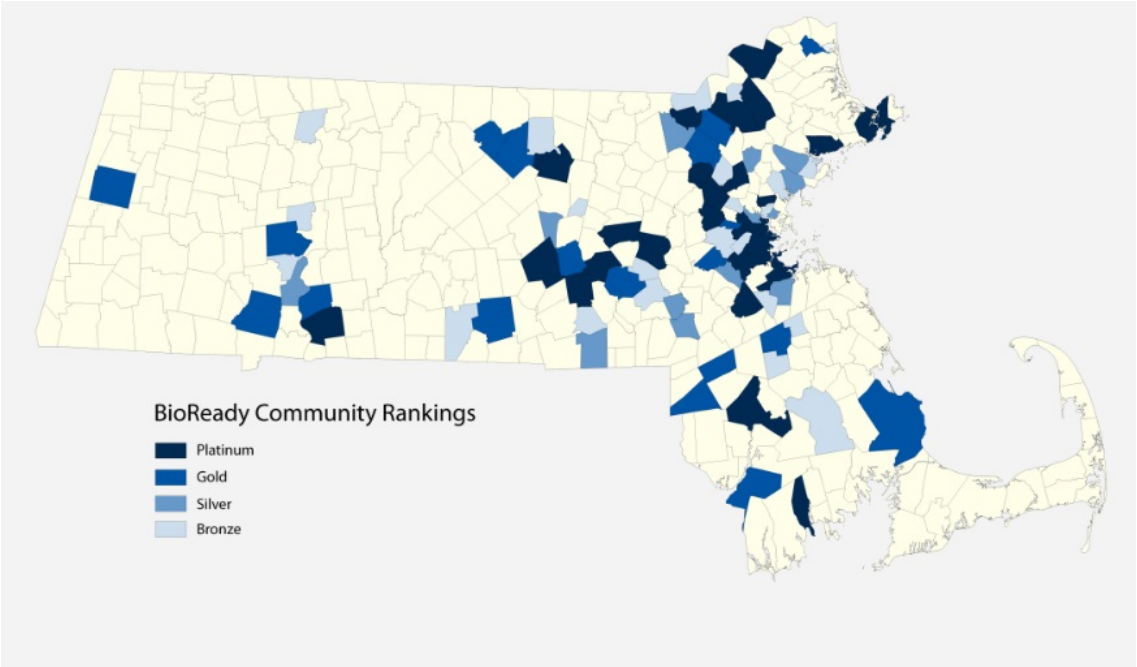


- lobbing government at all levels
- establishing ties with SANDAG and SD EDC
- collaboration platform for both entrepreneurs and academics
- Drive Entrepreneurial discovery process

Discussion:

Life Science in Boston's region

MassBio has developed BioReady® ratings for municipalities who submit details on their zoning practices and infrastructure capacity. Our focus with these ratings is to help biotechnology companies find the most favorable destinations in the state and to enable the state and its cities and towns to effectively tell their stories to the biotechnology industry. BioReady®-rated cities and towns have made a commitment to the life sciences industry. There are currently 81 BioReady® Communities across the Commonwealth.



Discussion:

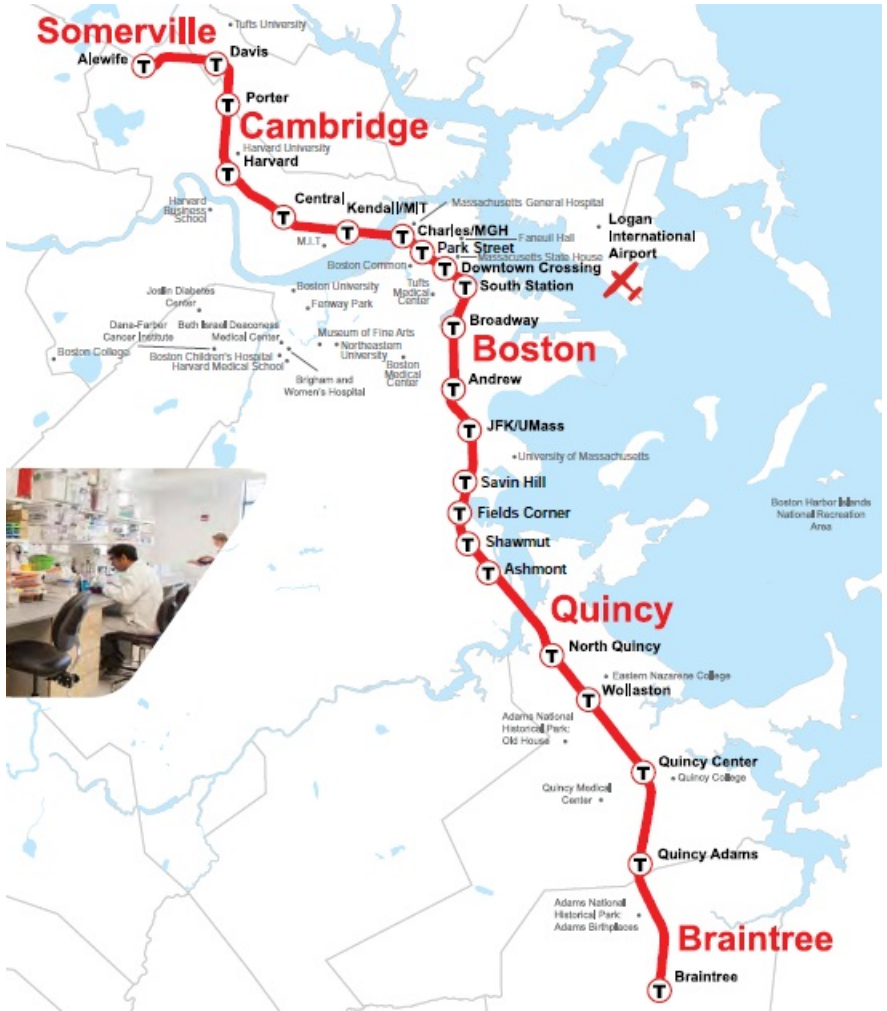
Public policy in Boston LS RIE

Planning

Life Sciences Corridor

SOMERVILLE CAMBRIDGE BOSTON QUINCY BRAINTREE

- Right sizing zoning
- TOD paradigm
- Mass-transit subway line
- 5 cities involved
- Platinum rated according to MASSBIO Index
- Access to MLSC funds



Discussion:

Public policy in Boston LS RIE

MASSACHUSETTS LIFE SCIENCES CENTER

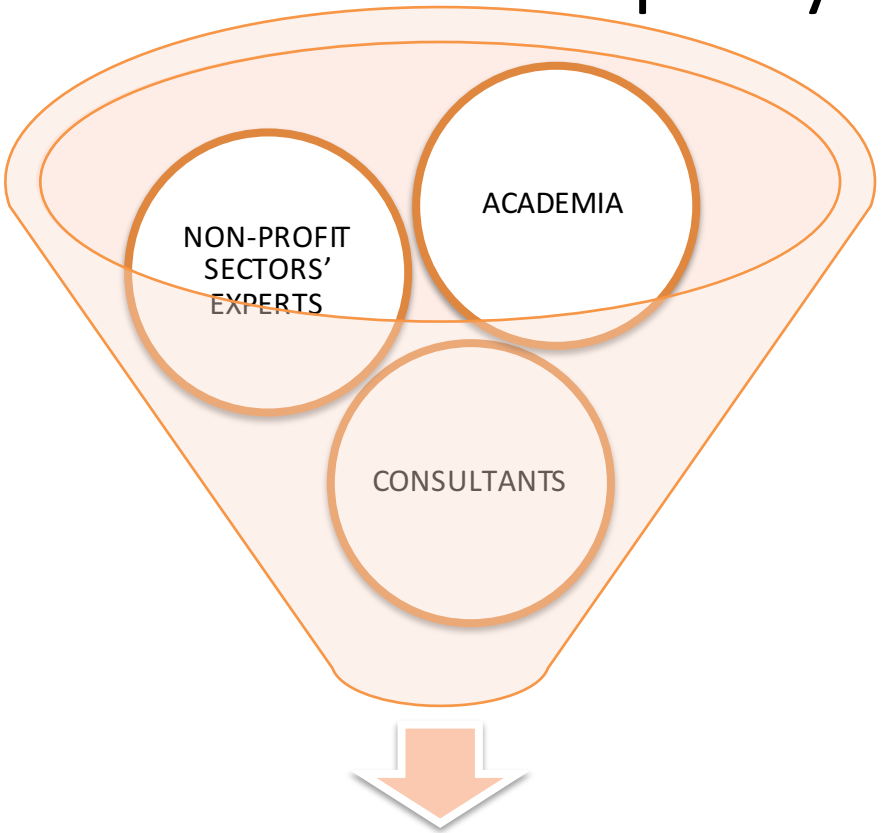
Investing in the State of Innovation

- COOPERATIVE RESEARCH GRANTS
- INTERNSHIP CHALLENGE PROGRAM
- NEW INVESTIGATOR GRANTS
- LIFE SCIENCES ACCELERATOR LOAN PROGRAM
- SMALL BUSINESS MATCHING GRANT (SBMG) PROGRAM
- LIFE SCIENCES TAX INCENTIVE PROGRAM
- CAPITAL PROJECTS FUNDS

- RESEARCH INSTITUTIONS
- START-UPS
- BUSINESS COMPANIES
- SMEs
- BUSINESS INCUBATORS
- NOT-FOR-PROFIT ORGANIZATIONS

Discussion:

Public policy in Boston LS RIE



DECISION ON WHICH PROJECTS TO BE FUNDED

MASSACHUSETTS LIFE SCIENCES CENTER
Investing in the State of Innovation

Data:

Life Span: 2008 - > 2018

Budget: 1 $ Billion 100% state-funded

Outcomes:

- 1.66 $ gain per each 1$ spent
- All the pipeline reap benefits from the program (equity)

Source: Bluestone & Clayton-Matthews, 2013

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Findings

San Diego

- The **public sector** exerts a **limited role** in orchestrating the Regional Innovation Ecosystem.
- The prominent role in **leading** the process is call of **Not-for-profit organizations**

Boston

- The **public sector combines** public investments and tight-zoning. In the funding decision making all sectors are involved. The benefits are meant to be reap by all the R&D pipeline.
- Remarkable **effective public expenditure**

Conclusions

- No evidence that successful innovation ecosystems need to be **orchestrated** by public authorities;
- The bottom up and self-organised features of San Diego's life science ecosystem should be further assessed from a **social and environmental perspective** in order to understand whether they contribute in addressing societal challenges.

Thank you!