

Urban innovation-oriented policies and knowledge dynamics: insights from Boston and Cambridge, US

Carmelina Bevilacqua

Università degli Studi Mediterranea di Reggio Calabria
Dipartimento PAU – Patrimonio Architettura Urbanistica
Email: *cbevilac@unirc.it*
Tel: +39.335.8085836

Pasquale Pizzimenti

Università degli Studi Mediterranea di Reggio Calabria
Dipartimento PAU – Patrimonio Architettura Urbanistica
Email: *pasquale.pizzimenti@unirc.it*
Tel: +39.320.3069571

Abstract

In the last two decades, European regions and cities, had to deal with a strong dichotomy being inherent with improving competitiveness and ensuring equal opportunities, amongst social inclusion issues. The globalization context required a structural change in policy design, in each level of government and in different forms of governance. The common space of change lies in building an innovative policy perspective involving all ‘sectors’ of life which at European level, has been identified with the Smart Specialisation theoretical approach making innovation the catalyst for designing the change in the current Cohesion Policy. Introducing smart specialisation in regional policy agenda allows at reinforcing territorial knowledge dynamics connected with place-based approach in designing local economic development (McCann and Ortega-Argilès, 2013). The article analyses the territorial knowledge dynamics investigating clusters with a spatially-oriented approach at urban level. The aim is to figure out how the connection of urban policy with place-based innovation approach allows at reaching the knowledge convergence to activate informational spill-overs. Insights derived from two case studies carried out in two US cities, Boston and Cambridge, are presented, where cluster, innovation policy and urban planning act in a complementary way for supporting knowledge dynamics. The spatial configuration of clusters, based on Porter’s definition, at city level allows at interpreting the role of innovation spaces as expression of knowledge dynamics’ source within on going urban regeneration initiatives.

Key words: Innovation, Knowledge, Urban Policy

1 | Introduction

Knowledge and Innovation, introduced in the Europe 2020 strategy as drivers to overcome the limited or declining economic growth and development affecting regions and cities, have arisen as new development paradigm with the aim to boost competitiveness of firms and territories and contribute to social cohesion. Regions and Cities are experiencing this paradigmatic shift put in place by the EU focusing on Smart Specialisation Strategies (S3) as main driver in stimulating a smart, inclusive and sustainable growth through the Innovation Union (IU) flagship. According with European Commission (2010) on “Regional Policy contributing to smart growth in Europe 2020”, the development of S3 is crucial «to maximize the impact of Regional Policy in combination with other Union policies (...) they should be integrated into regional development strategies in order to ensure an effective partnership between civil society, businesses and public authorities at regional, national and European levels». Cities acquired an important role within the reform process of cohesion policy that took place in order to build up operational programme for 2007-2013 period (EC, 2009). The need of an integrated and multilevel approach in urban policy stemmed from Lisbon strategy (Parysek, 2000) and created the condition to reinforce the link between urban policy and regional innovation system through the S3 approach. The main impulse of this interaction came from the change in structuring development strategies at European level culminated in the publication of Barca report (2009) with the concept of place-based innovation strategies (Foray, 2015; Barca et al 2012). Even though the Lisbon strategy has stirred *innovation* at the core of development, «the way in which Structural Funds were used to support innovation was not very effective» (Foray, 2015). Europe still presents deep differences: regions more competitive and able to compete in the globalised market (Borras, 2011) and regions with unsolved structural weaknesses, highlighting an “innovation gap”. The principal cause/effect relationship of the different regional responses to European innovation policy during the last decades seems to lie on the existence of a market asymmetry because of a chronic

mismatch of supply-demand for innovation (Koschatzky et al., 2001). This is partly due to a persistent lack of investigation of local characteristics about territorial capital, innovation networks and their level of carrying capacity to foster innovation (EC, 2011). The awareness of the development of an innovation system at regional level, under the impulse of the S3 approach, becomes stronger in the horizontal process of the entrepreneurial discovery that in turn «require the integration of divided and dispersed knowledge» (Foray, 2015). The urban dimension of S3 usually is grounded on the concept of smart city. The paper introduces another aspect of urban dimension within S3, which could be part of the entrepreneurial discovery process in building innovation spaces. It is possible to group under the innovation-oriented urban policy's concept the increasing phenomena of innovation districts (in a broadly sense) to refine a different perspective of the role of the city in the creation of an innovation ecosystem. The observed shift of innovation away from out-of-town science parks and back into city centres (McBryde, 2016) could be considered as an emerging demand for innovation that recall the EDP requirement of integrating divided and dispersed knowledge. Following this perspective, it is possible to argue that the innovation-oriented urban policy act as engine of EDP, especially in defining spaces and conditions to integrate entrepreneurial knowledge, generally fragmented and dispersed. The first insights of the functional connection of urban policy and S3, through the concept of innovation-driven urban policy, come from the study of the interactions among innovation, cluster, knowledge dynamics and spaces in two US cities, Boston and Cambridge, in order to identify the success factors of cluster initiatives. Each case study is characterised by different typologies of cluster localised at city level and by correlations between these clusters (mapped at urban level) with the so called “innovation spaces” occurred in those localisations. The innovation spaces analysed has been considered as policy initiatives, in terms of interaction between urban policy and cluster organisation/cluster initiatives promotions, but also as an emerging factor of new demand of innovation-oriented physical transformation. Boston and Cambridge are cities where Cluster, innovation policy and urban planning act in a complementary way for supporting both knowledge dynamics and regeneration of local economy. The first findings of the case studies analysis of Boston and Cambridge allowed to identify the link between city and S3 by introducing the innovation-driven urban policy as an important phase of the EDP process.

2 | Cities as catalysts of innovation: Knowledge concentration vs knowledge dispersion

The efforts in boosting economic competitiveness have been dealing with the need to balance economic interests with a more balanced social and physical development. The S3 introduced the Entrepreneurial Discovery Process (EDP) as crucial to activate the clustering phase that, in turn, is based on geographic concentration, spatial agglomeration and networking as drivers of innovation (OECD, 2012). Clusters provide a conceptual framework to describe and analyse important aspects of modern economies and constitute «the breeding ground for innovation» (Ketels et al. 2012). The place where Research and Innovation policies (S3) and clusters trigger the so called “good atmosphere” is the city for several reasons. Cities can be considered as nodes of an international complex network that autonomously can exploit ideas and diffuse to the other regions (Simmie, 2005). Innovation, indeed, is understood as the driving force of long-term competitiveness, growth, and employment in present day Europe (Das & Finne, 2008: 1) and cities are the centre of economic activity and the focal point of innovation (Tong Soo, 2015). As Foray stated (2015), «the notion of smart specialisation describes the capacity of an economic system (a region for example) to generate new specialities through the discovery of new domains of opportunity and the local concentration and agglomeration of resources and competences in these domains». These characteristics are provided by cities and can be considered the key for the activation of the EDP, intended as learning process in discovering new promising areas for future specialisation (Foray, David, Hall, 2009: 20). Knowledge fragmentation or dispersion needs a policy action in order to favour concentration, which is part of S3 implementation. Hence, it is relevant to take into account that a particular connection occurs between (Cluster) policies in terms of factors related to the clusters' governance systems and (spatial/urban) planning in terms of factors suitable to be mapped in physical terms (Table I).

The geography of innovation as well the economy of innovation privileged the regional dimension (Shearmur, 2012) perspective and focused on regions as main spatial units to analyse. However, it is also widely recognised from combining Schumpeter (1934) and Jacobs (1969) that this connection (cluster policies and spatial planning) starts at city level where finds the conditions to launch real change in regenerating local economic areas and subsequently valorises the local assets (material and immaterial) reinforcing the existing domains and identifying the new ones. In synthesis, the good atmosphere for knowledge dynamics. From these considerations, it follows that it is crucial to investigate how cluster-

oriented policies and urban policy and planning are related in transforming cities. The case studies analysis remarks this linkage that in Boston and Cambridge is evident thanks to the rooted involvement of communities and the private sectors in policy implementation. Nevertheless, they can show the important factors that can be included in a public policy to foster S3 in lagging regions where the creation of an urban ecosystem acting on innovation can trigger the EDP.

Table I | Cluster Policy and Spatial Planning key factors for S3 implementation.
Source: MAPS-LED Research Project

Cluster Policy key Factors	Spatial Planning key Factors
Institutional networks	Proximity and Accessibility (to gateway cities, infrastructural nodes, HEI centres, broadband facilities etc.)
Entrepreneurial networks	Spatial Pattern (boundary of the cluster, network of connections, localisation of place of production and distribution etc.)
Global-local nexus between local areas and global systems	Size (dimensional data of the cluster)
Organisation of local value chains	Critical Mass (number of enterprises, size of urban centers involved, number of jobs created etc.)
Stakeholders	

2.1 | The urban dimension of innovation in Boston and Cambridge

The cities of Boston and Cambridge (US) present different characteristics that make difficult the comparison in terms of key socio-economic indicators, but they offer interesting hints in providing (urban) innovation-oriented policy examples for boosting concentration of innovation, entrepreneurship, and creativity in reaching the knowledge convergence to activate informational spill-overs. Starting from the spatial configuration of clusters (based on Porter's definition) at city level, we moved to the interpretation of the role played by those spaces (innovation spaces) expression of knowledge dynamics' source, which can act as EDP engines. The city of Cambridge (fig. 2) presents two strongest Clusters: Education and Knowledge Creation and Business Services. The urban configuration proposed is a combination of the economic aggregation of Cluster (Porter, 1998) with the City land use categories. The reason of their strength is mostly due to the presence of Research Institutions (Harvard, MIT) and a high number of related activities, remarking a high density level of relationships among public, private sector, cluster organisations, innovation stakeholders (such as start-ups, small-medium enterprises) and community.

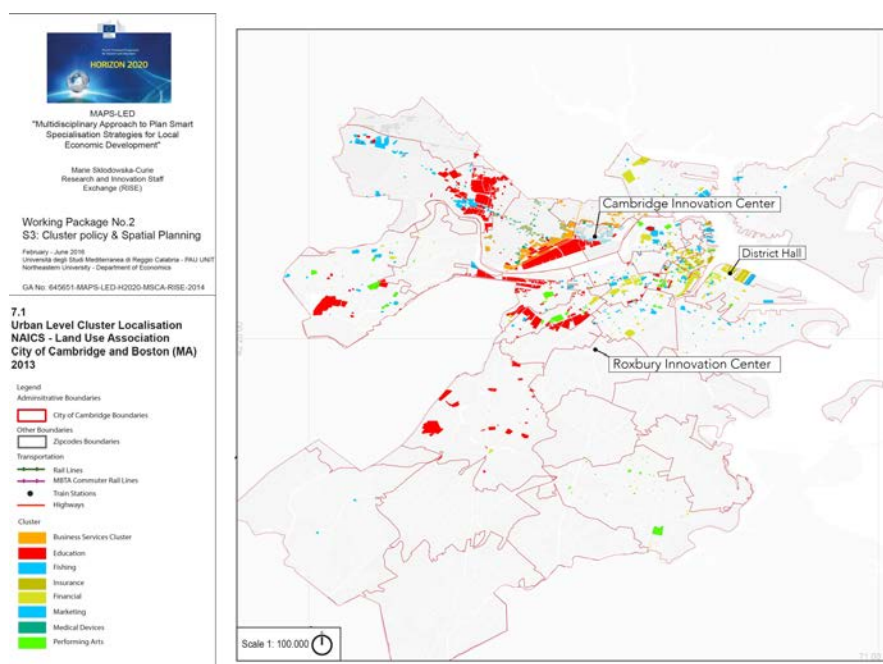


Figure 1 | Clusters spatial distribution in Cambridge and Boston (MA).
Source: Authors' elaboration (MAPS-LED Project, 2016).

The city of Boston (fig. 1) shows a different pattern. Following the same methodology, the strongest clusters are Financial, Marketing and Insurance. Nevertheless, they are more dispersed and fragmented, with some exceptions. This distribution scheme could be due to the different size of cities and other factors such as proximity and accessibility to other services or transportation facilities, all factors that the literature highlights as crucial for the location of an economic activity. Cluster-oriented initiatives linked to development and diffusion of innovation, which can be the result of cluster and planning policies adopted in targeted areas by the two cities show interesting insights. Cluster-oriented initiatives can be defined as «organised efforts to support the development of the cluster, with a person, organisation, or consortium leading the actions» (OECD, 2010). with the main aim to spread innovation and an increase competitiveness among firms. Even when the initiative is privately-driven the public sector plays a crucial role especially trough specific innovation-oriented policies.

3 | The role of Innovation Spaces in Boston and Cambridge

The inclusion of innovation in development and urban planning policies is becoming an emerging trend in US as well as in European cities, which are experiencing a new complementary urban development paradigm characterised by the presence of Innovation Districts. The use of innovation as main economic development driver after the economic downturn came to the light in several US cities with the aims to revitalise urban distressed areas or to boost up innovation in areas where the presence of anchor institutions, the proximity to infrastructure and the possibility to increase liveability conditions constitutes those preconditions for the creation of the so called «innovation ecosystem». Innovation Districts are defined as «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, 2014:1). Innovation to be effective needs a fertile context which in some case occur thanks to the existing conditions, in some other need a push from the public or private sector for the creation of the innovation ecosystem. The city of Boston and Cambridge followed this trend thanks the presence of a high number of anchor institutions and a context with a high potential demand for innovation. In the first case, two different areas have been taken into account: the Boston Innovation District located in the South Boston Waterfront area, and the neighbourhood of Roxbury where it is located the Roxbury Innovation Center. Conversely, for the city of Cambridge the Kendall Square areas that is located nearby several anchor institutions has been selected. The combination of the public action with universities and other anchor institutions and the private sectors needs a policy framework to create an innovation ecosystem. Such policies are the combination of economic development measure and urban policy. The first stimulate the creation of precondition for innovation, the second drive and manage the demand of physical transformation of the cities.

The table below shows the heterogeneity of the actor typology that promotes or manages the so-called innovation spaces located in innovation districts: Public Sector (District Hall - BID), PPP (Roxbury Innovation Center), Private sector (Cambridge Innovation Center). The presence of Innovation Spaces as specific objectives in the urban planning tools highlight the will to put innovation at the core of cities' transformation. Both Cities provided master plans in which the innovation-oriented use of spaces is clearly defined in terms of strategic objectives (boost economic growth and development of deprived areas) or in physical terms (development of new spaces or regeneration/renewal) (table II).

Table II | Innovation-oriented policy initiatives and Innovation Spaces as strategic objective in urban policies
Source: Author's elaboration based on desk analysis.

<i>Policy Initiative</i>	<i>Initiative typology</i>	<i>Zoning Area</i>	<i>Master Plan</i>	<i>Year</i>	<i>Innovation Space Objective in Urban Planning Tools</i>
Boston Innovation District	Public	PDA ¹	Seaport Sq Master Plan	2010	“The Project will include built floor area of Innovation Uses in a minimum amount of twenty percent (20%) of the Total Gross Area of the Project's non-Residential Uses to support the South Boston Waterfront Innovation District (the Innovation Use Requirement).

¹ PDA (Planned Development Area). According with the Boston Zoning Code a PDA is A Planned Development Area (PDA) is an overlay zoning district that establishes special zoning controls for large or complex projects.

Roxbury Innovation Center	PPP	EDA ²	Roxbury Strategic Master Plan	2004-2011	“The BRA may approve a Development Plan proposing diversification and expansion of Boston's economy. to or supportive of uses such as, but not limited to, the following: scientific Research and Development Uses”
Cambridge Innovation Center	Private	PUD ³	K2C2 Planning study	2011-2012	“Innovation Office Space for small companies and start-ups would be required as a component of all new office development”

3.1 | The Boston innovation District

In 2010, the Boston Innovation District has been selected by the past Mayor as the main area for businesses and companies' attraction and drive the economic regeneration of the city. In this area economic development measures have been put in place together with planning initiatives in order to create a good atmosphere accordingly with the motto of the initiative: 'Work, Live and Play'. Together with the localisation of companies, start-ups and small businesses (especially in the Boston Marine Industrial park area), innovation spaces have been localised in the seaport area (fig. 2). Thanks to the activities of initiatives such as the District Hall (public), the area is attracting new innovation-related businesses and retaining the existing ones.

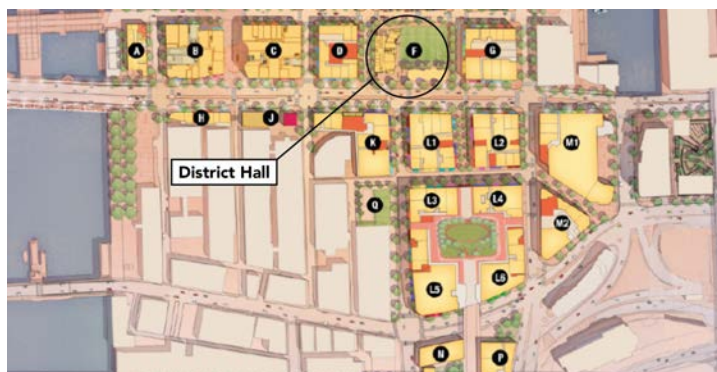


Figure 2 | Seaport Square Master Plan.

Source: Boston Global Investors - Boston Redevelopment Authority, available at <http://www.bostonredevelopmentauthority.org>

The District Hall, which is one of the few public innovation center in the country, represents the space of contact where community and entrepreneurs work together in creating a new public anchor institution stimulating social innovation. The Boston Redevelopment Authority (BRA) included the project within the 23-acre waterfront development master plan drawn by Boston Global Investors⁴. Managed by a Public Private Partnership, it makes available spaces for events, which help in building and strengthening an inclusive innovation community. «In 2014, District Hall hosted a total of 562 events ranging from hackathons and training sessions to start-up networking meetings and brainstorming sessions. More than 70 percent of District Hall's space rental value has been donated for community use – a \$1 million investment in the local start-up community»⁵.

3.2 | The Roxbury Innovation Center

The Roxbury Innovation Center is a civic innovation center that supports local economic development by encouraging innovation and entrepreneurship⁶. It is localised in Dudley Square in Roxbury, a

² EDA (Economic Development Area). According with the Boston Zoning Code EDAs are established to encourage economic growth and commercial activity in a manner which is sensitive to the needs and interests of the community and to provide for economic development that is of a quality and scale appropriate to the surrounding neighborhood.

³ PUD (Planned Unite Development). According with the City of Cambridge Zoning Ordinance a PUD is A land development project comprehensively planned by the developer with a single site plan for a parcel of a size eligible for PUD designation. A PUD is designed to permit flexibility in building siting, mixtures of housing types and land uses, private open spaces, and the preservation of significant natural features.

⁴ Boston Global Investors, available at: <http://bginvestors.com/projects/district-hall/> [accessed August/September 2016] and <http://bginvestors.com/master-plan/seaport-square/> [accessed August/September 2016].

⁵The Intersector Project Report, available at: <http://intersector.com/wp-content/uploads/2015/10/The-Development-of-Bostons-Innovation-District.pdf> [Accessed June 2016].

⁶ Roxbury Innovation Center , available at: <http://roxburyinnovationcenter.org/about/> [accessed September 2016].

neighbourhood of the city of Boston characterised for a high level of socio-economic weakness. Dudley Square has been interested by several development projects in the last decades aiming at revitalise and renew the entire area. Particularly, the center is located in a historical building included in a Landmark Project of the city of Boston (fig. 3). Although Roxbury is an economically challenged neighbourhood, this area, is located nearby the city center, with its access to public transit and highway systems, and proximity to many of Boston's educational institutions, life-science centers and convention centers. Physical assets are energized by the neighbourhood's strong community organizations and relatively young population⁷. Here, several activities involving start-ups, tech companies and local community are organised monthly, in order to allow interaction, networking among all participants and provide exposure to the emerging local entrepreneurs.



Figure 3 | Dudley Square Planned Development Projects.
Source: Dudley Square Vision – Boston Redevelopment Authority,
available at <http://www.bostonredevelopmentauthority.org/>.

3.3 | The Cambridge Innovation Center

The city of Cambridge presents different context conditions with respect the city of Boston, especially for the production of innovation thanks to the presence of two of the most important Research Institutions of the world (Harvard and MIT) and their capability to transfer research outputs into the market thanks the high demand of innovation pushed both by the public and private sectors. With respect to the City of Boston, the private sector in Cambridge is pushing for the creation of innovation spaces. This is the case of the Cambridge Innovation Center (CIC) located in Kendall Square (fig. 4).

Businesses, start-ups, companies, venture capitalists act together in order to capitalise the research activities conducted by public and private research institutions and, in this way, produce innovation and create economic growth. The increasing need of innovation spaces, which calls for physical transformations, is supported by the Urban Policies of the City of Cambridge. As a matter of fact, the stakeholders involved in the initiative are also proactively involved in the K2C2 Planning Study which will transform the area in the next ten years paying particular attention to public, transportation and innovation-related facilities.

The K2C2 (Kendall Square – Central Square) planning study, which is articulated in master-plan including also Central Square, has in its main economic development goals that one to ensure affordability for the increasing demand of innovation spaces for start-ups together with the community participation.

⁷ Cfr. 6.

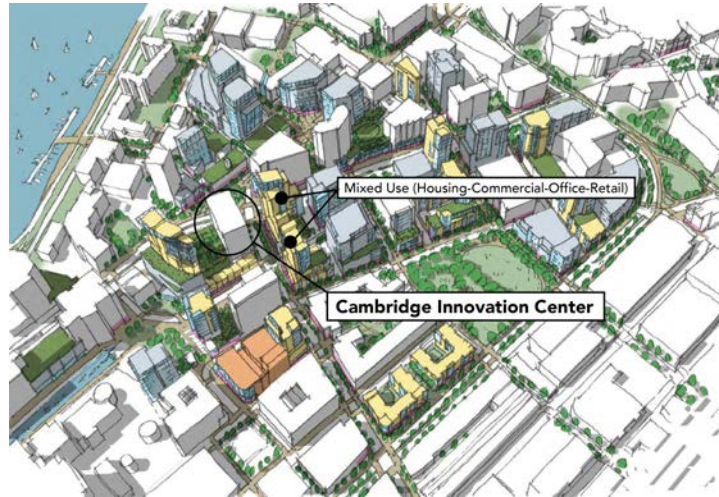


Figure 4 | Kendall Square Development Projects
Source: Reinventing Kendall Square for the 21st Century Vision and Framework 2012.

4 | Major Findings

The case studies conducted in two US cities Boston and Cambridge have the scope to understand if and how innovation-oriented policy initiatives, aimed at the achievement of economic development goals, are linked with urban policies. Particularly, it is interesting to observe if the latter, in supporting these initiatives can be considered the input of the Knowledge concentration/fragmentation process or it is just a consequence of exogenous dynamics acting on these territories. Master-Plans of the areas show an increasing interest in provide office and retail spaces which in the selected cases are partially addressed to innovation spaces (Table III).

Table III | Case studies and expected transformations. Sources: Various Reports from the Boston redevelopment authority and the City of Cambridge Community Development Department

Innovation Spaces	Percentage (%) of Innovation Space provided by urban planning tools
District Hall (BID)*	20% of Retail or Office Gross (Ground) floor area
Roxbury Innovation Center	9% ⁸ of Retail or Office the Gross floor area
Cambridge Innovation Center	5-10% of Retail or Office Gross (Ground) floor area

From a functional approach perspective, it seems that the City of Cambridge is experiencing a different characterization of the connection between urban policy and innovation, more oriented to the production of innovation aiming at boosting competitiveness and attract exogenous resources. The city of Boston appears to be more oriented to the use of innovation finalised at regeneration of local economic target areas. This is the case for example of the District Hall located in the Boston Innovation District that was a former industrial area and that actually is considered a catalyst for innovation and the Roxbury Innovation Center, located in a neighbourhood characterised by social, economic and physical weaknesses. Nevertheless, the case studies show how the concentration of cluster organizations can be considered an indicator of the entrepreneurial discovery stage in supporting or creating the conditions for the innovation ecosystem. The higher the level of Knowledge convergence, the higher the level of cluster organization, innovation spaces (which creation is supported by urban policies) at city level are conceived to stimulate the creation of knowledge convergence by endorsing cluster organizations. The analysis of innovation ecosystems opens the discussion on relevant emerging topics such as the possibility that innovation could generate possible side effects. Negative consequences, such as gentrification or side effects linked to the sharing economy diffusion can arise and public policies should take into account appropriate solutions in balancing the innovation-related approach per se with social needs. Cities, then, become crucial in the application of the desired bottom-up approach in S3 implementation, which needs innovation-driven

⁸ This percentage was not established in advance by the City of Boston Zoning Code or the urban planning tools but has been calculated on the current status of the initiative which interested the Ferdinand Building in Dudley Square, a municipal civic center in which the Roxbury Innovation Center plays the role of connectors between the innovators and local community spreading out innovation.

urban regeneration interventions in order to calibrate the discrepancies in the demand/supply of services for innovation. The complexity of S3 policies and the unknown effects/impacts it can generate make this policy area very risky and uncertain due to the continuous experimentation of an on-going policy implementation that can vary from place to place, from city to city, from region to region. This variability, linked obviously to the different contexts characteristics, is the base in developing real “tailor-made” policy at local level in response to the local needs in exploiting local resources (human, social, relational, territorial capital). The EDP based on urban innovation-oriented policy is proposed as a trigger for the coordination of the efforts – public administrations, research institutions, entrepreneurs, communities – at city level in boosting the local knowledge convergence and generating the expected change.

Acknowledgments

This paper represents one of the preliminary results achieved by the Laboratory CLUDs (Università degli Studi Mediterranea of Reggio Calabria – PAU Department) with the MAPS-LED Project, funded by Horizon 2020 European Research Framework Program (H2020-MSCA-RISE-2014 Grant Agreement number: 645651). Furthermore, it benefits from the research activities of the Early Stage Researchers involved in the Project belonging to the International Doctorate URED (Università degli Studi Mediterranea of Reggio Calabria – PAU Department). Particularly the authors thanks: Giuseppe Cantafio, Andrea Porelli, Virginia Borrello, Giada Anversa, Luana Parisi for the valuable contribution to the discussion.

References

- Barca F. (2009), *An agenda for a reformed cohesion policy: a place-based approach to meeting European Union challenges and expectations*, Independent Report prepared at the request of Danuta Hübner, Commissioner for Regional Policy, European Commission, Brussels.
- Barca F., McCann P., Rodriguez-Pose A. (2012), “The Case for Regional Development Intervention: Place-Based Versus Place-Neutral Approaches”, in *Journal of Regional Science*, no. 1, vol. 52, pp. 134-152.
- Borras S. (2011), “Policy learning and organizational capacities in innovation policies”, in *Science and Public Policy Journal* Oxford University Press, no. 9 vol. 38, pp. 725-734.
- Cruz X., Teixeira X. (2009), “The evolution of the Cluster Literature: Shedding Light on the Regional Studies-Regional Science Debate”, in *Regional Studies*, no. 9, vol. 44, pp. 1263-1288.
- Das S., Finne H. (2008), “Innovation and Co-location”, in *Spatial Economic Analysis*, no. 2, vol. 3, pp. 159-189.
- European Commission (2009), “Promoting Sustainable Urban Development in Europe. Achievements and Opportunities”, Directorate-General for Regional Policy, Brussels.
- European Commission, (2011), “Regional policy for smart growth in Europe 2020”, Directorate-General for Regional Policy, Brussels.
- Foray D., David P. A., Hall D. (2009), “Smart Specialisation: The Concept. Knowledge for Growth Group”, Selected papers from Research Commissioner Janez Potocnik's Expert Group.
- Foray, D. (2015), “Smart specialisation: opportunities and challenges for regional innovation policy”, Routledge, Abingdon.
- Jacobs J. (1969), “The economy of cities”, New York, Vintage.
- Katz B., Wagner J. (2014), “The Rise of Innovation Districts. A New Geography of Innovation in America”, in *Metropolitan Policy Program at Brookings*.
- Ketels C, Lindqvist G., Sölvell Ö. (2012), “Strengthening Clusters and Competitiveness in Europe. The Role of Cluster Organisations”, *The Cluster Observatory*, Stockholm School of Economics, Center for Strategy and Competitiveness, October 2012.
- Koschatzky K, Kulicke M, Zenker A. (2001), *Innovation Networks: Concepts and Challenges in the European Perspective*, Physica Verlag Heidelberg New York.
- McBryde W. (2016), “The rise of the innovation oriented city”, JLL Real Views, available on line at <http://www.jllrealviews.com/showcase/trends/rise-innovation-oriented-city/> [accessed September 2016].
- MAPS-LED, (2016), “Multidisciplinary Approach to Plan Smart Specialisation Strategies for Local Economic Development” Horizon 2020 - Marie Slowdowska Curie - RISE Actions, Grant Agreement number: 645651, MAPS-LED - H2020-MSCA-RISE-2014, Preliminary Results from the 1st Mid-Term Meeting, Northeastern University, Boston (USA), 6-7 June, 2016.

- McCann P., Ortega-Argilé R. (2013), "Smart Specialisation, Regional Growth and Applications to European Cohesion Policy", in *Regional Studies*, no. 8, vol. 49, pp. 1291-130.
- OECD (2010), "Cluster policies. Policies to support clusters, generally understood to be geographic concentrations of inter-connected firms and related actors", OECD Report.
- OECD (2012), "IRE subgroup 'Regional clustering and networking as innovation drivers'", OECD Report
- Parysek J. (2000), "Urban Policy in the context of contemporary urbanisation processes and development issues of Polish cities", in *Journal of Urban and Regional Analysis*, no. 2, vol. 2, pp. 33-44.
- Porter M. (2000), "Location, Competition, and Economic Development: Local Clusters in a Global Economy", in *Economic Development Quarterly*, no. 1, vol. 14, pp. 15-34.
- Porter, M. (1998), "Cluster and the New Economics of Competition", *Harvard Business Review*, December, pp. 77-90.
- Schumpeter, J.A. (1934), *The Theory of Economic Development: An Inquiry Into Profits, Capital, Credit, Interest, and the Business Cycle*, Cambridge, MA, Harvard University Press.
- Shaermur R. (2012), "Are Cities the font of innovation? A Critical review of the literature on cities and innovation", in *Cities*, no. 29, pp. 9-18.
- Simmie J., (2005), "Critical surveys edited by Stephen Roper innovation and space: A critical review of the literature", in *Regional Studies*, no. 6, vol. 39, pp. 789-804.
- Tong Soo K. (2015), "Innovation across cities", *Economics Working Paper Series 2015/027*, The Department of Economics, Lancaster University Management School, UK.

Web-based References

- Boston Global Investors. Seaport Square Master-Plan, information available at:
<http://bginvestors.com/projects/district-hall/> [accessed August/September 2016]
<http://bginvestors.com/master-plan/seaport-square/> [accessed August/September 2016].
- Roxbury Innovation Center information available at: <http://roxburyinnovationcenter.org/about/> [accessed September 2016].
- The Intersector Project Report, information available at: <http://intersector.com/wp-content/uploads/2015/10/The-Development-of-Bostons-Innovation-District.pdf> [Accessed June 2016].