

OPEN INNOVATION WITHIN GEOGRAPHICAL AND INSTITUTIONAL SETTINGS

MARCIN BARON

ABSTRACT

Open innovation is a managerial concept. Originally - and consequently in mainstream understanding - this concept has no direct links to territory. However, some contemporary studies, especially related to SMEs, add the territorial dimension to OI. Also plenty of studies in economic geography relate to innovation similarly to OI. The well scrutinized notions of the innovation milieu, clusters, regional innovation systems, and the triple-, quadruple- and quintuple helix are presented in this chapter. In reality they all include open innovation mechanisms. A theoretical background is provided, including comparison of open innovation and territorial innovation. In praxis, the wide approach to OI and territory can be utilized for the sake of modern territory-related policies like smart specialization or open innovation 2.0.

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Prerequisite	The students should be aware of the principles of OI and previous more general courses on networking, entrepreneurship, and technology transfer might be useful.
Objectives of the lecture	To bridge OI theory and regional studies for providing insight into the territorial nature of OI processes.
Workload	6h teaching; 24h self-study.
Learning outcomes	<p>Knowledge</p> <p>#72: To apply theories of national and regional innovation systems. #99: To understand networks and collaboration networks.</p> <p>Skills</p> <p>#90: To understand the dynamics between innovation and the contextual environment. #68: To analyse and evaluate the interaction between the main players in the OI system. #119: To recognize and assess the interdependencies in the system of innovation (ecosystem) across organizations.</p> <p>Competences</p> <p>#53: To execute innovation project management across organizations.</p>
Reading List	<p>Asheim, B. & Gertler, M.S. (2004) The Geography of Innovation: Regional Innovation Systems. In J. Fagerberg, D.C. Mowery, R.R. Nelson (Eds.) The Oxford Handbook of Innovation, (291-317), Oxford: Oxford University Press.</p> <p>Baron, M. (2016). Open Innovation and Territory. In A-L Mention & M.Torkkeli (Eds.), Open Innovation. A Multifaceted Perspective, (1st ed., pp. 241-273). New Jersey: World Scientific.</p> <p>Capello, R. & Lenzi, C. (Eds.) (2013). Territorial Patterns of Innovation, London and New York: Routledge.</p> <p>Porter, M. (1998). Clusters and the New Economics of Competition. Harvard Business Review, 76 (November-December), pp. 77-90.</p>
European Qualifications Framework (EQF) Level	Levels 6, 7.

LECTURE CONTENT

In theory, open innovation is not place-bound. On the other hand, numerous approaches consider territory to be the primal location of innovation and its sourcing. Consequently, it can be stated that OI may not rely upon the local / regional context, but it might occur. This understanding is especially important for the innovation policy, as we can often see OI-based tools to be implemented throughout local / regional innovation support schemes.

Definitions

Philippe Aydalot and his research group GREMI pioneered the search for “something” that makes it possible for some regions to be more dynamic than others (Crevoisier, 2004). The studies concerned primarily the resources and interactions available to companies in their innovation processes, innovation networks and their spatial aspects, and developmental trajectories of regions with the same dominant economic sector. Altogether the studies by GREMI gave the “something” the name *innovation milieu*, which is conditioned by three paradigms: the technological paradigm, the organizational paradigm, and the territorial paradigm (Crevoisier, 2004), see Fig. 1. The logic of this construct says that processes running in territorial proximity benefit of being specific, utilizing specific know-how, dealing with issues that are better known, and mobilizing resources in a unique way. If this proves to be true, businesses well rooted in their milieus should enter the OI patterns easily, especially within their existing networks.

Clusters are another important notion in the research on territorial innovation systems. Dating back to the studies on industrial complexes by Stan Czumanski, they became widely known and followed after the studies of Michael Porter (1998) gained attention not only by the scientific audience. Porter sees clusters as geographic concentrations of companies and institutions, mainly in research and technology development, which are inter-connected and work in a common industry. They draw upon a shared pool of talents and skilled, specialized labor, as well as utilize specialized infrastructure, services and providers in proximity. Knowledge spillovers boost the dynamics of the clusters and make it possible for various players to act in a manner of cooperation (i.e. competition blended with cooperation).

Regional innovation systems, mainly associated with Bjørn Asheim or Hans-Joachim Braczyk, Philip Cooke and Martin Heidenreich bridge research and policy approaches. RISs encompass innovative companies and their surroundings: partners, competitors, customers, the available human capital, the regional knowledge infrastructure, institutions, regulation and legislation, untraded interdependencies, and other factors that influence innovation directly or indirectly, as well as external links into the national and global economy (Martin, 2003).

The concept of the *triple helix* of university-industry-government relationships initiated in the 1990s by Henry Etzkowitz and Loet Leydesdorff, interprets the shift from a dominating industry-government dyad in the industrial society to a growing triadic relationship between university-industry-government in the knowledge society. The triple helix thesis is that the potential for innovation and economic development in a knowledge society lies in a more prominent role for the university and in the hybridization of elements from the university, industry and government to generate new institutional and social formats for the production, transfer and application of knowledge (Ranga & Etzkowitz, 2013). The concept has been further developed mainly by Elias Carayannis. In his work, *quadruple helix* embeds the triple helix by adding as a fourth helix the 'media-based and culture-based public' and the 'civil society'. The *quintuple helix* innovation model is broader and more comprehensive by contextualizing the quadruple helix and by adding the helix of the 'natural environments of the society'. The triple helix acknowledges explicitly the importance of higher education for innovation. However, in one line of interpretation it could be argued that the triple helix places the emphasis on knowledge production and innovation in the economy, and so it is compatible with the knowledge economy. The quadruple helix already encourages the perspective of the knowledge society, and of knowledge democracy for knowledge production and innovation. In quadruple helix understanding, the sustainable development of knowledge economy requires coevolution with the knowledge society. The quintuple helix stresses the necessary socioecological transition of the society and economy in the twenty-first century (Carayannis, Barth & Campbell, 2012).

THEORETICAL BACKGROUND

Territorial understanding of innovation is usually traced back in time to the concept of industrial districts by Alfred Marshall (19th/20th Century), who discusses the concentration of specialized industries in particular localities and stresses not only pure business relationships but also the atmosphere of the location. Industrial agglomeration in a certain location, accompanied by related externalities and knowledge spillovers result in processes of industry territorialization. Adding to the state of the art, various researchers have proved that the territory (which means much more than a geographical place) is a primal location of innovation.

This notion gave origin to two key approaches well established in theory and further in policy making since the 80s / 90s of the 20th century: innovation milieux (more characteristic for Italian, Swiss and French researchers) and clusters (described more often by the widely understood Anglo-Saxon world).

Both notions share similar characteristics that can be depicted by the following well-acknowledged schemes taken from the innovation milieux literature (Figure 1, Figure 2) and Porter's work on clusters (Figure 3):

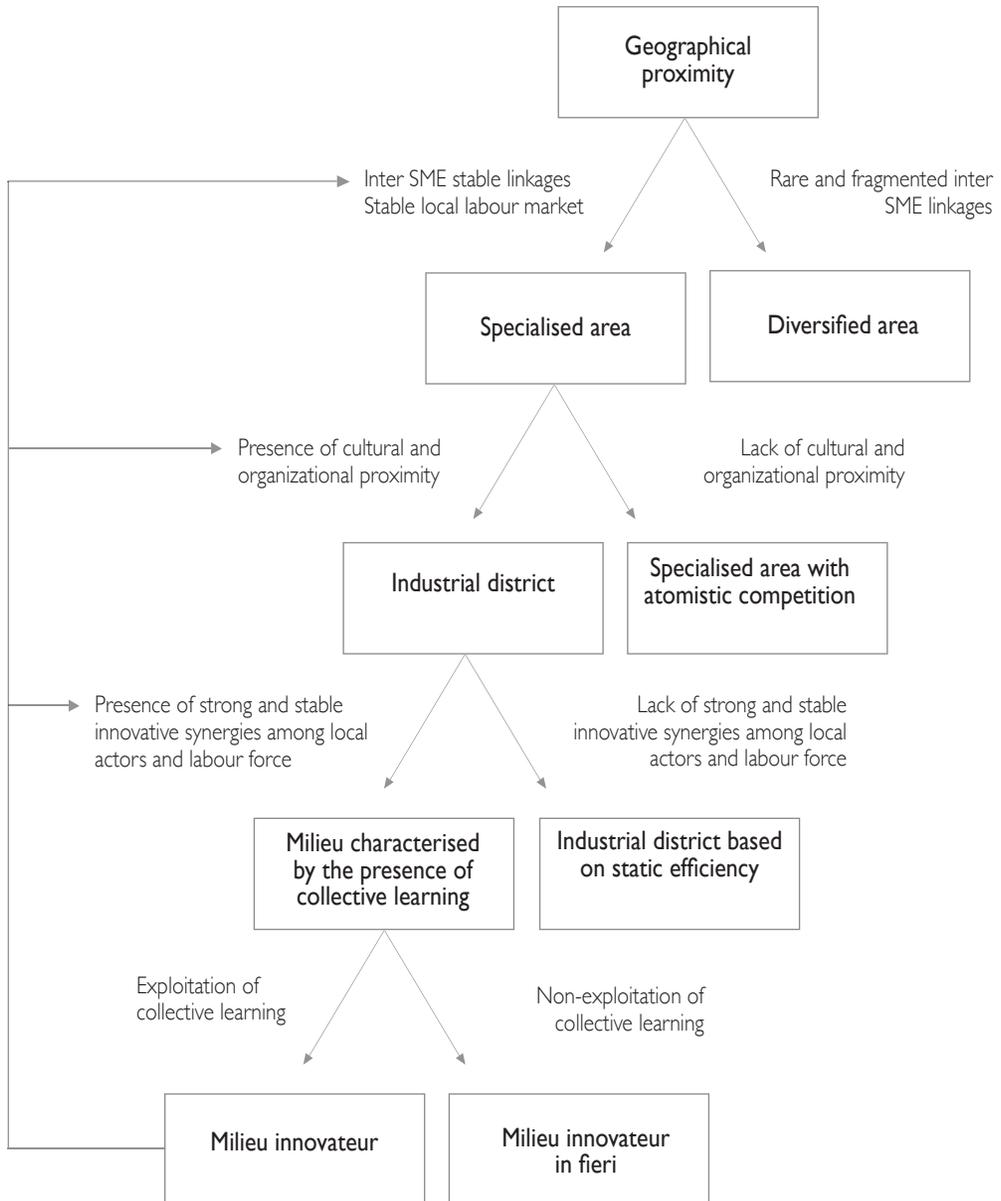


Figure 1. Pre-conditions for the definition of different local systems: Capello R. (1999). Spatial Transfer of Knowledge in High Technology Milieux: Learning Versus Collective Learning Processes. *Regional Studies*, Vol. 33, 4, 353-365.

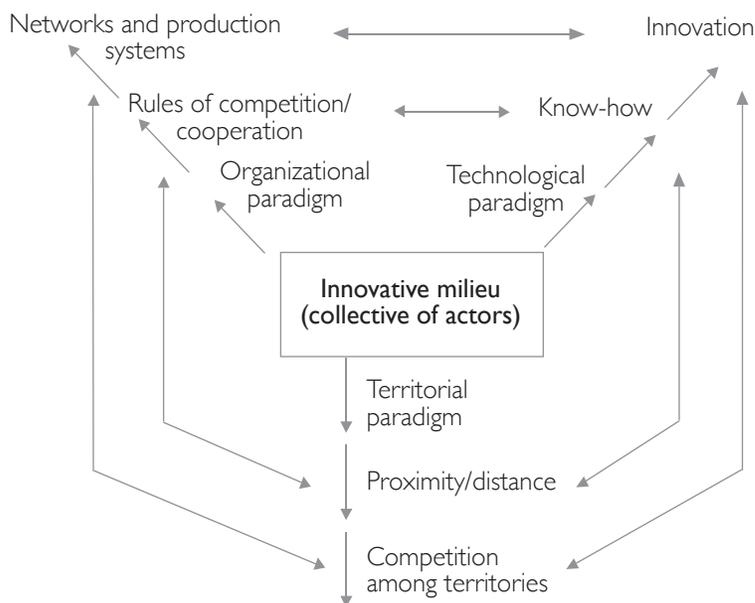


Figure 2. The paradigm of innovative milieus and development: territorialized economy: Crevoisier, O. (2004). The Innovative Milieus Approach: Toward a Territorialized Understanding of the Economy? *Economic Geography*, 80(4), 367-379.

The approaches pinpoint the role of territory in innovation performance. The nearby-located entities are expected to have better conditions for cooperation and enjoy minimized transaction cost, also due to a higher level of trust and industry-related (especially knowledge-based) pools of resources. The knowledge landscape is the link between territorialized innovation and theoretically non-territorialized OI (Figure 4).

In other words, we face two important scientific streams proposing similar tools for dealing with knowledge, ideas and resource transfer aimed at innovativeness, and these streams do not usually merge. The key difference is that the OI stream is biased towards in-house innovation management strategy and tactics, while the territorial innovation stream is biased to networking as a co-ordination mechanism.

Since the theory of triple helix developed, it has been implemented into the territorial approach to innovation, because triple helix actions are in most cases strongly territorially-bound and policy-related. The triple helix (and further - Figure 5) approaches are commonly seen as a tool to open the innovation process and involve territorial actors.

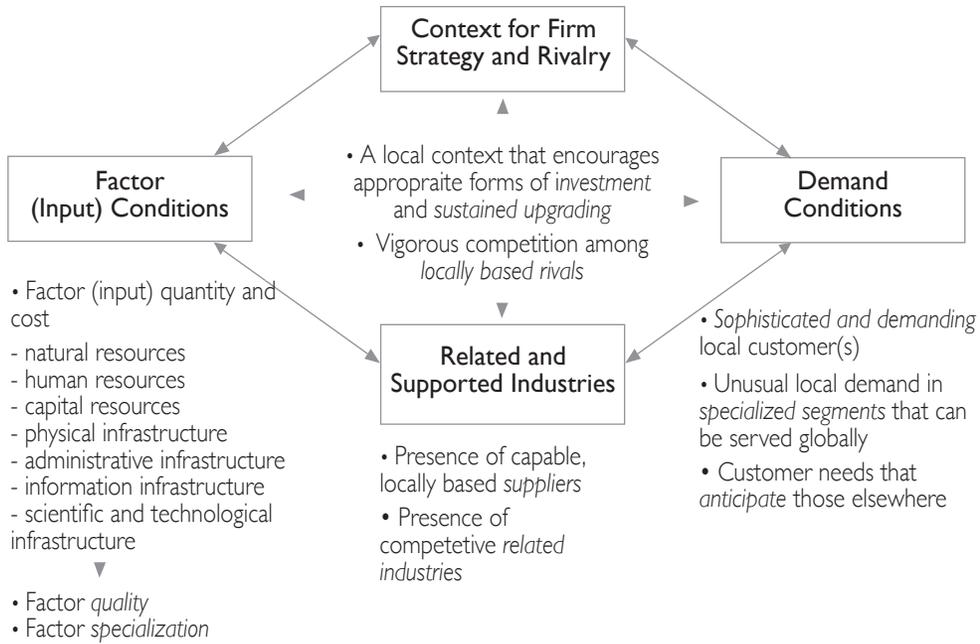


Figure 3. Sources of locational competitive advantage: Porter M. (2000). Location, Clusters, and Company Strategy. In G. Clark, M. Feldman & M. Gertler (Eds.), *Oxford Handbook of Economic Geography*. Oxford: Oxford University Press.

PRACTICAL IMPLICATIONS

Territorial understanding of innovation was attractive enough to make it a policy concept. Initially (20th/21st Century) it was mainstreamed into a policy as a regional innovation system approach (RIS). In the EU the concept of RIS evolved into another territorial policy concept of regional smart specializations. These specializations are expected to be place-based innovation policies expressed in dedicated strategies:

National/regional research and innovation strategies for smart specialization (RIS3) are integrated, place-based economic transformation agendas that do five important things:

- they focus policy support and investments on key national/regional priorities, challenges and needs for knowledge-based development, including ICT-related measures;
- they build on each country's/region's strengths, competitive advantages and potential for excellence;
- they support technological and practice-based innovation and aim at stimulating private sector investment;
- they get stakeholders fully involved and encourage innovation and experimentation; and
- they are evidence-based and include sound monitoring and evaluation systems (Foray et al., 2012).

	Open innovation	Territorial innovation
Scientific background	Management, innovation management	Economics, regional science
Orientation	<ul style="list-style-type: none"> • Business model perspective • Knowledge landscape • Effectiveness and profitability 	<ul style="list-style-type: none"> • Territorial perspective • Knowledge spillovers • Competitiveness and reduction of transaction costs
Objective	Benefiting of opening the innovation funnel and/or of participating in business ecosystems	Benefiting of a pool of tangible and intangible resources and ties available in geographical proximity
Notions	<ul style="list-style-type: none"> • Open innovation • Open innovation 2.0 • Open business model • Innovation ecosystem 	<ul style="list-style-type: none"> • Industrial districts • Innovation milieu • Clusters • Regional innovation systems • Regional smart specializations • Regional innovation-oriented ecosystems

Figure 4. Open innovation and territorial innovation – key characteristics: Baron, M. (2016). Open Innovation and Territory. In A-L Merton & M. Torkkeli (Eds.), Open Innovation. A Multifaceted Perspective, (chapter 10). New Jersey: World Scientific.

The concepts of RIS and further RIS3 enabled sound public funding of innovation policy instruments which resulted in setting up numerous institutions and projects applying OI-rooted techniques to boost the performance of regional innovation systems / ecosystems.

Another policy keyword that has emerged lately is open innovation 2.0. The OI2 paradigm is an innovation model based on extensive networking and co-creative collaboration between all actors in the society, spanning organizational boundaries well beyond normal licensing and collaboration schemes. The authors claim that with OI2, sharing and the co-generation of innovation options will enable a significant competitive advantage and will help achieve broader scale innovation benefits for larger numbers of stakeholders. In OI2 there is also a cultural shift away from resisting change and toward innovation and the creation of shared value. Again, OI2 can be territorialized but may also be considered extra-territorial. In practice, the European OI2 policy utilizes the quadruple helix model (Curley & Salmelin, 2013).

To sum up, practically any array of actions is nowadays categorized as being “everything”: OI, OI2, quadruple helix, innovation (eco-)systems, clusters... All of them have become a kind of buzzwords in terms of planning and implementing policy measures.

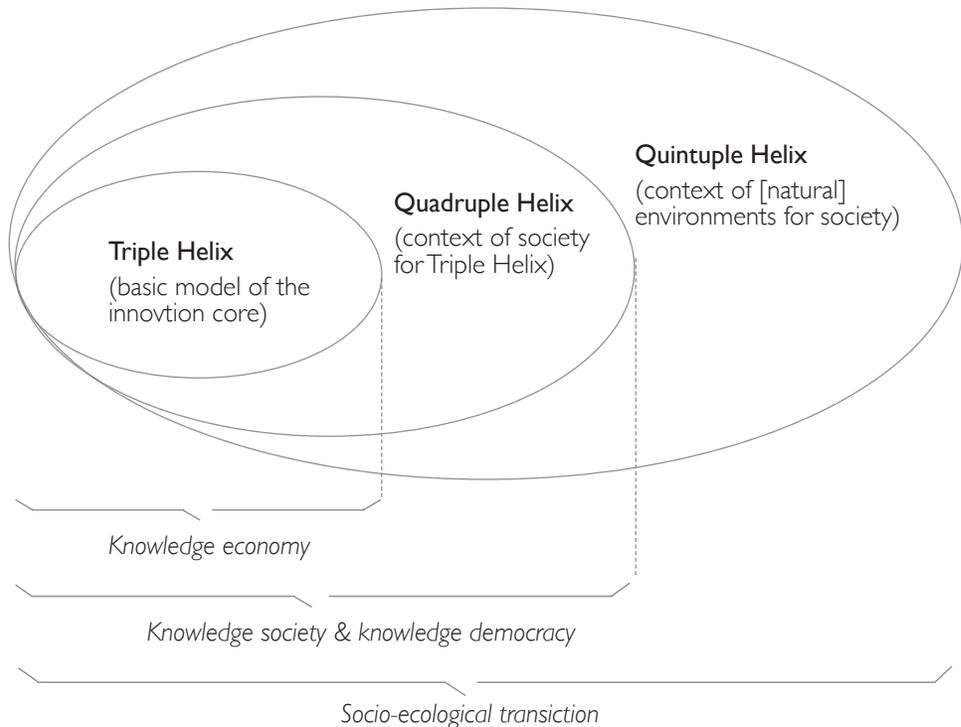


Fig. 5. Knowledge production and innovation: Carayannis, E.G., Barth, T.D. & Campbell, D.F.J. (2012). The Quintuple Helix innovation model: global warming as a challenge and driver for innovation. *Journal of Innovation and Entrepreneurship*, DOI: 10.1186/2192-5372-1-2.

KEY TAKE-AWAYS

- OI and territorial innovation can be studied jointly, even though they emerge from different research backgrounds.
- Keywords to be remembered are: innovation milieu, clusters, regional innovation systems, smart specializations, and also triple or quadruple helix.
- Nearby-located entities are expected to have better conditions for cooperation and enjoy minimized transaction cost, also due to a higher level of trust and industry-related (especially knowledge-based) pools of resources. All these factors can be considered territorial antecedents of OI.
- OI practices fit easily in the concepts of territorial policies, like strategies concerning regional innovation systems, smart specializations or open innovation 2.0.

CONTENT-RELATED MATERIALS

Practical examples of OI-related territorially-bound initiatives are presented by Baron (2016), as well as in the EURIS study: www.euris-programme.eu/docs/euris_guide.

PEDAGOGICAL GUIDELINES

Interactive activities

The lecture should encompass examples shown with the use of newsletters, YouTube movies, etc.

<https://www.youtube.com/user/hightechcampusehv>

<https://www.youtube.com/watch?v=mF2CsUcwFrw>

<https://www.youtube.com/watch?v=QDymgg90hRQ>

<https://www.youtube.com/watch?v=sqS4nypwwYs>

Learning exercises

An in-depth case study showing the growth of a regional (open) innovation system should be envisaged and discussed with the students.

Self-study and Self-evaluation

The students (in small groups) should select a city / region and identify the main stakeholders of its innovation system. The objectives of the pro-innovative initiatives should be listed and a narration about history and ambitions for the future should be prepared. OI-based techniques that were / are to be applied should be identified and described. Impact of the initiatives should be assessed.

All participants should discuss the results in class. The quality of work and its findings should be assessed by the group and by the teacher.

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