PUBLIC POLICY COMPONENTS RELATED TO OPEN INNOVATION

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Abstract

To reduce risk and minimize the impact of market failure on innovation processes, countries and regions / cities set up policy actions targeted at applying open innovation. The well acknowledged typologies of OI policy approaches and instruments are presented in this chapter, quoting the works of: the OECD, the Vision ERA-NET partnership and the EURIS partnership, as well as the statements of the charter for OI policies in Europe. The policy of the European Union concerning open innovation 2.0 is also signalized. A plethora of actions and policy instruments are associated with OI, but in practice it is hardly possible to differentiate general innovation policies and OI policies.

This contribution contains large excerpts of the policy documents presented by: the OECD in 2008, the ERA-NET in 2008, ESADE Business School & the Science Business Innovation Board AISBL in 2011 and the European Commission in 2015. Full citation is provided in the references.

Prerequisite	The students should be aware of the principles of OI, and previous more general courses on technology transfer or territorial approach to innovation might be useful.
Objectives of the lecture	To present the role of public policy in fostering OI.
Workload	4h teaching; 16h self-study.
Learning outcomes	**Knowledge** **#72:** To apply theories of national and regional innovation systems. **Skills** **#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. **Competences** **#53:** To execute innovation project management across organizations.
Reading List	Chesbrough, H., Vanhaverbeke, W., Bakici T., & Lopez-Vega H., (2011). Open innovation and public policy in Europe. A research report commissioned by: ESADE Business School & the Science Business Innovation Board AISBL, Science Business Publishing Ltd. De Backer, K., Cervantes, M., van de Velde, E. & Martinez, C. (2008). Open Innovation in Global Networks. Paris: OECD Publications. De Jong, J.P.J., Vanhaverbeke, W., Kalvet, T. & Chesbrough, H. (2008). Policies for Open Innovation: Theory, Framework and Cases. Research project funded by VISION Era-Net, Helsinki: Finland. European Commission (2015). Open Innovation Yearbook 2015. Luxembourg: Publications Office of the European Union. Levy, Ch. & Reid, B. (2011). Missing an open goal? UK public policy and open innovation. The Work Foundation and Lancaster University.
European Qualifications Framework (EQF) Level	Levels 6, 7.

Lecture Content

Open innovation can be a subject to policy intervention. It is due to the need to reduce risk and the impact of minimize market failure that countries and regions / cities set up policy actions targeted at OI. Here the question emerges of whether the OI policy is much different from the known innovation policy approaches.

Theoretical background

The discussion over policy implications of the OI concept started a few years after the first book on OI by Chesbrough had been published. In 2008 two policy-related publications were presented by the OECD (De Backer, Cervantes, van de Velde & Martinez, 2008) and within the ERA-NET (De Jong, Vanhaverbeke, Kalvet & Chesbrough, 2008).

The OECD ring-fenced OI policy areas by following findings based on case studies in OI:

• The technology life cycle matters.

Case studies on firms in a broad range of sectors and industries have shown that the incidence of open innovation is related not only to the size of the company but also to its position in the technology life cycle. When the technology is rather new and explorative, companies and other research organizations collaborate actively to find solutions in the market. This has implications for public research institutes.

• Open innovation requires a differentiated approach to knowledge sourcing and development.

The emphasis on external co-operation and in-house knowledge diffusion varies. With regard to external linkages, the nature of knowledge and customer bases is important for shaping structure and strategy. Consequently, openness towards various external actors also varies.

• University knowledge plays a key role in the exploration phase of open innovation.

Large firms in the case studies have been especially concerned by access to public research upstream. CIS-4 data on collaboration show that collaboration between universities and small firms remains weak.

• A pro-active strategy towards the management and use of intellectual property rights (IPR) is important for open innovation.

Universities tend to be less well equipped in this area, and making collaboration with firms difficult.

• Trust matters.

The case study exercises have identified trust and commitment as especially important for the success of open innovation strategies.

• There are organizational limitations to open innovation, and there are often trade-offs between

different approaches, resulting in experimentation through trial and error.

Increased networking also generates greater costs.

• Building a culture of open innovation in companies requires rewarding teamwork and organizational changes that foster internal and external collaboration.

This requires work arrangements that encourage and reward risk taking.

• Small firms' participation in open innovation is limited, owing to internal resource constraints.

• Technology markets matter in helping foster open innovation.

The ability to use inside-out and outside-in strategies is facilitated by frameworks that allow for the purchase or sale of intellectual assets that can create value, as well as opportunities for firms inside or outside their core businesses.

The OECD (2008) states that *"The emergence of open innovation also raises policy issues. While open innovation is essentially business-driven, it has implications for science, technology and innovation policies"* but also claims that *"because open innovation involves going beyond firms' and nations' boundaries, it may create issues for government research and innovation policies. Most OECD countries' S&T policies are predominately national in scope, but it is becoming clear that policies designed for geographically circumscribed knowledge-based activities or for vertically integrated value chains of firms need to be reviewed".* Policies targeted by the OECD are:

• General economic framework conditions including those that play a role in the attractiveness of foreign R&D,
• R&D and innovation policies, including instruments to support business R&D and to promote linkages between industry and the public research sector,
• IPR and related policies,
• Human resource capacity building, including policies to promote the mobility of human resources.

Policy measures like grant and indirect financial schemes (e.g. R&D tax credits), open source platforms and procurement strategies in the public sector, technology foresight and road-mapping, as well as networks and clusters (incl. regional/local policies for R&D and innovation) are perceived to be relevant to address the dynamics of OI.

A policy framework consisting of 7 policy areas is alternatively presented in The Vision ERA-NET report (De Jong, Vanhaverbeke, Kalvet & Chesbrough, 2008). The classification (including 21 guidelines) is the following:

• RTD policies

I Financial incentives

II High-quality IP system

III Support standards
IV Support user innovation

- Interaction-oriented policies

V Develop skills
VI Stimulate interaction
VII Enhance technology markets
VIII Use go-betweens
IX Back up clusters

- Entrepreneurship policies

X Support corporate entrepreneurship
XI Access to finance
XII Back up challengers

- Science policies

XIII Appropriate funding
XIV Balanced incentives
XV Focus on excellence
XVI Organized diffusion

- Education policies

XVII General stimulation
XVIII Entrepreneurship education

- Labor market policies

XIX Aim for flexibility
XX Enable knowledge migration

- Competition policies

XXI Stimulate competition.

The proposed classifications quoted above encompass the whole spectrum of possible policies and policy measures. It should be noted here, however, that generally speaking the frameworks are quite typical also for general innovation and even entrepreneurship policies. In both national and regional dimensions, in numerous places across the world, these types of policy instruments have been discussed, tested and implemented even before the OI concept emerged. This recalls the long lasting scientific argument on whether OI is old wine in new bottles (Trott & Hartmann, 2009). Only by looking at policy implications it is hard to show a real difference [see also the part on practical implications].

Anyway, a case-based approach to the identification of OI-rooted policy measures is possible. In an extensive way it has been done by the EURIS partnership (Sluismans & de Kinderen, 2012). EURIS has identified and studied regional policy measures on 5 collaborative policy areas that contribute to regional innovation systems enabling open innovation practices:

- Networking and collaboration
- Human capital and entrepreneurship culture
- Intellectual property management and technology markets
- Access to finance
- Knowledge, science and technology base

35 good practices have been identified and published on http://www.euris-programme.eu. Nevertheless, a look on the listed projects / concepts confirms the doubts about a real difference between OI policies and general innovation policies.

On the other hand, maybe the problem should be highlighted in another way: assuming that all territorialized approaches to innovation (see the subchapter on OI within geographical and institutional settings) are in fact related to OI – all policy concepts will perfectly fit OI. As there are certain serious premises to consider territorialized approaches to innovation to be place-bound OI ("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." – see the chapter on OI within geographical and institutional settings), this assumption holds true.

Finally, a slightly different approach to the OI policy has been presented by the EU Open Innovation Strategy and Policy Group. The OISPG builds upon its anchorage in service economy and information society issues. The group proposes the Open Innovation 2.0 approach that can be defined as the fusion of Henry Chesbrough's OI concept and Henry Etzkowitz's triple helix innovation concept (and even further quadruple helix) (EU Commission, 2012). Collaborating with citizens to understand what they might want in the future is at the heart of the user-centric and -driven innovation – called OI2 – promoted by the OISPG.

Practical implications

As it has been pinpointed above, in practice it is hardly possible to differentiate general innovation policies and OI policies. According to Baron (2016) "The reason for that has been already given. OI as a concept is relatively new, compared to the presented territorial concepts and their related policy

approaches. Therefore, for obvious reasons some of the existing innovation management techniques and tools were incorporated into OI thinking, and the other way, some of the existing territorial initiatives or toolkits received the fancy OI label." It can be said for sure that due to this fact, OI has been promoted throughout many policy initiatives even though they have not been OI-labelled. For example in the European Union, plenty of OI-based techniques / methods have been generously co-financed with cohesion policy funds (European Regional Development Fund, European Social Fund) as well as under the research and innovativeness agenda (Framework Programs). Especially in the two programming periods influenced by the (unfortunately unsuccessful) Lisbon Strategy for 2000-2010, i.e. 2000-2006 and 2007-2013, the EU contributed a lot to establishing relevant initiatives across the European territory.

Having this in mind, another part of Baron's (2016) scrutiny can be recalled – concerning the general guidelines on possible (open) innovation policies in the member states to be funded by the European Union in 2015-2022: «The policy overview allows further reflections upon the possible readiness level towards territorially-based OI applications. [...] Firstly, in some of the countries (e.g. Bulgaria, Croatia, Romania, Spain), the focus of political intervention in territories is on social issues or infrastructure, not on innovation. These countries usually have some general approaches to innovation issues. The other countries (e.g. Latvia, Lithuania, Poland, Slovakia) still catch-up and try to fix as many issues as possible with use of external money even though their plans are rather of a general nature. There is also a group of countries that (still?) focus on setting up a system, relevant public administration patterns etc. (Greece is a leading example here), believing that sound governance will boost innovativeness and competitiveness. Finally, there's a group of experienced players, who mostly get limited EU cohesion policy funding due to their overall high economic performance. In these countries (e.g. Germany, the Netherlands, Austria, Belgium), maybe due to smaller sums available, approaches are much more focused and some of the recommendations sound as ready-to-use themes for regional or national OI actions».

In 2011, Henry Chesbrough and Wim Vanhaverbeke led a policy initiative under which a charter for OI policies in Europe was created. The charter calls for following actions:

1. Education and human capital development
   - Increase meritocracy in research funding within the EU.
   - Support enhanced mobility during graduate training.
2. Financing open innovation: the funding chain
   - Increase the pool of funds available for VC investment.
   - Support the formation of university spin-offs to commercialize research discoveries.
3. Adopting a balanced approach to intellectual property
   - Reduce transaction costs for intellectual property.
   - Foster the growth of IP intermediaries.

- Rebalance university IP policies so that broad diffusion of publicly funded research results is easier, rather than focusing on royalty income alone.

4. Promoting cooperation and competition
   - Shift support from national champions towards SMEs and start-up companies.
   - Promote spin-offs from large companies and universities.
   - Focus on innovation networks.
5. Expanding open government
   - Accelerate the publication of government data.
   - Use open innovation processes in government procurement.
   - Support private commercialization of government-funded technology.

Referring to the OI2 policy, it can currently be roughly defined with the quotation: «The key is to see innovation as ecosystem-driven, including all stakeholders as active players in jointly creating and experimenting in the new ways of doing things and creating new services and products. Innovation is very much daring to see the unexpected and capture the moment. Experimenting and prototyping in real-world settings, with real people is a strong driver to stretch the boundaries for new marketplaces, new products and new services, to understand the changes and take advantage of weak signals that eventually become mainstream» (EU Commission, 2015). Consequently, three areas are listed in the document:

- Regional innovation, innovation platforms and university research
- Open innovation 2.0: living labs
- Open innovation 2.0: smart cities.

This, unfortunately, again opens Pandora's Box by highlighting a question of what – in policy terms – the OI is. And probably all the answers will be partly true...

KEY TAKE-AWAYS

- While open innovation is essentially business-driven, it has implications for science, technology and innovation policies.
- There are at least a few typologies of OI policy approaches and instruments (OECD, Vision ERA-NET, EURIS, Charter for OI policies in Europe).
- Setting the framework conditions, enabling indirect financial schemes (e.g. R&D tax credits) or venture capital environments, promoting the best use of IPR protection mechanisms, stimulating R&D interactions, facilitating joint initiatives concerning human capital, entrepreneurship and

collaboration, as well as approaching the future by foresight and road-mapping are the most common ways to address the dynamics of OI in policy terms.

• OI2 policies target the fusion of Chesbrough's OI and Etzkowitz's triple helix concepts by collaborating with citizens to understand what they might want in the future.

Content-related materials

Practical examples of actions based upon OI-related policy initiatives are presented 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 policy newsletters, YouTube policy teasers, etc.

Learning exercises

For better understanding of the concept, the group may discuss the British conceptual paper "Missing an open goal? UK public policy and open innovation" (http://www.theworkfoundation.com/DownloadPublication/Report/319_Missing%20an%20open%20goal.pdf).

Self-study and Self-evaluation

The students (in small groups) should run a mapping exercise on the identification of key national and regional policies targeting at (open) innovation. Policy programs and their stakeholders should be listed and analyzed. Complementarities should be mapped and possible gaps should be highlighted. Overall assessment of the system should be provided.

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

References

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