



**POLICY ISSUES PAPER**

**BUSINESS SYMPOSIUM ON  
OPEN INNOVATION IN GLOBAL NETWORKS**

**Copenhagen, Denmark**

**25-26 February 2008**

## **Background**

1. At the end of 2006, the OECD's Working Party on Innovation and Technology Policy (TIP) launched a two-year project on *Globalisation and Open Innovation* with the support from several lead countries, namely Belgium, Netherlands, Norway and Japan. The aim of the project was to analyse the drivers and evidence behind globalisation of R&D on the one hand, and open innovation on the other hand, drawing on both empirical data and evidence from business cases studies; and finally to draw the implications for government policies to support research and innovation more broadly.

2. During the course of the project, the Secretariat carried out an in-depth literature review and an assessment of existing data as well as new empirical work to find support for the argument that although not completely new, "open innovation" has increased in importance in line with the acceleration of the globalisation process. Case studies from 59 companies in twelve countries have been carried out and have shed light on the practical aspects of open innovation strategies in companies, helping highlight barriers that may need to be addressed by policy makers. In addition to the empirical work and case studies, an earlier OECD conference organised in The Hague, the Netherlands in 2006 also provided evidence and insights into the drivers behind open innovation and the possible policy implications.

3. Ahead of the OECD *Copenhagen Business Symposium on Open Innovation in Global Networks* (25-26 February 2008), this issues papers recalls some of the main policy implications that have emerged during the course of the project and highlights some issues for discussion during the Policy Roundtable involving government, business representatives and public research officials.

## **Introduction**

4. Although, open innovation is essentially a business driven phenomenon, it has several implications for science, technology and innovation policies. Firstly insofar as open innovation is about "open" business models for innovation, then framework conditions (*i.e.* well-functioning product and labour markets, IPRs and competition policies, a strong public research base, etc) are extremely important policy lever for countries. At the same time, because open innovation involves innovating outside firm and national boundaries; there may be more direct implications for research and innovation policies. Another outcome of globalisation and open innovation is that the map of innovation activities is slowly being redrawn. While OECD countries still predominate in R&D investment and performance, globalisation and open innovation have reduced barriers to entry and created opportunities for new players in emerging economies, but also at home, to tap into global networks. The following sections summarise some of the main policy implications that have emerged from this two year project.

## **Implications for Government support to R&D and Innovation**

5. Globalisation and the emergence of open innovation are challenging established policies and instruments for stimulating research and innovation. For one, the globalisation of R&D means that the leverage effect of public instruments might become less effective if national firms can readily shift R&D or expand it in offshore markets that have greater growth potential. Another possible implication is that greater coherence in policy making across government ministries and departments may be needed to increase the leverage of existing mechanisms, but policy making is not often organised in such a manner and considerable overlap and duplication persist. Many OECD countries are adapting their institutions for the governance of research and innovation policy and this could go a long way to ensuring public support

schemes meet their targets against the background of globalisation. In EU countries, greater policy coherence is also being shaped by the European Framework Programmes and their effects on the design and implementation of national research policies in member states.

6. At the same time, while it is clear that national innovation policies cannot be designed solely in context of geographically bound knowledge-based activities or in the context of vertically integrated value chains of firms, it is not altogether clear that the effects are the same for large countries with large internal markets for R&D and innovation as for small countries which are more dependent on international flows of knowledge and capital. For larger countries, a national focus of innovation policies may still matter and may not necessarily be at odds with globalisation. Indeed, it may be more important for larger countries to ensure that regional and local initiatives integrate the global dimension. Similarly, “policy coherence” is becoming more important, but it is arguably much more so for smaller countries. It is therefore not surprising that smaller economies have taken the lead in opening- up national programmes for R&D to firms in cross-border regions irrespective of the location of their production capacities. The Nordic countries, due in part to the regional integration of their economies and labour markets have also adopted “globalisation strategies” to ensure that policy making across the whole of government is responsive to the challenges raised by globalisation. Some of the policy implications for government support to R&D and innovation include:

- *Integrating the global dimension in innovation support schemes.* Public schemes to support innovation, whether via grants or indirect schemes (e.g. R&D tax credits, networks) may need to be adjusted to foster greater participation from firms whose main production base is located abroad.
- *Streamlining and simplifying access to government R&D and innovation schemes.* Another implication of globalisation and open innovation is that firms, especially large firms can “forum shop” for the best conditions and schemes available in different countries. For them, but also for SMEs which are less internationalised, improving access to and “ease of use” of government support becomes more important.
- *Promoting open source and open innovation practices in the public sector.* Government can also become an enabler of open innovation practices by promoting open source platforms and practices in its procurement strategies as well as a provider of government services.
- *Fostering technology foresight and road-mapping.* Working together with firms to set priorities for research, but also to help companies identify and scout technological trends can help bridge the information gaps inherent in knowledge markets.
- *Regional or local initiatives may play a greater role* Globalisation means that firms can shift production and knowledge generation more freely. This increases the role of local economies of integration and agglomeration in R&D. As a result, strengthening the ability of public research institutions and smaller firms to internationalise themselves whether through national or regional innovation policies will be critical to helping OECD countries compete globally.

### Government support to R&D and Innovation – Issues for Discussion

- Should governments open up their national or regional R&D and innovation schemes more widely? How can they ensure benefits flow back to the country?
- Given the important role *large* firms play in national and global innovation networks, is the distinction in policy between support for SME's on the one hand and large firms on the other still relevant?

### Implications for public research organisations:

7. The focus of the OECD project has been mainly on businesses and business' use of open innovation strategies in a global context. But the project has also highlighted the important role that universities and public research organisations play in the knowledge sourcing and innovation strategies of firms. This “sourcing role” is driven by both the broader development of global innovation networks whereby companies tap into knowledge sources world-wide consistent with the globalisation of production networks, but also in response to changes in the ways firms innovate in-house. Anecdotal evidence has shown that in response to competition and shorter product cycles, business firms have reduced their focus on longer-term and basic R&D which increases the importance of basic research carried out in the public labs as well as in universities, whether or not the results from basic research are channelled directly into the value chain (as in biotechnology) or into the public domain via scientific publications. Another trend which is making open innovation more relevant and necessary is the growing convergence of technologies (nanotech, biotech, ICTs) which generates new fields for research and innovation at the interface of existing fields and which requires cross-functional and multi-disciplinary approaches to research and innovation.

8. The OECD project on open innovation highlighted the importance of collaborating upstream in the research and innovation process which underlines the importance of helping public research organisations develop the appropriate interfaces to link up with business. At the same time, public research cannot be seen as only reacting to business strategies or as a mere service provider of knowledge on demand. Indeed, changes in the governance of public research over the past decade – in particular the move towards greater autonomy, the shift towards competitive funding and in some case privatisation of PROs, the deregulation of academic labour markets — have allowed universities and public research organisations to play a more active and central role in the innovation process itself. In some cases, public research organisations have become “knowledge hubs” that help firms, small and large, source and jointly develop new knowledge.

9. The following policy areas are areas where globalisation and open innovation may be impacting on universities and public research organisations and their ability to respond to new demands, but also to play a more central role.

- *Growing and opening up access to public research.* As the business sectors has less time and resources for carrying out longer-term fundamental research, continued support for basic research is of utmost importance, even if the barrier between basic and applied research is continuously blurred. A key question is not only how to promote research but also to improve its diffusion and accessibility to both firms and society at large. Here changes in the governance of public research and new platforms (e.g. via the development of competence centres) may be needed to encourage

the production and diffusion of high quality research. *Open science* initiatives and ICT-enabled platforms can also help improve both quality and the diffusion of public research across sectors and borders.

- *Networking and network integration* As open innovation requires the flow and exchange knowledge between the public and private sectors, governments have a role in ensuring that the market and non-market sectors can facilitate the knowledge flows through regulation but also through infrastructure. Networking with public research allows firms to internalise knowledge spill-overs. Consequently, many countries have fostered the creation of research and innovation networks. As networks proliferate, however, there is growing demand for *integrating* different networks across fields, sectors and technologies. Such integration capacity requires very different types of skills, management and organisational structures than are currently found in many universities and public research organisations.
- *Joint knowledge development.* Efforts to strengthen links between universities/public research organisations and firms have long worked on a knowledge-transfer or “technology push” model. One implication from open innovation is that the public research sector must be better equipped and open to *jointly* develop knowledge with firms. This may imply changing the mission of technology transfer offices in some cases and enabling them to expand into different areas.
- *Knowledge exploitation.* The issues of IPRs and their management have been identified as crucial in open innovation strategies, especially in the upstream phase of innovation. The shift towards “IPR sharing” in open innovation strategies, however, may require different kinds of management tools in universities and PROs. The case studies have shown that a pro-active strategy towards management and use of IPRs is important for open innovation but that universities tend to be less well equipped in this area, however. Universities may also overvalue their IP, which can lead to difficulties in collaborating with industry.
- *Mobility.* Cross-fertilisation of ideas and knowledge flows through people. Despite reforms in many countries, mobility between the public and private research sectors remains a challenge, especially in the university sector which in some cases lack the legal and regulatory frameworks, but also the financial incentives, to foster mobility of research personnel between universities and the private sector as well as within the public research sectors itself (government labs- universities)

#### **Public Research Organisations – Issues for Discussion**

- How can policy makers encourage universities and public research organisations to play a more pro-active role in global innovation networks?
- Are universities going too far in their approach towards commercialisation of research (via IPRs) and is this hindering open innovation?

## **Implications for the broader environment for innovation: Getting the Framework conditions right.**

10. Governments influence the broader business environment for innovation through macroeconomic policy making as well as structural policies such as, labour policy, fiscal policy and capital markets. In addition, framework conditions like competition policy, antitrust rules, IPR rules and the public infrastructure for education and public research also play a major role in fostering innovation. The OECD project has also highlighted the importance of “building trust” in the marketplace as well as at the interface between the public and private sectors. Predictability of framework conditions, but also of government policies would therefore seem to be important. Many countries recognise the importance of framework conditions for innovation and for economic growth more generally, but reform takes time and governments can encounter political and public resistance to accelerating reforms in difficult areas (e.g. labour market policies). Other areas where governments can act include:

- *Fostering Competition and Co-operation.* Insofar as competition between firms has been one of the main factors putting pressure on firms to innovate, competition policy is one of the key framework conditions. But co-operation is also part of open innovation. Designing competition policy that does not preclude co-operation is an important challenge for policy makers, especially in industries where excessive competition can slow innovation.
- *Corporate Venturing.* Insofar as corporate venturing is one channel through which firms add value internally and externally, business-friendly regulations and tax rules on IPOs and mergers and acquisitions can facilitate corporate venturing strategies.
- *Entrepreneurship for innovation.* Many countries encourage entrepreneurship by reducing barriers to firm entry and regulations on business start-ups. In the public research, too, academic entrepreneurship can be promoted through regulations that foster faculty exchange and mobility.
- *Consumer policy* User-driven innovation is an important element of open innovation. Consumer policy therefore plays a clear role in providing a framework through which consumers/users/suppliers can participate in the innovation process.
- *IPR to support open innovation* Efforts to promote knowledge sharing may involve legal changes such as clarification of research exemption for patented inventions; or extending protection of non-exclusive licensees and limits on patent “trolls”. Governments can also help ease the use of IPR in open innovation through the simplification of procedures and helping SMEs and universities better manage IP.

### **Broader Business Environment for Innovation – Issues for Discussion**

- To what extent are globalisation and open innovation making some framework conditions more important than others and which ones?
- How can governments facilitate open innovation practices: by direct support measures?