



# EUROPEAN POLICY BRIEF



## INGINEUS

### Challenges and Barriers of European Firms in Global Innovation Networks

Ongoing project

June 2011

## SUMMARY

### Objectives of the research

During the past decades, large firms and especially multinational firms have been developing innovation networks with a true global reach. In these networks, innovation is created in different locations and shared among different partners in order to open, adapt, maintain or exploit new market opportunities. The objective of this research project is to investigate what global innovation networks are and what policy implications they pose for Europe.

### Key messages for policy-makers, businesses, trade unions and civil society actors

- Policy-makers should lower the barriers for European firms' active participation in global innovation networks.
- Policy makers must help improving European firms' capabilities to manage global innovation networks. In particular, their ability to manage globally dispersed innovation projects, to manage re-location costs efficiently, and to manage cultural differences.
- European firms need more open and flexible migration regulations for employing foreign scientists and technicians; and more stringent regulations, practice and jurisprudence around intellectual property rights.

## KEY OBSERVATIONS

### New knowledge and European added value

European firms are becoming increasingly involved in global innovation networks. These networks are complex forms of interactions between firms, suppliers, universities, laboratories, customers, etc in the process of generating innovations. Admittedly, innovation networks are not a new phenomenon.

Innovation is intrinsically a social phenomenon, and firms have tended to collaborate with other firms and organizations when producing innovation. However, during the past decade or so innovation networks have become more intense and have become more global.

Firstly, the growing intensity of innovation networks is related to the fact that firms are relying more and more on external sources of knowledge to generate innovations (Hagedoorn and Duysters 2002) (Chesbrough 2003). This 'open' and 'collaborative innovation' is mostly a response to the rapid changes in technologies and in markets (Frost 2001) (Laursen and Salter 2006). Firms establish collaboration with external organisations in order to exploit their own knowledge better, and in order to tap into complementary knowledge.

Second, the growing geographical footprint of innovation has resulted from increasing investments into research and development (R&D) by multinational companies (MNCs) during the past decade. Although the greatest share of world R&D continues to be in the developed world, there has been a remarkable increase of foreign direct investment (FDI) centred on R&D into emerging knowledge economies (Bruche 2009). This is mirrored by the rapid growth of domestic investment in R&D in these countries, and their improvement of knowledge capabilities more generally (Pilat, De Backer et al. 2009).

This policy brief summarizes the findings of the survey conducted by the INGENEUS research project about the barriers and challenges that approximately 500 European firms have identified as the most problematic barriers they have encountered. It also summarizes these firms' perception as to what policies are the most relevant for them when engaging in global innovation networks.

### Barriers and challenges for European firms' engagement in global innovation networks

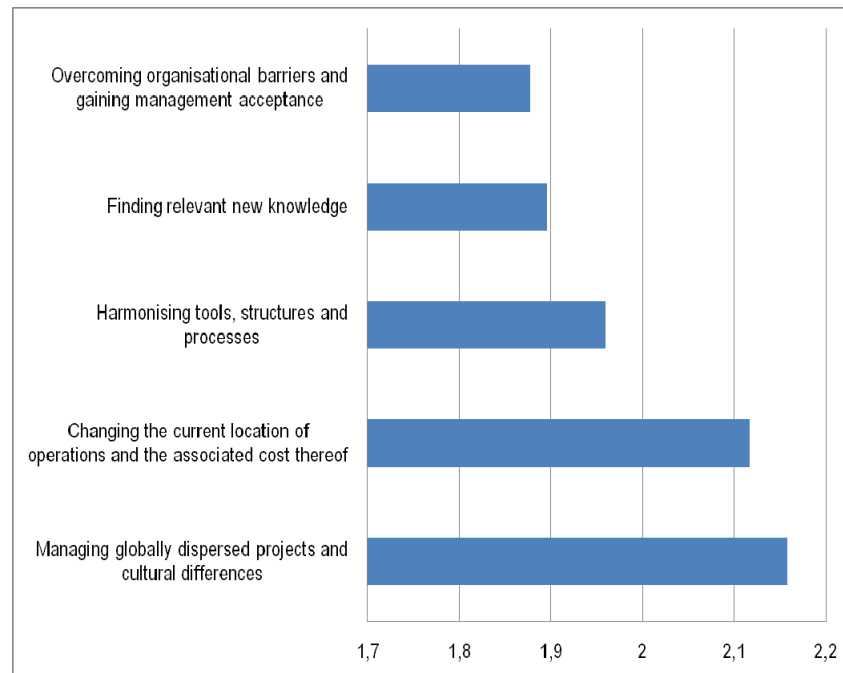
As European firms have become increasingly involved in global innovation networks during the past decade, they are starting to come to terms with the barriers and challenges that innovation collaborations in a global scale are posing to them. Willing to reap the opportunities offered by the rapidly growing emerging markets like China, India or Brazil; and by the creation of new global market niches by 'new to the world' technologies; European firms have been actively creating global innovation networks that can give them advantage in a rapidly changing technological and market context.

Yet, global innovation networks are not exempt from problems and challenges. These problems might be different according to the

industrial sector, the features of the host country, or the type of knowledge involved in the network. Whereas the barriers and challenges can be many, the INGINEUS survey identified the barriers that are most commonly mentioned in the theoretical literature, and asked a sample of European firms engaged in global innovation networks their views on that. The results exhibited in the figure below are very explicit.

### European firms views on global innovation networks

**Figure 1:** Barriers and challenges that European firms encounter when collaborating with other firms or organizations abroad.



**Legend:** 1=small barrier - 4= extreme barrier.  
N=495. All respondents are European companies.

### No insurmountable barriers

The European firms were asked to indicate the extent to which the following factors represented a challenge or barrier for them when developing a new good or a new service in collaboration with firms, universities or other organisations located abroad. It is worth noting that, among the firms which answered this particular question in the survey only 18% of them explicitly mentions that they are not facing any barriers or challenges when engaging in innovation-related collaborations with foreign firms. However, among the respondents who see some sort of barriers, these barriers are on average of low-medium level.

Among those who experience barriers, the average level of those barriers is below the threshold of 2,5 in the scale 1 to 4 that used in the survey. This seems to indicate that in general terms, and when taken together, European firms are not facing insurmountable barriers or problems. On the contrary, these are low to medium-low barriers. These are positive findings in the sense that these general factors do not seem to deter European firms to engage in global innovation networks.

### **Difficulty to manage globally dispersed projects and cultural references**

From the survey results it seems that the highest barrier for European firms at the moment is the issue of “managing globally dispersed projects and cultural differences”, followed very closely by “changing the current locations of operations and the associated costs thereof”. It seems therefore as if the management of cultural dimensions in the process of collaboration, as well as the real costs involved in location changes, are the most important challenges for European firms when operating in global innovation networks.

In contrast to that, other factors like “Overcoming organizational barriers and gaining management acceptance”, “Finding relevant knowledge” and “harmonizing tools, structures and processes” are slightly less problematic. However, it is worth mentioning the very little difference on average on these different factors.

All in all the INGENEUS survey has two important findings regarding the barriers that European firms encounter in their global innovation networks interactions.

Firstly, the findings show that, overall European firms encounter low-medium levels of barriers when collaborating with other firms or organizations from abroad.

Secondly, there is a relatively similar degree of barriers in different areas, meaning that no clear pattern emerges of some barriers being significantly more problematic from other barriers. De facto, European firms do not encounter major challenges or problems when it comes to manage globally dispersed projects, to tackle cultural differences, to deal with costs of changing locations, to find relevant knowledge or, to define tools and processes within the firm.

It is particularly interesting that the three highest barriers for European firms, are those factors which are most directly associated with management skills within the firm. “Managing globally dispersed projects and cultural differences”, “changing the current locations of operations and the associated costs thereof” and “harmonizing tools, structures and processes” all have to do with internal managerial competences of European firms.

The logical consequence of this is that policy-makers pay more attention to the importance of supporting and improving the organizational and managerial skills inside European firms, if these are to operate successfully in an increasingly internationalized innovation process.

### **The importance of institutional frameworks as policy-related factors**

It is worth reminding that global innovation networks are embedded in the institutional frameworks in which they operate. These institutional frameworks are important because they influence where multinational companies (MNCs) decide to invest their R&D activities, and influence which entry mode they might use to do that.

Furthermore, institutional frameworks influence the local absorptive capacities and the capability of the host economy to learn from foreign technology and to use it for upgrading their economies. And finally, institutional frameworks are very important in terms of the interaction between foreign knowledge and domestic capabilities over time.

Institutional frameworks are those sets of rules and of specific innovation-related capabilities in a territory that shape the way in

which (and where) innovative firms establish and unfold their innovation collaborations. For that reason, institutional frameworks can be largely associated to the set of policy-related factors where firms' innovative activities are embedded.

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**Looking for skilled  
people, universities  
and economic support**

When asked about their own experiences during the past three years regarding the policy-related factors in the internationalization of their innovation activities, the sample of firms seemed to be generally positive. In figure 2, most of the factors score above the 2,5 threshold in a scale from 1 to 4.

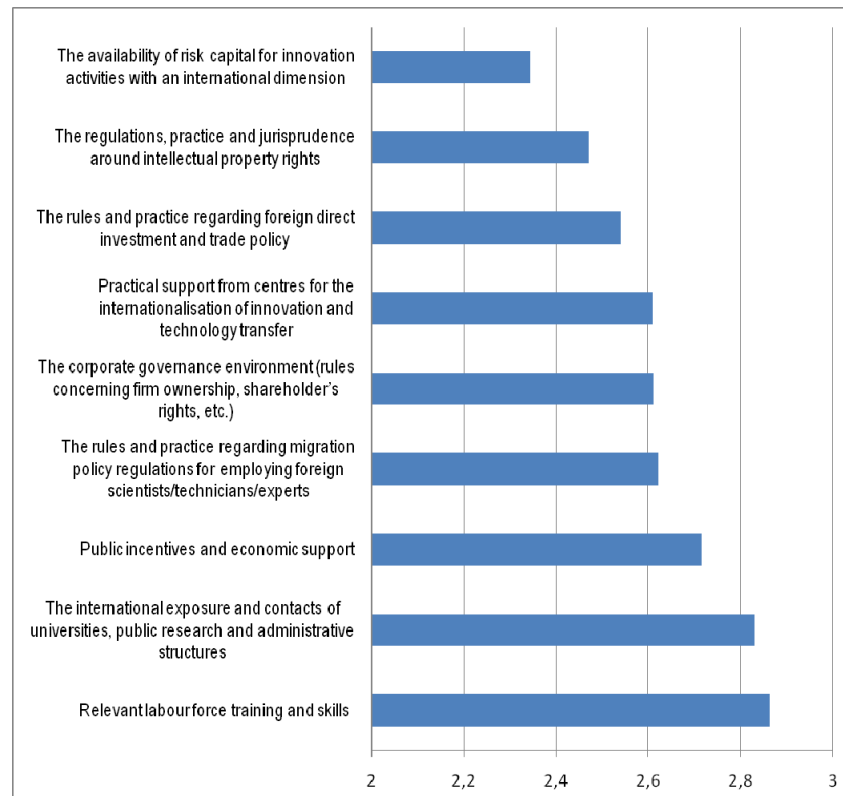
This means that firms have a medium-level positive view on the policy-related factors in relation to their internationalization of innovation. In particular, the three factors that were most positive for firms' internationalization of innovation activities are:

- **firstly**, the availability of relevant labour force training and skills;
- **second**, the international exposure and contacts of universities, public research and administrative structure; and
- **third**, the availability of public incentives and economic support.

The international exposure of research institutions like universities plays an important positive role. This might suggest that in many circumstances there is a positive relation between the local networks of innovators and the internationalization of firms' innovative activities. The impact of global innovation networks in European innovation systems is more positive than hitherto assumed, contravening unstained political concerns about the 'hollowing out' of innovation systems in Europe.

In fact, these survey results support the hypothesis that global innovation networks might have a mutual 'mobilization effect' of local and national networks in terms of knowledge sources and national networks own internationalization (Borrás and Haakonsson 2011).

**Figure 2:** Policy-related factors in the internationalization of innovation activities *during the past 3 years*



**Legend:** Average responses of the following scale:  
 1= highly negative factor  
 4= highly positive factor  
 N=495. All respondents are European companies

### Firms complain about the scarce availability of risk capital for innovation

The three factors that have been most negative are by this order, the availability of risk capital for innovation activities with an international dimension, the regulations, practice and jurisprudence around intellectual property rights and the rules and practice regarding foreign direct investment (FDI) and trade policy.

It does not come as a surprise that firms complain about the scarce availability of risk capital during the past 3 years. This is not only due to the economic and financial crisis, but also due to a more endemic problem in Europe, namely, the issues and problems associated with the limited amount of risk capital (Mohnen, Palm et al. 2008).

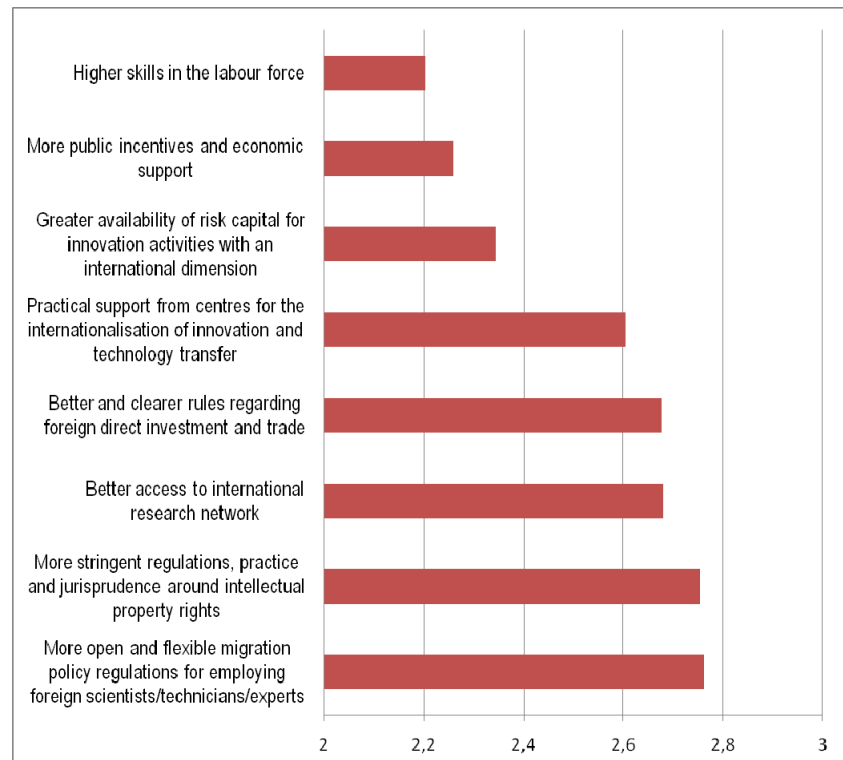
Venture capital is increasingly important in the context of international innovation processes and collaborations (Saxenian and Sabel 2008). What it does indeed come as a surprise is that crucial regulatory issues like intellectual property rights and trade-related regulations seem to be problematic in the eyes of firms. Unfortunately, due to the intrinsic limitations of quantitative methods like this, the survey does not tell us what exactly those problems are, or what specific sets of regulations are the most problematic.

Intellectual property rights are protecting many different aspects of innovation (industrial design, trademarks, patents, copyrights...), all of them with different regulations at national, European and international level, and with different effects in terms of their problems for global innovation networks. This will be an interesting topic for future research.

**EU firms would like to have more open and flexible migration regulations for employing foreign scientists**

The INGENEUS survey put another question about policy-related factors. European firms were asked about their views on the future. More concretely the question in the survey reads: “Considering your future innovation activities, please assess the need for improving the following factors”.

**Figure 3:** Firms’ needs for policy-related factors in relation to *their future innovation activities*.



**Legend:** Average responses of the following scale:

1= highly negative

4= highly positive

N=495. All respondents are European companies

From the Figure 3 one can see that most of the factors score above the 2,5 threshold. This means that firms have a medium level of positive expectations for policy needs in the future. The factors that are most positive or negative in the past and future are different.

From the point of view of their needs for the future, European firms would like to have more open and flexible migration regulations for employing foreign scientists and technicians, as well as more stringent regulations, practice and jurisprudence around intellectual property rights.

Other policy-related factors that firms consider that need improvement for the future are: better access to international research networks, and better and clearer rules for foreign direct investment and trade.

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## RECOMMENDATIONS FOR POLICY-MAKERS

### Key messages for policy-makers, businesses, trade unions and civil society actors

Innovation is becoming increasingly globalized. European firms are engaging in truly global innovation networks as they seek to improve their competitiveness in the globalized economy. The INGENEUS project studies what are the main barriers and challenges European firms are encountering when collaborating with firms and other organizations abroad.

The INGENEUS survey has found that, overall, European firms indicate that they encounter low-medium levels of barriers when collaborating with other firms or organizations from abroad. This is in fact good news. However, European firms do point that they encounter barriers, such as: managing globally dispersed projects, cultural differences, the costs of changing locations, to find relevant knowledge and, to define tools and processes within the firm.

#### The policy implications of these findings are:

- a) Even if there are only low-medium levels of barriers for European firms' active participation in global innovation networks, policy-makers should make **efforts to lower these barriers even more, and bring them to the lowest possible level.**
  - b) Policy makers must **help improving European firms' capabilities to manage global innovation networks.** In particular, their ability to manage globally dispersed innovation projects, to manage re-location costs efficiently, and to manage cultural differences.
  - c) European firms need more **open and flexible migration regulations** for employing foreign scientists and technicians; and more stringent regulations, practice and jurisprudence around **intellectual property rights**; better **access to international research** networks; and better and **clearer rules for foreign direct investment** and trade.
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## RESEARCH PARAMETERS

### Objectives and methodology

The leading research questions of INGENEUS are:

- What are global innovation networks and why are they created?
- How are European firms generally performing in terms of creating and participating in these global networks?
- Is Europe an important node within those networks in terms of knowledge competences and knowledge sources?

What can European policy makers do in terms of reaping the benefits and reducing the potential costs and risks associated with the current trends towards global innovation networks?

The INGENEUS scientific approach has been based on three different sets of data:

1. Descriptive statistical data collecting the very scarce information on inward R&D investment made by non-national firms.
  2. Literature review on the different policy-related institutional issues that affect global innovation networks.
  3. A specifically designed survey, gathering data about the internationalisation of companies' R&D and innovation activities, as well as their perception regarding institutional barriers.
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## PROJECT IDENTITY

### Coordinator

- Fondazione Eni Enrico Mattei (FEEM)  
Alireza Naghavi; e-mail: [alireza.naghavi@feem.it](mailto:alireza.naghavi@feem.it)

This Policy brief has been drafted by Susanna Borrás and Stine Haakonsson.

### Consortium

- Fundação de Desenvolvimento da Pesquisa (FUNDEP)
- Graduate University of the Chinese Academy of Science (GUCAS)
- Copenhagen Business School (CBS)
- Institute for Baltic Studies (IBS)
- German Development Institute (DIE)
- Centre for Development Studies (CDS)
- International Institute of Information Technology (IIIT-B)
- Centro Studi Luca d'Agliano (LdA)
- Norsk Institutt for Studier av Innovasjon, Forskning og Utdanning (NIFU STEP)
- Human Sciences Research Council (HSRC)
- University of Pretoria (UP)
- University of Lund (ULUND)
- University of Sussex (UoS)

### EC contact

Domenico Rossetti di Valdalbero, DG Research and Innovation  
e-mail: [domenico.rossetti-di-valdalbero@ec.europa.eu](mailto:domenico.rossetti-di-valdalbero@ec.europa.eu)

### Duration

January 2009 – December 2011 (36 months)

### Funding scheme

FP7 Socio-economic Sciences and the Humanities, topic SSH-2007-1.2.1 "Globalisation and its interaction with the European economy". Thematic area on "structural change in European knowledge economy and society".

### Budget

EU contribution: € 2.600.000

### Website

[www.ingineus.eu](http://www.ingineus.eu)

### Further reading

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