

Synthesis Paper (SP5)

Workshop

**Innovation policies for a knowledge intensive economy
– assessing the European experience**

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This Workshop brought together some of the most renowned European researchers on innovation policy with some of the top officials in charge of innovation policy in the European Commission (see in annex the list of participants). The purpose was to develop and the interaction between the research agenda and the policy agenda, taking into account the recent very relevant developments in the European policy as well as in the scientific literature¹. This Synthesis Paper is presenting some of the main issues and findings of the very rich debate, which took place in this Workshop. Some of these conclusions can be relevant for both the research and policy agendas.

1. The recent developments in the European policy for innovation

Turning knowledge into added value is a central process in the transition to a knowledge-intensive economy. This is the role of innovation in its various forms, technological or organisational, in products or in services. The innovation policies aim at fostering this process within companies, by developing the innovation system and the interactions between the knowledge production, diffusion and utilisation. Hence, innovation policies should be considered as a major catalyst of a strategy of transition to a knowledge economy.

Therefore, in the context of the European Lisbon agenda, it seems important to improve the national policies for innovation, taking advantage and respecting the differences across Member States, but it is also relevant to enhance the European dimension by defining some common objectives or guidelines and by developing networks, partnerships, clusters and other instruments at European level.

Over the recent mid-term review of the Lisbon strategy (2005), a stronger focus was put on the central role of the innovation policy in the general structure of this strategy:

- the Lisbon Community Programme, which encompasses all the actions taken at European level, includes not only a more ambitious Framework Programme for RTD but also a Community Programme for Competitiveness and Innovation;
- the European Investment Bank and the European Investment Fund were invited to deploy new instruments to support innovation in the framework of their Initiative *Innovation 2010*;
- the recently proposed Community Strategic Guidelines for the Cohesion Policy, to shape the regional policy and the next generation of structural funds, are also giving a strong priority to innovation policy;
- the recent reform of the Stability and Growth Pact introduces more concern with the quality of public expenditure and encourages Member states to

¹ See notably Fagerberg, Mowery and Nelson, *The Oxford Handbook of Innovation*, Oxford University Press, 2004.
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- redirect their public budgets in order to foster public and private investments in key priorities such as R&D, innovation, education and training;
- the Community framework for the State aids is being reviewed in order to turn them into a more horizontal approach, focusing R&D, innovation and human capital;
 - Last, but not least, the same happens with the integrated guidelines for the Lisbon Strategy, which were discussed by various formations of the Council of Ministers and finally endorsed by the European Council of June 2005 in order to provide the frame for the national reform programs to be implemented over the next three years. Among the adopted 24 guidelines, it is worthwhile to quote the following 4 (Council of the European Union, 10667/05):

“Section B – Microeconomic reforms to raise Europe’s growth potential

B.1 Knowledge and innovation– engines of sustainable growth

Guideline No.7. To increase and improve investment in R&D, in particular by private business, the overall objective for 2010 of 3% of GDP is confirmed with an adequate split between private and public investment, Member States will define specific intermediate levels. Member States should further develop a mix of measures appropriate to foster R&D, in particular business R&D, through: 1. improved framework conditions and ensuring that companies operate in a sufficiently competitive and attractive environment; 2. more effective and efficient public expenditure on R&D and developing PPPs; 3. developing and strengthening centres of excellence of educational and research institutions in Member States, as well as creating new ones where appropriate, and improving the cooperation and transfer of technologies between public research institute and private enterprises; 4. developing and making better use of incentives to leverage private R&D; 5. modernising the management of research institutions and universities; 6. ensuring a sufficient supply of qualified researchers by attracting more students into scientific, technical and engineering disciplines and enhancing the career development and the European, international as well as intersectoral mobility of researchers and development personnel.

Guideline No.8. To facilitate all forms of innovation, Member States should focus on: 1. improvements in innovation support services, in particular for dissemination and technology transfer; 2. the creation and development of innovation poles, networks and incubators bringing together universities, research institution and enterprises, including at regional and local level, helping to bridge the technology gap between regions; 3. the encouragement of cross-border knowledge transfer, including from foreign direct investment; 4. encouraging public procurement of innovative products and services; 5. better access to domestic and international finance, and 6. efficient and affordable means to enforce intellectual property rights.

Guideline No.9. To facilitate the spread and effective use of ICT and build a fully inclusive information society, Member States should: 1. encourage the widespread use of ICT in public services, SMEs and households; 2. fix the necessary framework for the related changes in the organisation of work in the economy; 3. promote a strong European industrial presence in the key segments of ICT; 4. encourage the development of strong ICT and content industries, and well functioning markets; 5. ensure the security of networks and information, as well as convergence and interoperability in order to establish an information area without frontiers; 6. encourage the deployment of broad band networks, including for the poorly served regions, in order to develop the knowledge economy. See also integrated guideline “Promote flexibility combined with employment security and reduce labour market segmentation, having due regard to the role of the social partners” (No.21).

Guideline No.10. To strengthen the competitive advantages of its industrial base, Europe needs a solid industrial fabric throughout its territory. The necessary pursuit of a modern and active industrial policy means strengthening the competitive advantages of the industrial base, including by contributing to attractive framework conditions for both manufacturing and services, while ensuring the complementarity of the action at national, transnational and European level. Member States should: 1. start by identifying the added value and competitiveness factors in key industrial sectors, and addressing the challenges of globalisation. 2. also focus on the development of new technologies and markets. a) This implies in particular commitment to promote new technological initiatives based on public-private partnerships and cooperation between Member States, that help tackle genuine market failures. b) This also implies the creation and development of networks of regional or local clusters across the EU with greater involvement of SMEs. See also integrated guideline “Improve matching of labour market needs” (No.20).”

Taking into account these building blocks, the following table summarises as follows, the state of the art in the building process of the European innovation policy.

Table 1. Building the European Innovation Policy

Innovation Policy Components	National Level	European Level
Fostering innovation in companies	<ul style="list-style-type: none"> – Training for innovation management – Business support services for innovation– including support for the modernisation of work organisation at enterprise level – Promoting learning organisations – Support to innovative start-ups 	<ul style="list-style-type: none"> – Training for innovation management (RG, CIP) – Business support services for innovation (RG, CIP, EIB) – Support to innovative SME (EIB, EIF) – Capacity building is required at regional level to provide the organisational infrastructure capable of delivering business support services.
Developing knowledge production	<ul style="list-style-type: none"> – Increasing the private and public investment in R&D – Training and mobility of more researchers – Education and training for innovation (specialised skills and qualifications) – National policies for lifelong learning 	<ul style="list-style-type: none"> – 7th Framework Programme for RTD – Community Programme for Lifelong Learning – EIB actions for human capital
Developing networking for innovation	<ul style="list-style-type: none"> – Developing clusters, poles of innovation and partnerships for innovation – Supporting joint research by companies and universities 	<ul style="list-style-type: none"> – Supporting clusters, poles of innovation and partnerships for innovation (RG, CIP) – Supporting international transfer of knowledge and the international cooperation between companies (CIP)
Improving the framework conditions for innovation	<ul style="list-style-type: none"> – Broadband infrastructures – Access to venture and seed capital – Tax incentives for innovation – Intellectual property regime – Innovation in social dialogue. Some really creative thinking is needed at both national and European levels. A strong role exists for action research 	<ul style="list-style-type: none"> – Reform of State Aids – Public incentives for Innovation (RG) – Venture capital schemes (EIF) – Community patent – Innovation in social dialogue
Using demand as a leverage for innovation	<ul style="list-style-type: none"> – Encouraging public procurement of innovative products and services – Improving quality standards and certification 	<ul style="list-style-type: none"> – European competition policy – European trade policy – Setting standards by Single European Market directives
Improving governance for innovation	<ul style="list-style-type: none"> – Council of Ministers for Innovation – Innovation council and board – Lisbon Coordinator 	<ul style="list-style-type: none"> – Council of Ministers for Competitiveness

RG – European Regional Policy
 CIP – Competitiveness and Innovation Programme
 EIB – European Investment Bank
 EIF – European Investment Fund

2. Assessing the State of the Art in the European innovation policy

In face of these recent policy developments presented by the European Commission officials, the researchers participating in this Workshop developed a very lively and rich debate leading to several remarks, which are summed up below:

1. The design of innovation policy should be put in the broader framework of the economic policy mix to increase economic performance, encompassing competition policy, trade policy, the single market policy, the industrial policy as well as the macroeconomic policies. The underlying theoretical problem to be addressed is how can an economic approach focusing on allocation be combined with a economic approach focusing on capacity building and evolution; there is a critical role for regions here as focal points for policy innovation.
2. When designing innovation policy, all forms of innovation should be considered: not only innovation in process, but also innovation in products and services; not only innovation in technology, but also in management and organisation. This needs to be strengthened. Product/service innovation and organisational innovation go hand-in-hand. From this view point, some concerns were expressed regarding a possible bias in favour of considering almost exclusively the technological innovation and the process of innovation.
3. A systemic approach should be present in designing the innovation policy, which should be developed to address the components of the national systems of innovation:
 - the innovation process inside the companies, taking into account the different types of companies, according to typologies to be defined; this is important and should reflect specific approaches to work organisation which promote employee involvement in reflection, learning and innovation at all levels;
 - the interactions between companies themselves and between them and the financial institutions as well as the knowledge production institutions, namely the research, education and training institutions; the possible role of clusters, innovation poles, partnerships for innovation and incubators;

On this topic, a interesting discussion came up among the researchers attending this Workshop on whether to emphasize systems or activities in the research projects on innovation. This seems a quite classical controversy among social scientists, which can be overcome by more recent theoretical approaches in social science called “structuration theories”, where there is a permanent interaction between structures and actions, which should be both analysed.

Researchers stressed the need for operationalizing the concept of a national (or regional) system of innovation that made it easier to compare the working of different systems and enhance policy learning across national and regional boundaries. One suggestion was to define a set of activities that are common to all national innovation systems and analyse these in a more systematic way than what has been done previously. Others pointed to need for a stronger theoretical for the analysis emphasising in particular the dynamic aspects and the role of innovation as a driver for change. However, it was also pointed out

that there may be certain advantages to keeping the approach open and flexible since this makes it easier to accommodate differences in systems across different locations.

While such differences in views are quite normal (and a quite healthy sign) in a rapidly progressing area of knowledge, it points to need for further work in this area, theoretical, conceptual and applied, in order to make the lessons from innovation systems research more transparent and enhance policy learning.

4. The specific framework conditions in each country should be taken into account, notably the financial systems, the welfare regimes, the education and research systems, the intellectual property regimes and the labour market dynamics, including the em/immigration flows; the broad conditions for social creativity were also underlined.
5. The role of demand should also be fully taken into account, including the role of the public procurement, the public sector services and the quality standards, which are enforced.
6. The already very rich comparative analysis on innovation systems, which is available, shows that they operate in quite different ways. Sometimes, the main source of innovation is science and technology but, in other cases it is learning-by-doing, learning-by-using and learning-by-interacting leading to less codified kinds of knowledge. The purpose of policy making should be to improve the mix of these different sources of innovation in each concrete situation, by developing appropriate instruments to foster these different sources. Therefore, the innovation instruments can range from joint research projects between companies and universities to diffusing learning organisations in companies. The tool box of innovation policy instruments should be rich enough to deal with different sources of innovation in order to ensure the appropriate policy-mix for each concrete situation. At national and regional level, the role of policy makers, social partners, universities and intermediate agencies is to create a diverse abundance of resources to promote and resource learning and innovation. From this view point, some concerns were expressed about a possible bias towards innovation based on science and technology. This criticism does not mean in any case a reservation on the need to increase investment in R&D.
7. A special attention should be given to different learning modes which are behind the different innovation modes. They are also associated with specific skills more or less in favour of innovation. This underlines the strong connection which should be established between innovation policy and education and training policies.
8. Last but certainly, not least, the critical problems of improving governance for innovation were strongly focused upon: the coordination between the different public policies which are involved (enterprise, research, education, employment regional and macroeconomic policies); the different ways of networking with the civil society; the public-private partnerships; the administrative capacity to foster innovation capacity; the need to build coalitions for innovation.

3. Developing innovation policies at national level

Against the background of these possible policy developments at European level, the second session has explored the possibilities of development of the innovation policies at national level, taking into account the diversity of national settings.

The national programmes to implement the Lisbon strategy over 2006-2008 can offer a unique opportunity to define national strategies of transition to knowledge-intensive economies with a central role to be given to innovation policy. The key question for each Member State is how to develop this process, adapting the European agenda and, more precisely the integrated guidelines for growth and jobs to its specificities (see table 2). Some of these specificities should be particularly underlined to justify the diversity of national strategies to a knowledge intensive economy:

- the industrial specialisation patterns, the relationship with the global economy and the position in the international division of labour;
- the predominant types of companies and their need “to climb the ladder of innovation”;
- the institutional framework regarding, in particular; the corporate organisation, the education and training system, the research system, the financial system and the labour markets regulations;
- the quality of the infrastructures;
- the educational levels and the specific skills of the labour force;
- the organisation of the civil society and the instruments to manage change.

Table 2. Lisbon Strategy - The Integrated Guidelines for Growth and Jobs

Macroeconomic policies for growth and jobs

1. To secure economic stability for sustainable growth;
2. To safeguard economic and fiscal sustainability as a basis for increased employment;
3. To promote a growth-and employment-orientated and efficient allocation of resources;
4. To ensure that wage developments contribute to macroeconomic stability and growth;
5. To promote greater coherence between macroeconomic, structural and employment policies;
6. To contribute to a dynamic and well-functioning EMU.

Knowledge and innovation –engines of sustainable growth

7. To increase and improve investment in R&D, in particular by private business;
8. To facilitate all forms of innovation;
9. To facilitate the spread and effective use of ICT and build a fully inclusive information society;
10. To strengthen the competitive advantages of its industrial base;
11. To encourage the sustainable use of resources and strengthen the synergies between environmental protection and growth.

Making Europe a more attractive place to invest and work

12. To extend and deepen the Internal Market;
13. To ensure open and competitive markets inside and outside Europe and to reap the benefits of globalisation;
14. To create a more competitive business environment and encourage private initiative through better regulation;
15. To promote a more entrepreneurial culture and create a supportive environment for SMEs;
16. To expand and improve European infrastructure and complete priority cross-border projects;

More and better jobs

17. To implement employment policies aimed at achieving full employment, improving quality and productivity at work, and strengthening social and territorial cohesion;
18. To promote a lifecycle approach to work;
19. To ensure inclusive labour markets, enhance work attractiveness and make work pay for job-seekers, including disadvantaged people, and the inactive;
20. To improve matching of labour market needs;
21. To promote flexibility combined with employment security and reduce labour market segmentation, having due regard to the role of the social partners;
22. To ensure employment-friendly labour cost developments and wage-setting mechanisms
23. To expand and improve investment in human capital;
24. To adapt education and training systems in response to new competence requirements.

Source: Council of the European Union, 10667/05 and 10205/05

We can mention a thesis to be tested by cross-country empirical research taking into account the wide variety of national situations presented in this Workshop. Recent experiences suggest there is a critical path to develop an innovation policy as a catalyst to the transition to a knowledge intensive economy:

- 1/ to use the European agenda as a leverage to introduce this strategic goal in the national agenda;
- 2/ to spread a richer concept of innovation, taking into account its different dimensions: technological and organisational, in process or in products and services, based on science or in learning-by-doing, using or interacting;
- 3/ highlighting the implications of the innovation system approach for the coordination of policies;
- 4/ to define the priority areas of an innovation policy and prepare a tool box of operational measures;
- 5/ to open the access to this tool box in order to support innovating projects and companies whatever the sector;

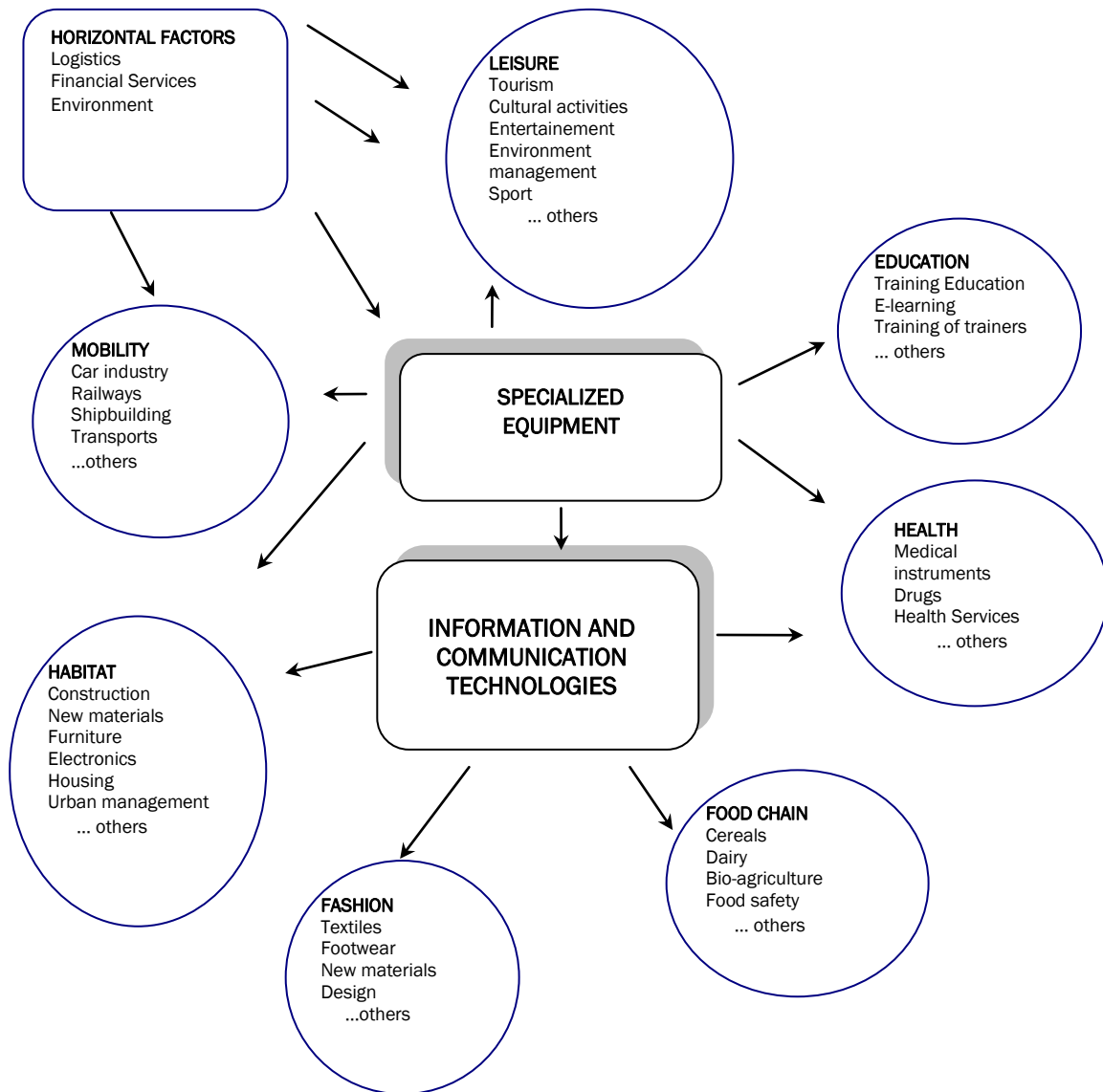
- 6/ to focus on some clusters in order to illustrate the advantages of developing partnerships for innovation, as a good practice which can be followed by other clusters;
- 7/ to dynamise the national innovation system, by focusing the missions and the interactions among its bodies, including the flexibility of labour markets;
- 8/ to reform public management with implications for innovation;
- 9/ to spread skills for innovation and to train innovation managers;
- 10/ to improve governance for innovation, by improving the internal coordination of the government and the relevant public departments, by creating public awareness and by developing specific consultation and participation mechanisms with the civil society.

Apart from improving the general conditions, the national strategy of transition to a knowledge intensive economy should be itself adapted to specific circumstances of each concrete region or cluster within the country. For example, the approach based on clusters should aim at develop partnerships for innovation, jobs creation and competence building, involving all the relevant actors: companies, research institutions, education and training institutions, financial bodies. A critical path can be discovered by asking how is it possible to add more value building on the already existent competence. For instance, if we take the general human needs as a broad reference for associating clusters of economic activity (see figure 1):

- competences in tourism should be combined with the competence in cultural activities, sport and environment in order to develop the area of *leisure*;
- competences in construction, furniture, electronics, urban management should be combined in order to develop the area of *habitat*;
- competences in clothing, footwear, new materials and design should be combined in order to develop the *fashion* area;
- competences in car industry, transports and logistics should be combined, in order to develop the area of *mobility*.

In the meantime, other horizontal competences are required to develop all the clusters of activities, such as electro-mechanic equipment, information and communication technologies and biotechnologies.

Figure 1. A framework to explore new areas of jobs creation and competence building



There is no open method of coordination, which can help to solve this problem of finding the critical path. This will be “history in the making” in each of the EU Member States.

In the end, it should be kept in mind that the major source of innovation and knowledge based growth and competitiveness is the innovativeness of people themselves. Even the most wonderful technological devices, based high quality research and advanced ideas, may fail to pass from the invention to innovation stage if society is not ready for it.

History is replete with examples of firms, regions and countries that have failed to benefit commercially from important inventions resulting from their own investments in R&D, not because of lack of technological potential, but because internal resistance (in firms for instance), social inertia, lack of demand at the local and/or national level etc.

The challenge is therefore not only to invest money in R&D and supporting infrastructure but also to mobilize the creative and innovative capacity among ordinary citizens, public

sector organizations etc., e.g. strengthening the experimental character of the e economy, which in turn requires tolerance both for the short-term costs and the failures that necessarily follows from increasing experimentation. It is an important task for European social science to improve our understanding of the broader social, institutional and political factors that enhance respectively impede innovation, and it would be wise of the European Commission to provide stronger incentives for mobilizing the social sciences and humanities towards the resolution of this task.

Annex:

Workshop

“INNOVATION POLICIES FOR A KNOWLEDGE INTENSIVE ECONOMY – ASSESSING THE EUROPEAN EXPERIENCE”,
Brussels, 27th May 2005

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