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Annex to the

**COMMUNICATION FROM THE COMMISSION TO THE COUNCIL, THE
EUROPEAN PARLIAMENT, THE EUROPEAN ECONOMIC AND SOCIAL
COMMITTEE AND THE COMMITTEE OF THE REGIONS**

**More Research and Innovation - Investing for Growth and Employment:
A Common Approach**

Impact Assessment

{COM(2005) 488 final}

INTRODUCTION

The **serious challenges faced by Europe in the areas of research and innovation** are well known and have been clearly identified for several years by the European Union.

As recalled in the Lisbon Action Plan¹ the **EU invests about a third less in research than the USA**, largely due to less private sector research. Annually the USA spends about €80 billion more on business research than the EU (see [Annex 1](#)). More favourable framework conditions for both public and private research and better co-ordination across Member States and with the EU level are needed to ensure faster progress towards the target of 3% of GDP for research expenditure.

As regards innovation, the European Innovation Scoreboard 2005² gives evidences that the results are not sufficient to catch up the lag with the US and other international competitors (see [Annex 2](#)). **Following current trends, it would take more than 50 years for the EU25 to reach the US level of innovation performance.** In addition, most of the new Member States are engaged in a very slow catching-up process. Therefore, developing a robust innovation environment is a key challenge for all European countries.

Within the new Lisbon Partnership for Growth and Jobs, research and innovation have been confirmed as a key challenge. As the Commission noted in its proposal for a mid-term review of the Lisbon strategy, “in advanced economies such as the EU, knowledge, meaning R&D, innovation and education, is a key driver of productivity growth. Knowledge is a critical factor with which Europe can ensure competitiveness in a global world where others compete with cheap labour or primary resources”³. Consequently, in the Action Plan that accompanied the mid-term review, two central policy areas were devoted to research and innovation, aiming to increase and improve investment in research and to facilitate innovation, the uptake of ICT and the sustainable use of resources⁴.

Based on this analysis, the European Council singled out knowledge and innovation for growth as one of three main pillars for action. It also confirmed the 3% of GDP objective for research investment in Europe. The broad guidelines for economic policies (2005-2008)⁵ as adopted by the Council confirm that “knowledge and innovation are engines of sustainable growth” and invite the Member States and the Community in its guideline No 7 to increase and improve investment in research and in guideline No 8 to facilitate all forms of innovation.

Similarly, the Community Lisbon Programme adopted in July 2005 identified “knowledge and innovation for growth” as one of the three main areas for which the Commission proposed a set of Community level actions⁶. The proposed Communication “More Research and Innovation: Investing for Growth and Employment: A Common Approach”⁷ has to be seen in this well established context, recognising research and innovation as important pillars of the overall strategy to foster growth and job creation in Europe.

¹ Extract from the Lisbon Action Plan, SEC(2005) 192 (introduction to central policy area 5)

² <http://trendchart.cordis.lu/scoreboards/scoreboard2005/index.cfm>

³ COM(2005)24 final

⁴ SEC(2005)192

⁵ Council Recommendation 2005/601/EC, OJ L 205 of 6.8.2005, p. 28

⁶ COM(2005) 330 final

⁷ COM(2005) 488

The **need to invest more and better in research and innovation** was identified by the Lisbon European Council in 2000, then most prominently emphasised by the Barcelona European Council, which set the objective of approaching 3% of GDP for research expenditure in the EU. This gave rise to the 3% Action Plan⁸. Similarly, the need to strengthen innovation was repeatedly stressed by the European Council⁹ and gave rise to a number of policy initiatives set out in the communication “Innovation policy: updating the Union’s approach in the context of the Lisbon strategy”¹⁰. While many of these actions remain important for strengthening research and innovation in Europe, they need to be updated and their role in the renewed Lisbon strategy needs to be clarified in more detail than could be done in the broader Community Lisbon Programme.

The **proposed Communication does not set new orientations**. While remaining fully in line with the orientations presented in the Community Lisbon Programme, it develops in more detail the actions proposed by the Commission. In so doing, it updates and clarifies the status of pre-existing initiatives. It also shows the articulation between the actions foreseen at Community level and the related recommendations that Member States are invited to implement in order to get the full benefits of the Community actions. These recommendations are fully in line with the Integrated Guidelines. Last but not least, the proposed Communication presents research and innovation policies for the first time in a fully integrated fashion.

The **Communication is complemented by a Commission Staff Working Document which details the measures** in support of research and innovation that are planned to be undertaken by the Commission in the coming years.

This impact analysis corresponds and is proportional to the objective and to the nature of the Communication. Having regard to its policy content, the analysis is exclusively of a qualitative nature. As regards the impact of actions presented in the Communication, it synthesises the results of a number of recent consultations and impact assessments carried out on research and innovation related matters which expressed wide support for the type of action envisaged by the Communication, bearing in mind that most of these actions already exist or have already been proposed by the Commission. The impact assessment focuses thus rather on the impact of the Communication *per se*.

WHAT PROBLEM IS THE COMMUNICATION DESIGNED TO TACKLE?

The **main purpose of the Communication is to contribute to better conditions for research and innovation investments in Europe**, by showing how national efforts can be supported by Community instruments and by mobilising stakeholders. In other words, this Communication tackles the framework conditions which will allow investing more and better in research and innovation. The benchmark is therefore to what extent it will contribute to better policy responses and help to better exploit the research and innovation potential in Europe.

The **challenge to be tackled is that of an active mobilisation of policy-makers and stakeholders** in order to close the gap observed until now between policy objectives and delivery. Stakeholders are called to invest more in research and innovation and can be considered as the ultimate beneficiaries. However, the intermediate target is the mobilisation of policy

⁸ COM(2003)226 final

⁹ see for instance Presidency conclusions of 25-26 March 2004 and 22-23 March 2005

¹⁰ COM(2003)112 final

makers, and the creation of the conditions that enable them to fully exploit the potential of the different EU policies and programmes.

The specific problems that call for the proposed Communication relate to needs to specify how research and innovation actions fit in the new Partnership for Growth and Jobs, how they can mutually reinforce each other, and how national and Community actions can be articulated so as to best exploit synergies. Indeed, the country visits undertaken by the Commission last summer showed that there is a strong interest regarding the research and innovation challenges, which justify presenting our analysis and intentions in more detail.

WHAT ARE THE MAIN OBJECTIVES OF THE COMMUNICATION?

The **main objective of the Communication is to contribute to the implementation of the new Lisbon partnership for growth and jobs**, by presenting in more details the concrete measures to be launched in the short and medium term at Community level in support of research and innovation, as well as their articulation with related recommendations for actions at national level for Member States. The objective hereby is to achieve **better synergies between Member States and Community actions**. Most of the proposed Community actions have already been developed in different areas. By putting them together, more visibility is given to them and synergies are exploited.

Although research and innovation are not the same, they are closely linked and the success of one is closely associated with the success of the other. One of the main objectives of the communication is therefore to stress the concept of integration between the two dimensions and to send the message of a clear and strong political commitment in support of research and innovation at Community level. This will reassure Member States that the Community instruments are used in a targeted and streamlined manner, also in support of efforts at national level.

A **second key objective of the Communication is to inform stakeholders on the major steps to be taken in support of research and innovation at Community level** in order to better align them to their future implementation. A more effective mobilisation of the research and innovation community is the major goal to reach the 3% objective for research investments and to build strong industrial clusters and innovation poles in Europe. New instruments and actions are proposed to facilitate networking among different research and innovation actors and to promote public-private partnerships.

The **proposed Communication develops the orientations for Community action in an important area of the new Partnership for Growth and Jobs**. This could not be done in full details in the Community Lisbon Programme and in the Integrated Guidelines due to the broader scope of these documents. It updates the pre-existing initiatives in the area of research and innovation, clarifying how they fit in the new Partnership for Growth and Jobs. The Communication also aims to show the articulation between Community actions and related recommendations to Member States, which could not be done in the Integrated Guidelines and Community Lisbon Programme due to their exclusive focus on respectively national and Community levels. By showing the consistency and mutually reinforcing nature of Community actions and related recommendations to Member States in an important area, the proposed Communication aims to bring further justification to the new Lisbon process.

WHAT ARE THE MAIN POLICY OPTIONS?

Clearly, there is a need to respond to the research and innovation challenges identified by the new Lisbon partnership for growth and jobs. However, different options exist to approach this policy challenge, ranging from independently developing research and innovation policies– with no consideration for synergies (“zero option”) to the creation of a single Research and Innovation Action Plan setting new and ambitious targets for both Member States and the Community.

The following **three options** are considered in particular:

- *First option: “Zero option”*

The **first option consists in not having a new communication**. In this scenario, most of the proposed instruments would be launched separately as part of their relevant Work Programmes. This proposed Communication does not call for new funding proposals and many of the actions therein are already under preparation.

Since research and innovation are often two sides of the same coin, the “zero option” would lead to the continued dissatisfaction of stakeholders who would find it difficult to understand how the different initiatives in these fields fit together. Indeed, this lack of clarity may well give rise to concerns of duplication of effort and lack of co-ordination by the Commission services, even if not justified. Thus it is felt that the **“zero option” should not be seriously considered**. Europe must prove that it is able to provide value for money, and that it can meet the research and innovation challenges identified to date.

- *Second option: New targets for a single European Research and Innovation Area*

This option would consist of the **development of a fully integrated European Research and Innovation Area**, establishing new and ambitious targets to be met by Member States, the Community and stakeholders. This would finally require the full integration of existing and future programmes and actions under a single umbrella, with all legal and budgetary consequences.

From many perspectives, this may be considered as the “ideal case scenario”. However, the strong commitments which would be required from Member States and stakeholders in order for such a fully integrated Research and Innovation Area to be achieved seem disproportionate to political reality at the present time. Furthermore, **the proposal of creating such an area would clearly conflict with the Lisbon mid-term review** and may well cause confusion within Member States who are currently preparing their National Reform Programmes. In particular, it would clearly be in contrast with the Commission’s current approach of asking Member States to identify their own targets and apply their own implementing methodologies. This option has therefore been discarded.

- *Third option: A common approach to research and innovation*

This is the retained option. This **Communication and the accompanying Commission Staff Working Document should be considered as a means to clarify the synergies of various existing policy instruments** and those which will be launched under the auspices of the 7th Research Framework Programme (FP7) and the new Competitiveness and Innovation Framework Programme (CIP). More specifically, it aims to show how research and innovation instruments can work together to better support each other’s activities and thus help deliver the

new Lisbon Partnership for Growth and Jobs. It builds upon the Community Lisbon Programme, the 3% R&D Action Plan and several key pieces of work done in the field of innovation in the preparation of this Communication.

The **Communication** provides descriptions of:

- Main Community policies and financial instruments and how they can be used to foster research and innovation in pursuit of the new Lisbon partnership;
- Specific research and innovation policy initiatives, to strengthen the European research and innovation community and to stimulate more private investments;
- Synergies to be achieved between Community policies, financial instruments and national research and innovation policies;
- Improved methods of mutual learning and the new approaches proposed in FP7 and CIP for fostering trans-national cooperation.

The **specific actions are further described in the accompanying Commission Staff Working Document**. Actions to be carried out in 2005-2006 can be funded under existing Community programmes¹¹. The new actions envisaged are expected to be funded under the FP7, the CIP and the Structural Funds. Such new actions are of course depending on the final adoption of the proposed framework programmes, the financial resources available and a Commission financing decision.

In summary, the proposed Communication sends out the political message that there is a coherent set of instruments at Community level to support national efforts to deliver the new Lisbon partnership.

WHAT IMPACT IS EXPECTED FROM THE COMMUNICATION?

The proposed communication on “More Research and Innovation: Investing for Growth and Employment: A Common Approach” does not introduce new instruments or measures. Rather it regroups the existing and proposed strands of work relating to research and innovation with the aim of showing the synergies which exist between them.

It is difficult to measure the exact impact such a Communication may have since it's *raison d'être* rather than proposing a new legal basis for European research and innovation policy is to constitute a tool for increasing coherence between existing and new envisaged instruments, as well as to give information on the overall research and innovation policies and their articulation. For example, in the field of public procurement, work is underway in Directorates General Markt, Enterprise and Industry, and Research and it is only the sum of these parts that promises to have a measurable impact on research and innovation. However, the different elements have so far never been put together in a consistent manner and thus created concerns that the work done by the Commission services may duplicate each other

Another **key added value of this Communication is that it should facilitate the implementation of the FP7 and CIP proposals** by making the synergies clearer and the ultimate goal of various proposed measures more visible. Many questions have been raised in

¹¹ In particular the 6th Framework Programme for Research and Technological Development and the Multi-Annual Programme for Enterprise and Entrepreneurship (2000-2006)

this respect and clear future orientations are needed to further substantiate and justify the Commission's request for a substantial budgetary increase for research and innovation.

Evidently, all of the policy instruments described in the Communication will be subject to the impact assessment procedure, as laid down in the Communication "Better regulation for Growth and Jobs in the European Union"¹² and the Commission's internal Guidelines on Impact Assessment and their Annexes¹³ and analysed in turn. This does not include proposals for the development of new guidelines and other self-regulatory measures, which are to be developed in close cooperation with stakeholders and will depend on their explicit support for implementation.

All actions outlined in the Communication point into the same direction. They aim to mobilise more resources for research and innovation, by highlighting areas for action or which have had little visibility so far. Indeed, the following **policy level actions** are expected to have a profound impact on mobilising more resources for research and innovation:

- *Improved tools to strengthen research and innovation through public policies:* State aids and public procurement, among others, play an important role to strengthen research and innovation capacities. The Communication outlines policy initiatives, such as the reform of State aid rules, and makes proposals for the development of new practical tools, such as a Handbook for the use of public procurement to foster research and innovation, that will help to better raise this potential.
- *Improved tools for policy learning and exchange of good practice:* The Communication highlights the importance of sharing good practice in support of research and innovation and presents new tools to further develop the "Open Method of Coordination". Examples are the RTD OMC-Net, the PRO INNO Learning Platform, the Regions of Knowledge initiative and the Innovating Regions of Europe initiative. In each of these cases, examples of good practice will be identified and further discussed at expert level. This will result in a repository of tested methodologies and policy approaches that will enable both Member States and the Commission to enhance the efficiency of their research and innovation policies.
- *Improved tools to foster strong clusters and innovation poles in Europe:* New initiatives, such as Europe INNOVA or the proposed EU guidelines to improve research collaboration and knowledge transfer between universities and industry, aim to bring together actors from different fields to build stronger links between them. This is also key for the development of industrial clusters and innovation poles in Europe. The emphasis of these actions lies on trans-national cooperation, taking into account that many clusters in Europe lack critical mass and global dimension. The impact of these actions will have to be measured against increased cooperation across borders and between research and innovation professionals from different fields.
- *Improved tools for fostering trans-national cooperation:* Based on the positive experience in the field of research (ERA-Nets and Art. 169), new tools for fostering trans-national cooperation in the field of innovation - the PRO INNO initiative - are described. The enormous leverage effect that such forms of trans-national cooperation achieved is often overlooked, as is the improved efficiency of the different instruments. Such tools have the

¹² COM(2005)97 of 16 March 2005

¹³ SEC(2005)791

potential to mobilise more resources for research and innovation and to build strong innovation poles in Europe.

- *Improved tools for policy analysis and benchmarking:* The Communication presents a number of new or enhanced tools to better measure and analyse progress made in the fields of research and innovation. This includes, for example, better statistical information through ERA-Watch, Trendchart and cluster mapping. This will facilitate the identification of policy challenges to be addressed both by the Commission and Member States. Although the cost-benefits of such tools is difficult to measure, this positive effect on “improved policy making” is considered to be very high.

As a second strand, the Communication proposes a number of **actions facilitating access to finance and technology transfer and strengthening the research and innovation community**. To this end, many actions have already been taken at Community level and proved their effectiveness. These actions are intended to be continued and further extended under FP7 and CIP. Ex-ante impact assessments are available for all new instruments. This Communication merely refers to them and outlines the synergies between existing and new tools in support of research and innovation. In particular, the following impacts are to be highlighted:

- *More private investments for research and innovation:* The Communication brings to the forefront initiatives to rise private funding for research and innovation. These include, most notably, the Joint European Technology Platforms (FP7), the Risk-Sharing Finance Facility (FP7) and a new High Growth and Innovative SME Facility (CIP).
- *Better business support services for research and innovation:* With the Innovation Relay Centres (CIP), a strong European network exists to facilitate technology transfer in Europe. The Communication describes the further improvements proposed relating to the efficiency of this network, e.g. by establishing a “one stop shop” with other business support networks, such as the EuroInfoCentres, and to extend the range of services.
- *More efficient dialogue structures with stakeholders:* The Communication announces the stepping up of its dialogue with stakeholders to identify regulatory barriers to research and innovation, particularly using synergies between the European Technology Platforms (FP) and the Sectoral Innovation Panels to be established under the Europe INNOVA initiative. The integration of these feedback mechanisms into the broader sectoral industry policy, as described in the attached Communication would further increase their impact. Furthermore, in this context, increased efforts will be undertaken to better liaise between European and regional and national sector initiatives in support of research and innovation - in order to use synergies between them and to foster the exchange of good practice. This will enhance the efficiency of public support initiatives in this field and strengthen the development towards a truly European research and innovation area.

STAKEHOLDERS CONSULTATION AND LESSONS LEARNED

This **Communication builds upon various broad public consultations** carried out in recent years and the continuous feedback received from Member States on research and innovation aspects in both formal and informal settings.

More precisely, the instruments described in the text were the result of:

- Various public consultations including in particular those relating to the draft Innovation Action Plan, the FP7 and the CIP;
- Official channels, such as the country visits which took place in preparation of the National Reform Programmes, the Council Working Groups, the Research Working Group, the Group of Senior Officials (Member State advisory board on innovation matters) and the Committee on Science and Technical Research (Member State advisory board on research matters);
- A large number of studies exploring different policy options.

Furthermore, feedback from stakeholders was received through various workshops and conferences as well as through regular ex-post evaluation of existing initiatives. Further details of key sources of consultation relating to the policy and financial instruments outlined in this Communication are summarised in Annex 3.

MONITORING AND EVALUATION

Each specific research and innovation related action as outlined in the accompanying document will be subject to **ex-post evaluation** under the evaluation programmes of the relevant Directorates General.

A number of **consultative bodies** of DG Enterprise and Industry and DG Research, including The Enterprise Policy Group, the research working group, CREST and the Group of Senior Officials on Innovation, will follow up the progress and the monitoring of these initiatives.

The list of actions as described in the Commission Staff Working Document annexed to the Communication will be continuously updated and **progress reports** will be made regularly available online.

CONCLUSION: COMMISSION'S DRAFT PROPOSAL AND JUSTIFICATION

For the reasons explained above and on the basis of lessons learned from different public consultations, it was decided to present a Communication based on option 3, which implies a common approach towards research and innovation, by using existing Community instruments in a consistent manner to support more and better research and innovation investments in Europe.

The Commission proposal includes a framework of actions for the implementation of the objectives of the Lisbon Strategy in the area of research and innovation. The further implementation of the proposed actions is described in a separate Commission Staff Working Document.

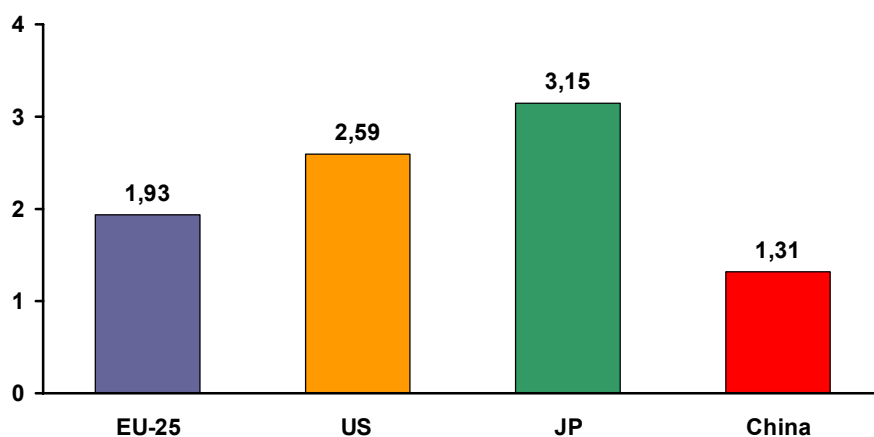
Once adopted by the Commission, the proposal will be sent to the Council and the European Parliament. The Commission proposal will also be sent, for opinion, to the Economic and Social Committee and to the Committee of the Regions.

As regards timing, the **adoption is foreseen for 12 October 2005**. This ensures that there will be no confusion with the preparation of the National Reform Programmes and that the elements contained in the Communication will be available as valuable complementary information for the discussions that will ensue and for the preparation of the Commission's January 2006 report.

Stagnation of R&D intensity is a major threat

The 2005 key figures show that EU R&D intensity is close to stagnation. Growth of R&D investment as a % of GDP has been slowing down since 2000 and only grew 0.2% between 2002 and 2003. Europe devotes a much lower share of its wealth to R&D than the US and Japan (1.93% of GDP in the EU in 2003, as compared to 2.59% in the US and 3.15% in Japan).

Figure 1: Total R&D expenditure (as % of GDP), 2003



While China has lower R&D intensity (1.31% of GDP in 2003) it grew at about 10% per year between 1997 and 2002. If these trends in the EU and China continue, China will be spending the same amount of GDP on research as the EU in 2010 – about 2.2%.

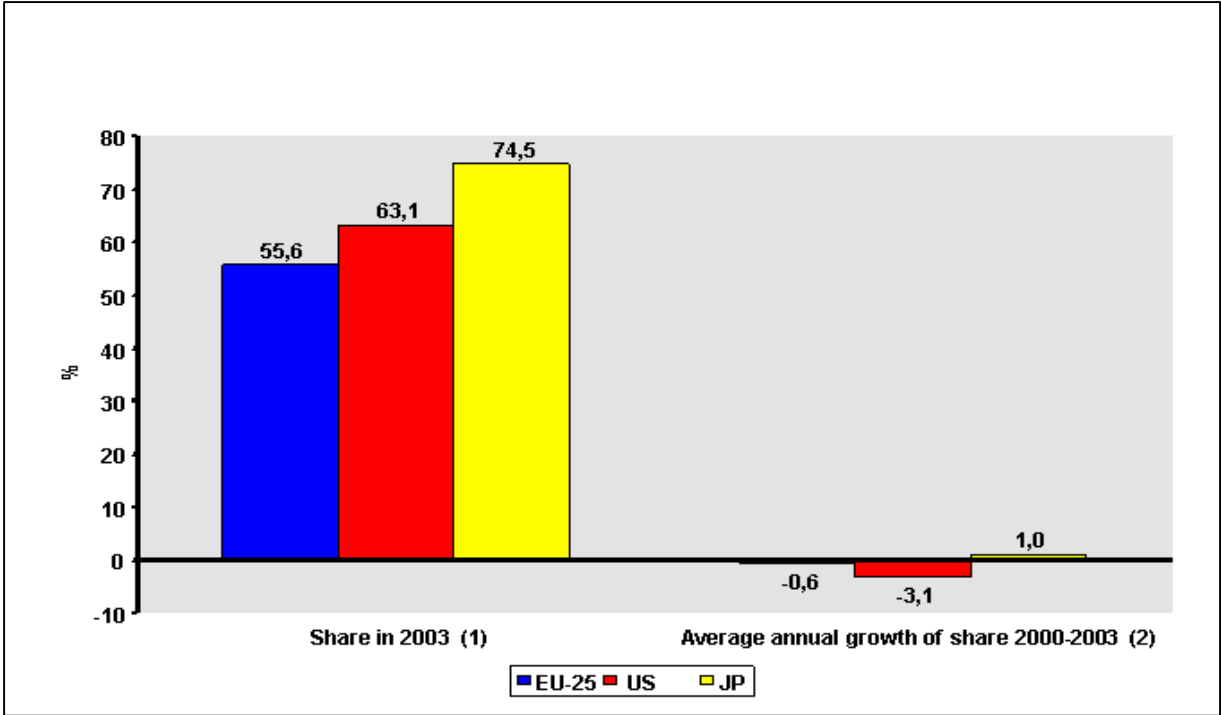
The contribution of business to the funding of R&D is not sufficient

One of the reasons for this has been a slow-down in business funding of R&D. In 2002 business funding grew at a slower rate than GDP, though this was compensated for by a slightly higher growth of government funding, as well as growth in R&D financed from abroad.

As showed in Figure 2, in 2002, business financed 55.6% of domestic R&D expenditure in the EU, compared to 63.1% in the US and 74.5 % in Japan, and this share is decreasing.

¹⁴ Source: Key Figures 2005 on Science, Technology and Innovation.
<http://www.cordis.lu/indicators/publications.htm>

Figure 2: Share of Total R&D expenditure financed by business enterprise

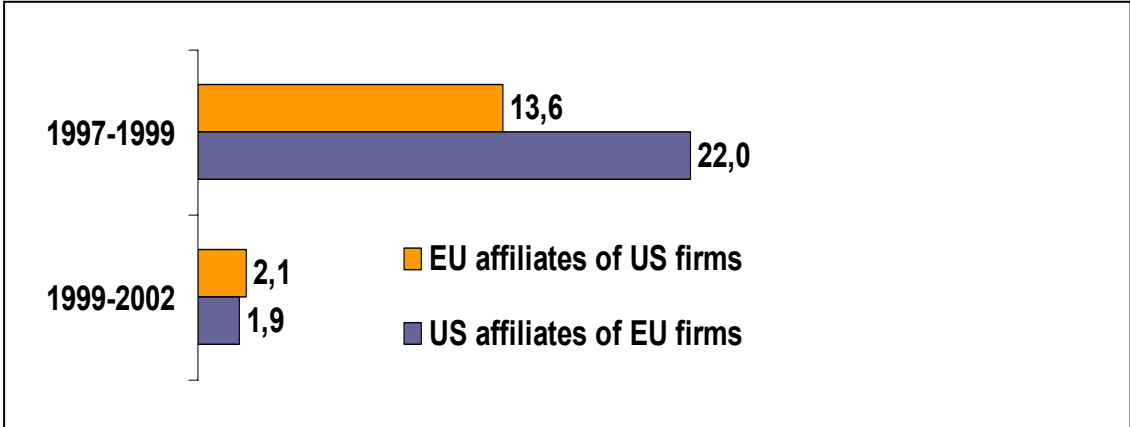


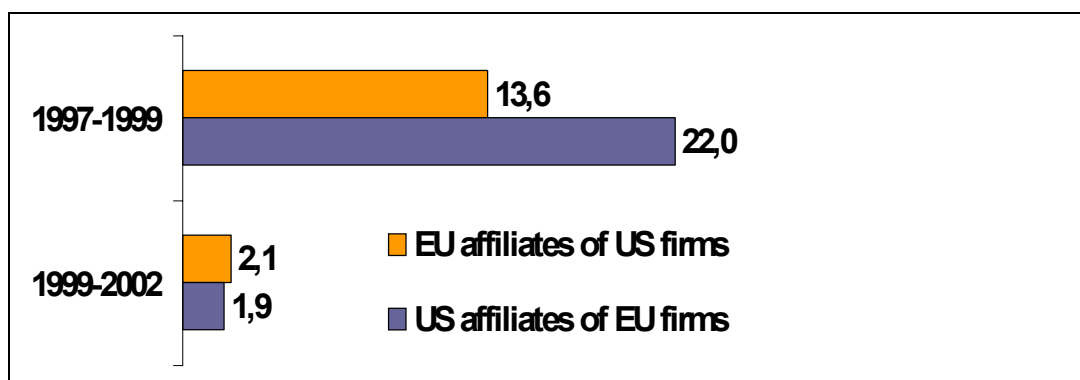
If the trend is not reversed, not only will the EU miss the overall target of two-thirds of R&D expenditure financed by the private sector in 2010, but the situation will have worsened.

Is Europe and attractive place to carry out research?

The most worrying conclusion of the key figures is that Europe is becoming a less attractive place to carry out research. Between 1997 and 2002, R&D expenditure by EU companies in the US increased much faster than R&D expenditure by US firms in the EU (see figure 3). The net imbalance in favour of the US increased five-fold between 1997 and 2002, from about €300m in 1997 to almost €2b in 2002.

Figure 3: R&D expenditure of foreign affiliates, Average annual growth (in % from € PPS)





Additionally, US investment has been growing at a much greater rate in areas outside the EU – about 8% per year in the EU and 25% per year in China.

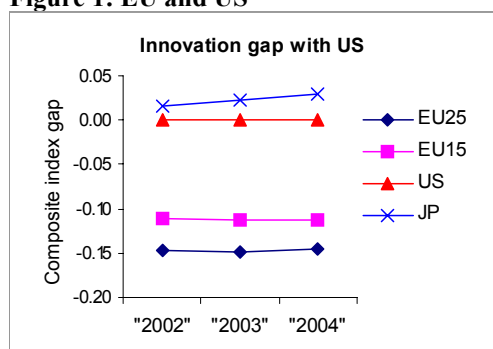
The current trends in R&D and the Lisbon objective

These trends are worrying in the context of Europe’s intention to becoming a leading knowledge-based economy. A recent impact assessment by the European Commission showed that investment in R&D at European level has a positive effect on productivity and economic growth. The study also showed that funds spent at European level were successful in mobilising additional business spending. If Europe is to become an integrated research area where the best research can be carried out, able to attract investment from all over the world, there must be a substantial and wide-ranging European level programme, as proposed by the Commission in April 2005. Otherwise, Europe will remain a series of national programmes, with little coherence. Enterprises will keep relocating their research and innovation activities to other continents offering attractive public support and larger research, innovation and commercial markets. A recent public opinion survey showed that EU citizens support spending more on research at both national and European level.

The fifth edition of the *European Innovation Scoreboard* (EIS) will be published in November. The EIS is the instrument developed by the European Commission, under the Lisbon Strategy, to evaluate and compare the progress in innovation performance of the Member States. Although final results for the EIS are pending data updates in September, using the latest available data it seems that the gap in innovation between the EU and the US is not decreasing and between the EU and Japan it is even increasing. Within Europe, Switzerland, Finland, Sweden and Germany make up the group of leading countries.

The innovation gap between the EU and the US and Japan is not closing

Figure 1: EU and US



Based on a set of comparable data for 16 indicators, the US and Japan are still far ahead of the EU average and the vast majority of Member States. The innovation gap between the EU and the US appears to be relatively stable (Figure 1). The innovation gap is largely explained by lagging EU performance in three indicators: EPO, USPTO and triad patents (45% of the gap), population with tertiary education (25%) and ICT expenditures (19%). Looking at individual indicators, a significant increase in the EU gap for public R&D expenditures and exports of high-tech products can

be observed as well as an increase in the EU lead for university R&D expenditures financed by the private sector.

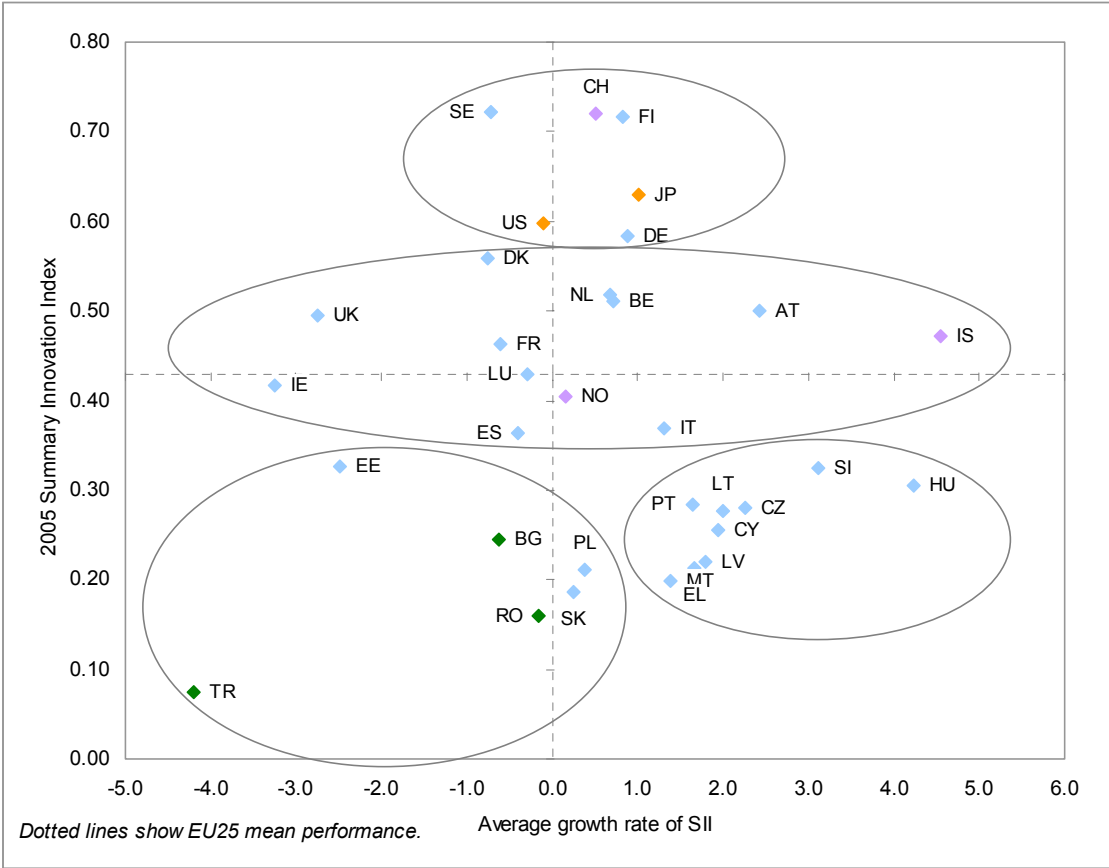
The innovation gap between the EU and Japan is increasing (Figure 1). This is largely explained by lagging EU performance in two indicators: EPO, USPTO and triad patents (55% of the gap), and population with tertiary education (23%). Looking at individual indicators, we see a significant increase in the EU gap for ICT expenditures, triad patents and business R&D expenditures and, due to a strong decrease in the Japanese performance level, a decrease in the EU gap in public R&D expenditures.

Great differences of national innovation performances

With respect to the situation in the European Union, significant national differences are still observed (see figure 2). The current innovation performance is measured by the Summary Innovation Index (SII) which combines 26 indicators and is calculated for those countries for which adequate data are available. The SII is useful to summarize the innovation performance of countries and capture in a nutshell their relative situation. A more detailed analysis based on the component indicators is necessary to understand the precise innovation situation. Based on their SII score and the growth rate of the SII the countries can be divided in four groups:

Switzerland, Finland, Sweden and Germany make up the group of “*Leading countries*”. Of these, only Sweden shows a below EU average SII growth rate. Denmark, France, Luxembourg, Ireland, United Kingdom, Netherlands, Belgium, Austria, Norway, Italy, Spain and Iceland all belong to the group of countries showing “*Average performance*”. Countries “*Catching up*” are Slovenia, Hungary, Portugal, Czech Republic, Lithuania, Latvia, Greece and Cyprus. Countries “*Loosing ground*” are Estonia, Bulgaria, Poland, Slovakia and Romania.

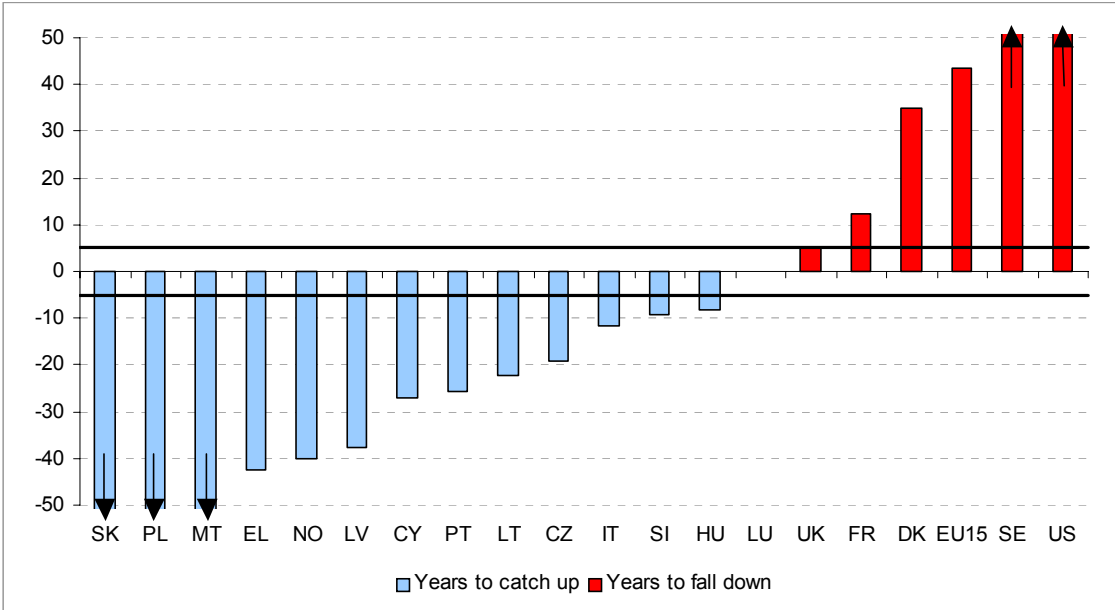
Figure 2: Summary Innovation Index – current and trend performance



Countries in the lower left quadrant, such as Estonia or Spain, are in a worrying situation with below average performance and a decreasing position. On the contrary, those in the upper right quadrant perform above average and increase their leading position. For example, the index for Austria shows a positive growth rate (on the horizontal axis), which means that we can expect a higher value of the summary innovation index next year (on the vertical axis). In contrast to that, if the current trend does not change Denmark’s position in the graph will move downwards, which might result in a lower value of the index than in Austria in the following/next year.

Catch-up processes may take longer than expected. Countries in the lower right quadrant are catching up and those in the upper left quadrant are regressing towards EU average. Using a simple linear extrapolation of current performance and growth rates, an estimate can be made for those countries either catching up or losing momentum of how many years it would take to either reach or fall down to the EU25 average level of performance. Of course, the estimates based on a linear extrapolation will become less reliable the longer the time period on which the estimate is based. Figure 3 shows the estimated years to catch up to or fall down to the EU25 average. This estimation allows for summarizing how far the countries are from this static point, be it an objective for the catching up countries, or a limit to be avoided for those losing momentum.

Figure 3. Years to catch up or fall down to EU25 average performance



Bold lines reflect 5 years to catch up or fall down.

The alarming result of this basic analysis is that none of the catching up countries is expected to be getting close to the EU25 average by 2010. At best, Hungary, Slovenia, and Italy will reach the EU25 average under the current conditions by 2015. Under this scenario, for Malta, Slovakia and Poland the catching up process would take more than 50 years. This enormous time lag should raise questions on which dimensions of the innovation policy have to be better addressed in these countries. Similar questions need to be addressed in countries like France or the United Kingdom: They still show an average value of the summary index above the EU average, but might regress to the EU average already within the next 5 to 10 years, if policy decision makers will not react. Based on the current trends, it would also take more than 50 years for the EU25 to reach the US level of innovation performance. This highlights the very slow catching up process in Europe, where additional efforts need to be further deployed.

European Innovation Scoreboard:

The *European Innovation Scoreboard* (EIS) has been published since 2000 on an annual basis. The EIS is the instrument developed by the European Commission, under the Lisbon Strategy, to evaluate and compare the innovation performance of the Member States. The EIS 2005 will include innovation indicators and trend analyses for all 25 EU Member States, as well as for Bulgaria, Romania, Turkey, Iceland, Norway, Switzerland, the US and Japan

Summary Innovation Index

The EIS 2005 will be based on 26 indicators. These indicators are combined into a composite indicator, the *Summary Innovation Index* (SII), which provides an overview of the relative national innovation performances. The SII is calculated for all countries, based on a number of available indicators.

Indicators

Table 1: EIS 2005 Indicators

INPUT - Innovation drivers		
1.1	S&E graduates per 1000 population aged 20-29	Eurostat
1.2	Population with tertiary education per 100 population aged 25-64	Eurostat
1.3 new	Broadband penetration rate (number of broadband lines per 100 population)	Eurostat
1.4	Participation in life-long learning per 100 population aged 25-64	Eurostat
1.5 new	Youth education attainment level (% of population aged 20-24 having completed at least upper secondary education)	Eurostat
INPUT – Knowledge creation		
2.1	Public R&D expenditures (% of GDP)	Eurostat, OECD
2.2	Business R&D expenditures (% of GDP)	Eurostat, OECD
2.3 new	Share of medium-high-tech and high-tech R&D (% of manufacturing R&D expenditures)	Eurostat
2.4 new	Share of enterprises receiving public funding for innovation	Eurostat: CIS
2.5 new	Share of university R&D expenditures financed by business sector	Eurostat
INPUT - Innovation & entrepreneurship		
3.1	SMEs innovating in-house (% of SMEs)	Eurostat: CIS
3.2	Innovative SMEs co-operating with others (% of SMEs)	Eurostat: CIS
3.3	Innovation expenditures (% of turnover)	Eurostat: CIS
3.4	Early-stage venture capital (% of GDP)	Eurostat
3.5	ICT expenditures (% of GDP)	Eurostat
3.6	SMEs using non-technological change (% of SMEs)	Eurostat: CIS
OUTPUT – Application		
4.1	Employment in high-tech services (% of total workforce)	Eurostat
4.2 new	Exports of high technology products as a share of total exports	Eurostat
4.3	Sales of new-to-market products (% of turnover)	Eurostat: CIS
4.4	Sales of new-to-firm not new-to-market products (% of turnover)	Eurostat: CIS
4.5	Employment in medium-high and high-tech manufacturing (% of total workforce)	Eurostat
OUTPUT - Intellectual property		
5.1	EPO patents per million population	Eurostat
5.2	USPTO patents per million population	Eurostat
5.3 new	Triadic patent families per million population	Eurostat, OECD
5.4 new	Number of new community trademarks per million population	OHIM15
5.5 new	Number of new community designs per million population	OHIM4

¹⁵ Office for Harmonization in the Internal Market (Trade Marks and Designs): <http://oami.eu.int/>

STATISTICAL ANALYSIS & SURVEYS

RTD	Key Figures (since 2001) http://europa.eu.int/comm/research/era/keyfigures_en.html
European Innovation Scoreboard	<p>1. EIS (since 2001) http://www.trendchart.org/tc_innovation_scoreboard.cfm</p> <p>2. <u>Thematic papers</u></p> <p><u>2002</u></p> <ul style="list-style-type: none"> ▪ Technical Paper No 3 EU Regions ▪ Technical Paper No 5 Thematic Innovation Scoreboard - Life Long Learning for Innovation ▪ Technical Paper No 7 Biotechnology Innovation Scoreboard <p><u>2003</u></p> <ul style="list-style-type: none"> ▪ Technical Paper No 3: Regional innovation performances ▪ Technical Paper No 4: Sectoral Innovation Scoreboards ▪ Technical Paper No 5: National Innovation System Indicators <p><u>2004</u></p> <ul style="list-style-type: none"> ▪ EXIS: An Exploratory Approach to Innovation Scoreboards ▪ Exploring Innovation Performances by Sectors ▪ Sector scoreboards database ▪ Developing Indicators for Skills and Innovation (by Edward Lorenz) ▪ Methodology report <p><u>2005</u></p> <ul style="list-style-type: none"> ▪ Evaluating and Comparing the innovation performance of the United States and the European Union (expert report by G. Dosi, P. Llerena and M. Sylos Labini) (July 2005)
Innobarometer	Opinion polls carried out by the European Commission (since 2001) http://www.cordis.lu/innovation-smes/src/innobarometer.htm
Competitiveness reports	Economic analysis in the area of competitiveness and results from benchmarking, monitoring and co-ordinating exercises (the Enterprise Policy Scoreboards) from 1999 onwards: http://europa.eu.int/comm/enterprise/enterprise_policy/competitiveness/index_en.htm

RTD	Main documents related to the Innovation-SMEs programme : http://www.cordis.lu/innovation-smes/src/library.htm
	Mix of Public Support Mechanisms http://europa.eu.int/comm/research/era/3pct/pdf/report-mixpublicsupport.pdf
	Guarantee mechanisms http://europa.eu.int/comm/research/era/3pct/pdf/report-guaranteemechanisms.pdf
	Risk capital http://europa.eu.int/comm/research/era/3pct/pdf/report-riskcapital.pdf
	Direct measures http://europa.eu.int/comm/research/era/3pct/pdf/report-directmeasures.pdf
	Fiscal measures http://europa.eu.int/comm/research/era/3pct/pdf/report-fiscalmeasures.pdf
	Expert group - Strategic Dimensions of Intellectual Property Rights in the context of Science and Technology Policy
	Expert group - Role and Strategic Use of IPR in International Research Collaboration
	Workshop report: 'Towards a common view on the features of grace period'
	Expert group report - Strategic Use and Adaptation of Intellectual Property Rights
	Systems in Information and Communications Technologies-based Research
	Expert group report - Guidelines for the management of intellectual property in publicly-funded research organisations http://europa.eu.int/comm/research/era/ipr_en.html
	Trend Chart

¹⁶ All Innovation Papers (documents marked by a number in the first column) available under: <http://europa.eu.int/comm/enterprise/library/lib-innovation/innovation-papers.htm>

	<ul style="list-style-type: none"> ▪ http://www.trendchart.org/ws_paper.cfm?ID=3 ▪ Collaboration between Innovation Programmes and Policy Agencies in Europe April, 2005 ▪ http://www.trendchart.org/ws_paper.cfm?ID=5 ▪ Innovation and e-Business May 2005 ▪ http://www.trendchart.org/ws_paper.cfm?ID=6 ▪ Valorising Innovation Capacity September 2005 ▪ http://www.trendchart.org/ws_paper.cfm?ID=7 ▪ The Innovation Gap between EU & US: Myth or Reality? November 2005 ▪ http://www.trendchart.org/ws_paper.cfm?ID=9 ▪ New Trends in IPR Policy: The challenge of strategic patenting - Luxembourg June 2003 ▪ http://www.trendchart.org/tc_workshop.cfm?ID=1 ▪ Innovative Hot Spots in Europe : policies to promote trans-border clusters of creative activity - Luxembourg May 2003 ▪ http://www.trendchart.org/tc_workshop.cfm?ID=2 ▪ The future of the European Innovation Scoreboard - Luxembourg Februari 2003 ▪ http://www.trendchart.org/tc_workshop.cfm?ID=3 ▪ Improving Trans-National Policy Learning in Innovation – Luxembourg November 2002 ▪ http://www.trendchart.org/tc_workshop.cfm?ID=4 ▪ Increasing the impact of Lifelong Learning policies on innovation - Luxembourg October 2002 ▪ http://www.trendchart.org/tc_workshop.cfm?ID=5 ▪ Innovation Policy in Candidate Countries - State of play and priorities for community action Luxembourg June 2002 ▪ http://www.trendchart.org/tc_workshop.cfm?ID=6 ▪ The use of fiscal incentives to boost innovation - Brussels April 2002 ▪ http://www.trendchart.org/tc_workshop.cfm?ID=7 ▪ The changing role of public support to academic spin-offs - Luxembourg February 2002 ▪ http://www.trendchart.org/tc_workshop.cfm?ID=8 <p>4. Thematic Trend reports (2000-2003) http://www.trendchart.org/tc_trendreport.cfm</p> <ul style="list-style-type: none"> ▪ Industry-Science relations ▪ Innovation financing ▪ Intellectual Property Rights ▪ Start-up of technology-based firms
	<p>“Improving Technology Transfer Institutions” European Commission <i>Best Project</i>, 2004 http://europa.eu.int/comm/enterprise/enterprise_policy/competitiveness/doc/tti_typology.pdf</p>
Trend Chart	<ul style="list-style-type: none"> ▪ Trend Report: IPR: Strategic patenting, April 2003 ▪ Thematic Trend Report - Innovation and IPR - October 2003 ▪ Trend Report - Innovation and IPR - September 2002 ▪ Trend Report: Innovation and IPR, September 2001 ▪ Trend Report: Innovation and IPR, April 2001 ▪ Trend Report: Innovation and IPR, December 2000 ▪ Thematic Trend Report on "Innovation and IPR", June 2000 <p>http://trendchart.cordis.lu/Reports/index.cfm?fuseaction=TrendReports</p>
2	<p>Innovation policy in a knowledge-based economy (2000) http://www.cordis.lu/innovation-policy/studies/gen_study4.htm</p>
4	<p>Getting more innovation from public research (2000)</p>

	http://www.cordis.lu/innovation-policy/studies/tt_study1.htm
5	European innovative enterprises: Lessons from successful applications of research results to dynamic markets (2000) http://www.cordis.lu/innovation-policy/studies/tt_study2.htm
6	Corporate venturing in Europe (2000) http://www.cordis.lu/innovation-policy/studies/fi_study5.htm
7	Funding of new technology-based firms by commercial banks in Europe (2000) http://www.cordis.lu/innovation-policy/studies/fi_study6.htm
8	Innovation management: Building competitive skills in SMEs (2000) http://www.cordis.lu/innovation-policy/studies/im_study1.htm
9	Promoting innovation management techniques in Europe (2000) http://www.cordis.lu/innovation-policy/studies/im_study2.htm
10	Enforcing small firms' patent rights (2000) http://www.cordis.lu/innovation-policy/studies/im_study3.htm
11	Building an innovative economy in Europe (2001) http://www.cordis.lu/innovation-policy/studies/ca_study1.htm
12	Informal investors and high-tech entrepreneurship (2001) http://www.cordis.lu/innovation-policy/studies/fi_study4.htm
13	Training needs of investment analysts (2001) http://www.cordis.lu/innovation-policy/studies/fi_study3.htm
15	Guarantee mechanisms for financing innovative technology (2001) http://www.cordis.lu/innovation-policy/studies/fi_study2.htm
18	Innovation and enterprise creation: Statistics and indicators (2001) http://www.cordis.lu/innovation-policy/studies/gen_study2.htm
19	Corporation tax and innovation (2001) http://www.cordis.lu/innovation-policy/studies/fi_study1.htm
20	Assessment of the Community regional innovation and technology transfer strategies (2002) http://www.cordis.lu/innovation-policy/studies/geo_study2.htm
21	University spin-outs in Europe - Overview and good practice (2002) http://www.cordis.lu/innovation-policy/studies/im_study4.htm
23	Innovative small and medium-sized enterprises and the creation of employment (2001) http://www.cordis.lu/innovation-policy/studies/gen_study6.htm
24	The development and implementation of European entrepreneurships training curriculums
25	Third European Forum for Innovative Enterprises. Proceedings of the Forum held in Stockholm on 8-9 April 2002)
26	Co-operation between the research system and industry to promote innovative firms
	Future directions of innovation policy in Europe <i>Proceedings of the innovation policy workshop held in Brussels on 11 July 2002</i> http://www.cordis.lu/innovation-policy/studies/gen_study9.htm
27	Entrepreneurial innovation in Europe <i>(review of 11 studies of innovation policy and practice in today's Europe)</i> http://www.cordis.lu/innovation-policy/studies/ca_study4.htm
28	Innovation tomorrow (2002) http://www.cordis.lu/innovation-policy/studies/gen_study7.htm
30	PAXIS - Results and policy recommendations http://europa.eu.int/comm/enterprise/library/innovation-papers/paxis_issue30.pdf
32	Growth paths of technology-based companies in life sciences and information technology (2003) http://www.cordis.lu/innovation-policy/studies/gen_study10.htm
35	Product innovation: Issues at stake for enhancing business creativity
36	Industrial relations as a key to strengthening innovation in Europe (2003) http://www.cordis.lu/innovation-policy/studies/home.html

IMPACT ASSESSMENTS & PUBLIC CONSULTATIONS

Impact assessment and ex-ante evaluation of the RTD 7th Framework Programme - SEC(2005) 430 of 6 April 2005
Impact assessment of the Competitiveness and Innovation Framework Programme (CIP) - SEC(2005) 433 of 6 April 2005
Stakeholder consultation on the Framework Programme for Competitiveness and Innovation (CIP) http://europa.eu.int/comm/enterprise/enterprise_policy/cip/consultation.htm
Trend Report: " Public Debate on Innovation ", April 2003 http://trendchart.cordis.lu/Reports/index.cfm?fuseaction=TrendReports
Public consultation on an Innovation Action Plan (2004): http://europa.eu.int/comm/enterprise/innovation/consultation/index_consultation.htm
Open consultation on the 7th Framework Programme for Research and Development– Rules for participation – simplification measures http://europa.eu.int/comm/research/consultations/list_en.html#open
Consultations carried out on the preparation of the 7th Framework Programme for Research and Development (http://europa.eu.int/comm/research/consultations/list_en.html) <ul style="list-style-type: none"> ▪ Consultation on Social Sciences and Humanities in the 7th Framework Programme ▪ Research Themes in FP7 ▪ EU Science and Technology Foresight in FP7 ▪ Science and technology, the key to Europe's future - guidelines for future European Union policy to support research ▪ The role of the universities in the Europe of Knowledge
Cohesion Policy in Support of Growth and Jobs: Community Strategic Guidelines, 2007-2013 (closing date: 30 September 2005): http://europa.eu.int/comm/regional_policy/consultation/index_en.htm

EVALUATION AND MONITORING REPORTS

Annual monitoring reports of the 6th Framework Programme for Research and Development
Five-Year Assessment http://www.cordis.lu/fp5/5yr_reports.htm
New instruments mid-term evaluation ("Marimon Report") http://www.cordis.lu/fp6/instruments_review
Annual report on the Research and technological development activities (since 1998) http://europa.eu.int/comm/research/reports/index_en.html
Ex-post evaluation of innovation initiatives carried out in evaluation of DG Enterprise and Industry activities in the field of innovation , The European Evaluation Consortium (TEEC) for the European Commission, (final report due in October 2005)
Study on Monitoring and evaluation of innovation programmes , Louis Lengrand & Associés for the European Commission, (ongoing – Final Report due in October 2005)
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OTHER REFERENCE DOCUMENTS

Action Plan on Entrepreneurship http://europa.eu.int/comm/enterprise/entrepreneurship/action_plan.htm
Innovation Communication 2003: Updating the Union's approach in the context of the Lisbon strategy. http://www.cordis.lu/innovation-policy/communications/home.html
The 3% action plan: http://europa.eu.int/comm/research/era/3pct/index_en.html
Lisbon Action Plan and integrated guidelines : http://europa.eu.int/growthandjobs/index_en.htm
i2010 initiative : http://europa.eu.int/information_society/eeurope/i2010/index_en.htm
Environmental Technologies Action Plan (ETAP): http://europa.eu.int/comm/environment/etap/etap.htm
Strategic guidelines for cohesion : http://europa.eu.int/comm/regional_policy/sources/docoffic/2007/osc/index_en.htm
First Action Plan for Innovation in Europe (1996): http://dbs.cordis.lu/fep-cgi/srchidadb?ACTION=D&SESSION=&DOC=1&RCN=EN_RCN:356005&CALLER=DOCS_LIB_INNO
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