

Microsoft position on the “Guidelines for future European Union policy to support research”

1 - Introduction

As a global leader in ICT research and innovation, Microsoft welcomes the opportunity to comment on the Communication from the Commission, entitled “*Science and technology, the key to Europe’s future – Guidelines for future European Union policy to support research*”¹. Although Microsoft supports the comments submitted by EICTA on this Communication, we believe that the issues addressed by the Commission are of such critical importance to the ICT industry that separate comment is warranted.

ICT technologies have yielded tremendous economic, cultural and social rewards throughout the world, and will continue to do so if properly supported and funded. This year, Microsoft is investing some \$7 billion -- approximately 20 percent of its net revenue -- in ICT research & development. This amount represents the highest investment in R&D of any global technology company, both in terms of the percentage of company revenues and the absolute dollar amount. Approximately 25,000 of our 55,000 workers (45 percent) are engaged in some aspect of research & development, including an estimated 1,000 persons involved in basic research. Microsoft’s investments extend to R&D labs in Europe -- **Vedbæk (Denmark), Cambridge (UK) and Aachen (Germany)** -- as well as Microsoft’s pre-existing research facility in **Dublin (Ireland)**.

KEY MESSAGES

- **Increasing the share dedicated to ICT in the overall R&D budget has benefits beyond the ICT sector itself and will help to improve Europe’s competitiveness.**
- **Promoting better cooperation between science and industry will increase the economic impact of R&D investment.**
- **Strong intellectual property protections underlying the FP 7 program will promote private and public sector investment in new technologies.**
- **Funding of high quality “big bet” research is critical to the long-term success and growth of the software and ICT industries in Europe.**

¹ COM(2004) 353, 16.06.2004.

Microsoft thus applauds the Commission's shared commitment to support research and its recognition that the Lisbon objectives can be attained only through increased research efforts at the overall European level. We fully agree that a **holistic approach**, as reflected in the Commission's proposed six objectives, is necessary to increase R&D investment from less than 2% to the "3% objective" for 2010 and to solve the "European paradox." As demonstrated by the importance and **growth of our investments in R&D in Europe**, we are ready to play an increasing role in this respect, something that Erkki Liikanen, European Commissioner for the Information Society and Enterprise, recognised when Microsoft decided to invest in a new R&D centre in Aachen in 2003: "This is a step in the right direction that we invite more companies to emulate," he said, "since only by means of such individual investment decisions will Europe reach its stated goal of allocating 3% of GDP per year to R&D."

Microsoft wishes to emphasize the following general principles, which we consider essential to Europe's global leadership in R&D efforts and its ability to solve the "European paradox" - i.e., the transformation of knowledge into commercial products and economic growth. Microsoft encourages the Commission to keep these principles in mind when implementing each of the proposed six objectives:

- **Promote coordination between science and industry:** The Commission should, at all times, strive to promote coordination between science and business. Studies on innovation, including studies commissioned by the European Commission², have demonstrated time and time again that innovation is taking place within a dynamic, non-linear system characterized by a creative feedback cycle between fundamental and applied research. Thus, in order to solve the European paradox within the ICT and other sectors, it is imperative that the Commission implement each of its research objectives in a manner that **minimizes isolation between industry and academia**.
- **Adopt IPR policies that promote private and public sector investment in new technology:** The cycle of government-funded and university-developed basic IT research laid the foundation for much of today's Internet or mobile phone networks. Continued government funding of basic research enables long-range exploration of areas that are beyond the private sector's collective reach and helps develop the workforce we need. In order to transform government-funded research into commercial products, however, it is imperative that **government policies permit all participants, including commercial entities, to develop and commercialize resulting innovations**. IPR policies should thus allow each participant in overall research and development efforts to pursue its objectives, meaning that public institutions should be able to access and use the results of research, and, at the same time, private companies should be allowed to retain and exploit their intellectual property rights in resulting innovations. As mentioned by EICTA's paper, the **current restrictions on IP transfer to affiliates and third parties in FP6 can act as a barrier to full participation by global industry players in EC-funded research**.

Beyond the six objectives stressed by the Commission, Microsoft urges the Commission to implement **three additional important policies** (further explained in the last section of this position paper): (i) to strengthen the European patent regime, (ii) to ensure that government procurement policies promote research and innovation, and (iii) to encourage a culture that promotes risk-taking in the context of scientific research and technological development.

² Innovation Policy in a Knowledge-based Economy. A MERIT study commissioned by the European Commission Enterprise Directorate General, June 2000.

2 - European ICT research and the “3% Objective”

Microsoft strongly supports the Commission’s goal to increase the overall Union’s research budget. Beyond this general goal, however, we encourage the Commission to **increase the share dedicated to ICT in the overall R&D budget** for the following reasons:

- Europe substantially trails the U.S. and Japan in ICT R&D, both in terms of public funding and private sector investments. According to a 2000 OECD report, Japan’s investment in ICT R&D represented 34% of all R&D efforts, and the U.S. investment in ICT accounted for 35% of the overall R&D budget. In comparison, the EU’s investment in ICT R&D represents only 18% of the R&D budget. Private R&D expenditures equalled 5.9% of the production of the ICT sector in Japan and 4.9 % in the US, as compared to 1.2 % in the EU.
- Of the four “key areas of growth” identified in the Communication, two belong to the ICT sector, namely microelectronics and telecommunications. This factor alone would warrant an increased share for the ICT R&D budget. We also believe, however, that **software should be considered a key area of growth for the Union**³, thus further demonstrating the need to increase the percentage of R&D funding dedicated to the ICT sector.
- Investment in **ICT R&D has beneficial effects far beyond the ICT sector itself**. ICTs enable increased interconnectivity between “knowledge agents” and are critical to knowledge generation in many scientific fields, be they “pure sciences” (biology, nanotechnologies, high energy physics, etc.) or “applied engineering”. No other technology investment would move Europe further towards the goal of being a true “knowledge-based economy” than increased investment in ICT R&D.

3 - Creating European centres of excellence through collaboration between laboratories

Microsoft strongly agrees that partnership between government, industry, and academia is critical to innovation. As noted in EICTA’s comments on FP6⁴, the Commission should aim to improve implementation, particularly in the following areas:

- **Reduce oversubscription:** Reduce oversubscription by providing a clearer focus for the calls and unambiguous evaluation criteria.
- **Reduce delays:** Work with the constituencies to reduce the costs of submission and contract negotiations and, in particular, to reduce the time between proposal preparation and project start (which now takes close to a year -- an unacceptably long period in the fast moving ICT industry).
- **Increase simplicity:** Reduce administrative and compliance costs and burdens by emphasizing **working results**, as opposed to detailed progress reports. While the Commission unquestionably has an important role to play, it should avoid micro-management.
- **Ensure stability:** Reduce the cost of getting organised for the various instruments and procedures by favouring stability to the extent possible. As mentioned by EICTA, the Networks of Excellence (NOE) should be implemented in a way that encourages active

³ Indeed, IDC forecasts a 7% annual growth for the software industry over the 2003-2008 period.

⁴ EICTA position on the first two IST Calls for proposals of the 6th Framework Programme for R&D of the European Union, Brussels, 23 March 2004.

industry participation. Microsoft's experience with NOE has proven to be difficult: we are fully participating in only one NOE (Fidis) and joined a few "industrial advisory boards" as a second choice solution. Moreover, it remains unclear how NOE will take advantage of "industrial advisory boards," and we see a potential risk of those Networks isolating, even more than today, "academic research" and "industrial research".

4 - Launching European technological initiatives

Microsoft recognizes the need to complement FP6 instruments with stronger/broader initiatives as described by the ETP proposal and, clearly, would be pleased to play an active role in the appropriate technology platforms within the IST domain, i.e., Mobile Communications, Embedded Systems, and Networked and Electronic Media. Encouraging research and innovation at the European level is not enough; instead, **the ETP should position Europe as the leader in global R&D by promoting global cooperation.** Many European, North American and Asian ICT companies have converted from a centralised R&D laboratory to global R&D networks because of the importance of accessing world-wide sources of technical knowledge. For this same reason, the ETP should include all partners able and willing to contribute, regardless of where they are headquartered. Only by exposing European research teams to world-class partners from inside and outside Europe can the Commission achieve a first-class research regime and a successful knowledge-based economy throughout Europe.

5 - Stimulating the creativity of basic research through competition between teams at European level

Microsoft welcomes the Commission's proposal to **increase the funding of fundamental research in Europe** and for such **funding to be allocated competitively based on scientific excellence.** Such an initiative will enable the most productive research teams to maintain or achieve worldwide expertise. In addition, funding of "big bet" research is critical to the long-term success and growth of the software and ICT industries. Microsoft is concerned that much of today's computer science research is incremental in nature and is not driving towards the next big breakthroughs. In a world that is moving from hundreds of millions of interconnected computers to billions of interconnected intelligent devices, concurrency and complexity necessitate radical and "big bet" research. With that said, however, this support should supplement, not replace, funding for other FP7 priorities or fundamental research.

Moreover, in order to promote and maintain coordination between science and industry, various instruments should be used to complement the "steering board" mechanism proposed in EICTA's paper. The creation of the ERC and the increase in "fundamental" research in Europe **should not draw basic research away from FP7 "classical instruments"** (especially Integrated Projects or STREPs). Also, **the teams selected for Excellence by the ERC should be encouraged to participate in FP7 "classical" projects and "fertilise" European business.** Especially the development of professional Knowledge Transfer Office within Universities and Public Research Organisation should be encouraged.

6 - Making Europe more attractive to the best researchers

As noted in EICTA's comments, the Commission should strive to lower administrative barriers that reduce the mobility of researchers between public and private sectors and between EU and non-EU facilities:

- Exchanging researchers between public and private laboratories should be promoted as a skills-enhancing experiences. The **exchange programs should not be limited to**

fundamental research but should also include industrial research and innovative companies.

- **Reforms are needed to remove obstacles that impede the mobility of researchers,** (be they Europeans or non Europeans), including with respect to social security, pensions and taxes.

7 - Developing research infrastructure of European interest

The Commission's efforts to promote the development of a research infrastructure have so far focused only the academic research community and physical infrastructures. Microsoft supports EICTA's view that **access to such physical infrastructures** (for ex. the physical network GEANT and the CERN facilities) **could**, in many cases, **prove very beneficial to the European industry** in order to test innovative solutions and products. **At the same time** we urge the Commission to expand its focus to include software infrastructures. **Advanced computing platforms or "software infrastructures" are now absolutely critical to virtually all science and engineering disciplines.** Virtually every scientific discipline has become a computational science. Breakthroughs in areas such as computational biology, nanotechnology and quantum computing are directly dependent on access to sophisticated software tools. Europe thus needs to reinforce investment in IST to develop an infrastructure for **high-performance science.** **Breakthroughs needed in software technologies** include simulation tools, graphical analysis tools as well as data access (including digital libraries) and collaboration (including real time) tools. An example of such work is the collaboration between Microsoft and the community of astronomy researchers for the creation of a "virtual telescope".⁵

8 - Improving the coordination of national research programmes

Beyond the recommendations set forth in EICTA's comments, Microsoft urges the Commission to consider the following measures to improve coordination of national research programmes:

- Outside of FP6 or Eureka programs, collaboration between European research labs remains extremely difficult. The Commission should develop **policies and incentives to facilitate cross-border collaboration even outside the EC coordinated programs.** Mechanisms should be developed to encourage and facilitate the participation of laboratories, based in other Member States, in national programs.
- **The Commission should implement policies and incentives to promote the development of cross-border clusters.** Microsoft strongly supports the creation of "Centers of Excellence" or clusters in Europe. Indeed, we have based our research centres in areas, such as Cambridge and Aachen, that combine a strong university, a significant number of public and private research organisations and an active family of technical SMEs. Many regions would benefit from the development of cross border clusters (see for example the Aachen-Maastricht-Liège cluster). **EC should develop policies and incentives to develop successful examples of such cross border clusters.** These should include incentives or policies facilitating the participation of entities in cross-border clusters in nationally funded research in any of the countries covered by the cluster.

⁵ See for instance: <http://research.microsoft.com/~gray/SDSS/>

9 - Other measures of key importance

In addition to the proposed six objectives, Microsoft encourages the Commission to implement the following three complementary policies:

a. Strengthen Europe's patent regime

The Lisbon Agenda aims for Europe to become the “most competitive and dynamic knowledge-based economy in the world” by 2010. A strong intellectual property regime is essential to the achievement of this goal. As the Commission has long recognized, IPR protection promotes innovation by encouraging inventors to invest in new technologies and to license the fruits of those investments. A strong IPR regime also attracts foreign investments in local R&D facilities, providing jobs and access to technology for the host country. The positive impact of ICT R&D is thus dependant on the adequacy of the IPR environment in Europe, as rightly noted by the OECD⁶.

As emphasized in another EU-sponsored report⁷, the Commission should implement balanced IPR policies that recognize the important linkage between intellectual property and innovation and facilitate licensing of new technologies: “The straight licensing of IPR to existing companies or to new companies, without protracted involvement of the PRO in the development of the potential applications, remains one of the main forms of knowledge transfer”. In this regard, **the work conducted by EIRMA⁸ and EUA⁹ to define a balanced relationship between IPR, innovation and science should be encouraged.**

Moreover, the Commission should strengthen the European patent regime by adopting a Community patent and extending adequate patent protection to computer-implemented inventions. Patents are vital to innovation, for they are the primary, and sometimes only, legal means by which inventors can realize the economic value of their innovations in the marketplace. The adoption of the **Community patent** which was considered as a priority in the Lisbon agenda unfortunately seems more remote today than a year or two. We believe the creation of the European **Research Area should be accompanied by the creation of a unique patent with the same geographical coverage.** We thus support all the efforts of the Commission in creating such a system that the European research also needs. The recent debates surrounding the draft Directive on the patentability of computer-implemented inventions also illustrate that Europe still misses a vision and a credible legal framework to support the transfer of basic research into economic benefits. Without the right IP framework, many inventions in the ICT field would not be brought to the market the way they should. Patents have to be considered as enablers as they allow firms to license their technology, and this dissemination of technology through cross-licensing is indispensable for creating the right technology platforms that Europe still need in the ICT sector. We hope the EU institutions will overcome the hurdles created by those who oppose patents in relation to IT.

b. Encourage the “pull” side

As stated by the Five-Year Assessment: 1999-2003, Research and technology development in Information Society Technologies interim report, “European IST-RTD

⁶ OECD, ICT and Economic Growth - Evidence from OECD countries, industries and firms, 2003.

⁷ Management of intellectual property in publicly-funded research organisations: Towards European Guidelines <http://europa.eu.int/comm/research/era/pdf/iprmanagementguidelines-report.pdf>

⁸ European Industrial Research Management Association.

⁹ European University Association.

should be accompanied by additional measures aimed at innovation to improve the efficient uptake of RTD results and scientific breakthroughs by industry (Recommendation 10)". European universities should, as noted above, be encouraged to partner and share knowledge with business (the technology "push"); at the same time the Commission's policies should encourage companies to use innovative science and technology to create competitive advantage (the "pull"). Too many companies lack awareness of scientific and technological advances, or the ability to use them. In many industries Europe invests less in research and development than its competitors, and European companies are less ready to innovate than their global competitors. The Commission and other public authorities can encourage the "pull" side of innovation by adopting government procurement policies that put pressure on suppliers to integrate innovative research and technologies into their products and services.

c. Encourage risk taking

Finally, the Commission should implement policies that encourage inventors to take risks in the context of scientific research and technological development. This goal obviously has many dimensions but would benefit significantly from **an assessment of European Bankruptcy laws in view of eliminating impediments to risk-taking** and limiting the "social stigma" associated with bankruptcy. As noted in the DG enterprise report "some failure is concomitant with responsible initiative and risk-taking and must be mainly envisaged as a learning opportunity and calls for an assessment of national bankruptcy laws in the light of good practice."

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Microsoft appreciates the opportunity to comment on the FP 7 Consultation and would be pleased to discuss its views in greater detail. For further queries, please contact Pierre-Yves Saintoyant at +49 (0) 241 99 78 4 11 or *via* email at pierresa@microsoft.com.