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“INNOVATE FOR A COMPETITIVE EUROPE”

A new Action plan for innovation

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INTRODUCTION

A key component of competitiveness and growth

Innovation will enable Europe to meet the challenge of competitiveness. It will ensure that Europe can raise productivity and generate more added value in the face of ever increasing international competition. Future growth and employment depend on it directly.

There is a persistent 30% gap in GDP per head between the EU and the US. The combined effects of a lower employment rate, shorter working time and lower hourly productivity in the EU explain much of this gap¹. It is innovation that holds the key to hourly productivity.

Insufficient innovation is a significant cause of a disappointing growth rate. The European Innovation Scoreboard² shows that Europe lags behind the US in 10 out of 11 innovation indicators, including early stage venture capital, tertiary education, patenting and business R&D.

As a result, technology, in particular ICT, is penetrating the economy and society too slowly. ICT expenditure in 1992-99 was 5.6% of GDP in the EU compared to 8.1% in the US.³ In the service sector, where Europe is faced with particular productivity problems, slowness of ICT penetration and of organisational change are another problem.

Thus while some sectors such as chemicals, semiconductors, machinery and other electrical machinery sectors are narrowing the productivity gap, others such as computers, shipbuilding, plastics and scientific instruments, are widening it.

Further, the returns on R&D in manufacturing industry have been declining in most of Europe since 1995. At the same time, despite the fact that returns on R&D are rising over time in services, both in the US and in the EU, R&D is having more impact on output growth in the US service sectors than in the EU.

Recent Commission initiatives, such as the Communications on Industrial Policy in an Enlarged Europe⁴, on Key issues in Europe's competitiveness - Towards an integrated approach and the European Growth Initiative⁵, are intended to foster competitiveness and to stimulate growth and job creation.

The Action Plans on Investing in research⁶ and on the Agenda for Entrepreneurship⁷ support this strategy. This Innovation Action Plan complements the other two. Placing innovation at the heart of enterprises will pull research and entrepreneurship together to create added value and growth on a sustainable basis.

Innovation, the main entrepreneurial tool for gaining new markets, is relevant to all enterprises in every economic sectors. Its importance has been highlighted in the policy perspectives and financial planning for an enlarged Europe, which identify innovation as an engine for growth⁸, as well as with the 2003-2005 Broad Economic Policy Guidelines.

This Action Plan for Innovation, builds on the Commission's earlier Communication on Innovation Policy⁹, the conclusions of the Council of October 2003 and the recent Communication on Industrial Policy¹⁰.

Innovation action plans have been developed by the Dutch, Irish, French, German and British authorities. Several other Member States have also taken initiatives in the field. Innovation figures in the strategies of the new Member States to ensure the success of accession. There is

an emerging consensus on the importance of innovation as a driver for growth and a growing political will to give it high priority, both for the EU and for its Member States. This development is reflected in the United States, where the major innovation initiative has a global perspective, emphasises the importance of a sectoral approach and links growth, prosperity and innovation.

A fresh approach

It oversimplifies the innovation process to assert a direct cause-and-effect link between research and innovation. As the Communication of March 2003 showed, innovation is, at heart, a business process. If innovation is the commercial application of existing knowledge in a new context¹¹, technologically-driven innovation is only one form of this. Innovation is distinct from research, which results in new knowledge, and from the entrepreneurial function that spots market opportunities for products and services. It is the result of the interaction of these two functions. But the market for knowledge transfer and absorption is far from perfect. It is frequently opaque and lack of information creates barriers to market clearing and limits competition. Thus the reluctance of businesses to reveal their innovative business projects conceals their demand for the knowledge that will provide the technical solutions they need. Moreover, the willingness of those who possess such knowledge to disclose may be tempered by their fear of giving away their potential source of reward. Even within companies, differences of culture between the research side and production or marketing may create problems in clearing the market between the demand for knowledge and the supply of it.

Businesses also find it difficult to incorporate technologies which are not part of their traditional field of activity and to access new types of skills. Financial risks can be high for innovation, profitability may be delayed by development hitches and tax may not be neutral between success and failure. Institutional or regulatory obstacles can delay or undermine the emergence of new markets and access to them.

This calls for general measures to streamline innovation processes and direct action on specific market failures. Direct action must be carefully targeted and spill-over avoided, if it is to help rather than hinder innovation.

The objectives of this Action Plan address the above issues and the shortcomings identified by industry in the Community Innovation Survey¹². Regulation, the market for knowledge and access to resources are the three main problems addressed. Actions are also set out to develop good governance for innovation and to ensure the availability of necessary information. The objectives take account of the diversity of priorities and practice of the Member States. Under each objective, a number of actions are proposed. Some of these are intended to be undertaken primarily by the Commission, some by the Member States. In each case it is made clear who is intended to take action.

Innovation is an urgent and common challenge for Europe. That is why this Action Plan has high ambitions.

1. OBJECTIVE 1 - INNOVATE EVERYWHERE

Business practices are gradually being transformed by innovation management, new ways of organising change, techniques to foster creativity, design, new production methods, and new relations with suppliers and clients (such as e-business). These have proven their effectiveness, particularly in conjunction with investment in ICT.

These forms of innovation have not received as much attention as technological innovation. Yet weakness in non-technological innovation has been identified as one cause of Europe's disappointing economic performance¹³. It is therefore important that European businesses in all sectors of economic activity should give due attention to non-technological innovation, as well as to technological innovation.

Innovation of all types is particularly relevant for the service sector, both for its own needs, and as a product of business services.

The parameters of innovation differ widely between sectors such as pharmaceuticals, tourism or textiles. The relative importance of investment in research, the type of innovation (product, service or process), the influence of implicit knowledge, the product's life expectancy (if there is a product) can be very different according to the sector. Innovation related to intangibles and to marketing of new services is particularly important.

Action must be taken to identify and promote all the facets of innovation. These include methods of innovation management, changes in organisation, development of production methods, economic intelligence, stakes in global markets, identifying where growth and development is occurring, making the most of the technology and knowledge available, intellectual property and managing intangibles and sectoral benchmarks.

In many of these fields there is a lack of analysis, a failure to structure and transmit knowledge and a lack of professionalism. This must be overcome and adapted to various fields of activity.

In the first instance, it is up to Member States to address these problems. They can direct research towards non-technological innovation, rallying educational and training institutions to the cause, particularly universities and business schools, in order to step up analysis, reflection, teaching and lifelong learning in these fields. Business associations and chambers of commerce can disseminate good practice.

The European Union suffers from an innovation deficit and a lack of competitiveness in certain sectors (information technology, electronics, etc.), and it has seen its positions eroded in others due to competition from industries in low-wage countries.

But it is also strong in some cutting-edge sectors such as aeronautics and telecommunications or in fields, such as the luxury industry, which require creativity and high levels of quality. It also produces better cars, and has shown itself to be dynamic with regard to environmental technologies etc. So decline is not inevitable: "European excellence" exists and must be identified, analysed and promoted. Such a "showcase for excellence" needs to be promoted to spread the culture of innovation through examples of best practice and success stories. Awarding prizes or labels of excellence, as is done in a number of Member States, and also, through the PAXIS programme¹⁴, at European level, could foster the creation of innovative businesses. It could also serve for highlighting the growing importance of industrial and intellectual property in the form of trade marks and designs. Regarding design, it is for instance noteworthy that among the top ten firms registering design in Europe, four are from the US or Japan. Moreover, the total number of European design submissions in 2003, i.e. about 37.000, was originating from only little more than 10.600 applicants. This implies that the number of different firms using European design registration is very limited, although the cost (maximum 350 Euro per design) is moderate, compared to the advantages. Therefore, a wide room for progress exists.

Member States should continue their action by highlighting role models: innovative entrepreneurs or innovation managers.

Action 1

➤ Innovation benchmarking and promoting excellence at European level

The Commission will expand the collection of data on business innovation and analyse its forms and their interaction. It will sectoral innovation models (taking into consideration existing initiatives such as e-Business W@tch¹⁵), including in the service sector, establish sectoral benchmarks and promote economic intelligence and methods of innovation management. Networks will be set up and best practices exchanged at European level. The Commission invites the **Member States** to support it in this and to join it in a network bringing together the national initiatives in this area.

The Commission and the Member States must promote excellence. To this end, information on innovation leaders and on the winners of competitions for young innovative businesses should be collected in a *Scoreboard of Innovative Enterprises*., **The Commission** will provide opportunities for those who award the prizes and honours nationally and regionally to share their experiences. As a way of commending non-technical innovation, it will encourage and organise events such as a European award for design and a European entrepreneurs' day in a different European city each year.

2. OBJECTIVE 2 - GET INNOVATION ON THE MARKET

Regulation can both help and hinder innovation. Improving the regulatory framework is a key element to boost innovation. Regulatory and administrative authorities must take account of the way their action affects innovation and of any shortcomings of the market.

Interdepartmental cooperation and the involvement of stakeholders in regulatory work are essential to ensure that trade-offs, direct or indirect effects of regulation on innovation are identified. Impact assessment is a powerful instrument.

This approach is applicable in many areas¹⁶. The action on public procurement of the Action Plan "Investing in Research" has already yielded results. The new directives on public procurement allow contracting authorities to set specifications that stimulate bidders to go beyond current best available technology, pulling the market towards more innovative solutions¹⁷.

Market demand, market access and customer attitudes strongly influence enterprises' innovation behaviour¹⁸. This is not purely a business issue. Legislation can act as a catalyst for promoting or discouraging innovation. For instance public procurement, or public activities for ensuring market transparency and consumer confidence, can directly influence potential demand¹⁹. Environmental or safety regulations, anticipated international regulatory trends and international policy diffusion can significantly influence the pace and scope of innovation²⁰.

As pointed out in the Environmental Technology Action Plan²¹, innovation and better environmental, consumer and health protection can go hand-in-hand. Well-designed, technology neutral environmental and safety regulations can help contain the costs associated with the development and industrialisation of environment-friendly technologies and reveal new market opportunities.

Public confidence and the openness of society to novelties are essential to successful innovation. For instance, the growth of e-commerce in Europe is inhibited due to a basic lack of consumer trust in the online marketplace and cross-border trade²². Not only do consumers

not benefit, but business suffers too from this lack of trust in the online marketplace, by loss of economic activity and reduced competitiveness. Consumers who do not feel that the market offers them the best deal will spend and consume less and thus not provide the demand which is necessary to foster innovative businesses.

Consumer confidence cannot be imposed by law. However, well-prepared regulation can help promote confidence that a satisfactory balance between commercial opportunities, risks and public policy has been established. It can lay down procedures for assessing any risks that might be connected with innovative products, in such a way that procedural or other burdens placed on the innovator are proportionate and predictable and, if successfully completed, should lead to acceptance on the market. Experience with genetically modified organisms points up the costs to all concerned of failing to achieve sufficient convergence of views on the acceptability of innovative products and technologies.

The crucial political challenge is to be able to establish procedures which will ensure public confidence in the safety of new products, while providing innovators with a predictable path to the market that avoids unnecessary costs. It is not enough for such a process to be driven by public anxiety. The public needs to be informed about and interested in novelties. At the same time, the consequences of approval procedures that are unnecessarily long, burdensome or unpredictable have to be recognised.

This implies distinguishing between necessary levels of performance and the technical solutions that may be used to achieve them. The **performance-based “new approach” to product regulations** is a good model. European technical regulation should be **technology-neutral**, leaving room for innovative solutions, ensuring stability and legal certainty, while taking into account the size and speed of development of new markets. Unnecessary bureaucratic requirements should not be allowed to extend time-to-market for innovative products or operating licences for new production processes. The Commission has already committed itself to evaluating and simplifying Community legislation. Impact analyses, consultation and the assessment of policy alternatives are key elements²³ of the Commission’s Better Regulation package²⁴, and will help clarify the innovation perspective.

In this context, sectoral high-level competitiveness fora such as STAR 21 Advisory Group for Aerospace, G10 High Level Group on Innovation and the provision of Medicines or LeaderSHIP 2015 High Level Advisory Group on Maritime Industries, are formulating valuable contributions for the assessment of key issues for innovation and competitiveness in their domain, including the technological developments identified in technology platforms, that might encompass better regulation issues.

Voluntary standards, properly used, can help establish the compatibility of innovative concepts and products with related products and so can be a key enabler for innovation. On the other hand, excessive standardisation should not be allowed to reduce the diversity that breeds innovation. SMEs should be more involved in standardisation, to exploit their potential for innovation and to enhance the accountability, openness and consensus-based character of the European standardisation system.

The **involvement of civil society** in regulatory and standardisation processes should be fostered to encourage consumer confidence in product safety and user-friendliness of standards. **Independent regulatory agencies** and their ability to ensure stakeholder involvement and information on the marketing of innovative products can also contribute to this objective. The awareness among regulatory bodies of innovation issues should also be addressed²⁵.

Action 2

➤ Promoting technical regulations and standards that foster innovation.

In the context of Better Regulation, the **Commission** will develop ex-ante assessment of the impact of regulations and standards on innovation. It will develop analytical instruments for identifying and evaluating the size of potential lead markets.

The **Commission and the Member States** should promote dialogue among stakeholders and the involvement of consumers, civil society and SMEs in impact assessment and in the regulatory and standardisation processes notably to improve consumer confidence.

The **Commission** will survey global regulatory trends and establish a standards watch in areas such as environmental legislation, ICT, and food safety. It will identify and disseminate examples of best practice.

3. OBJECTIVE 3 - KNOWLEDGE EVERYWHERE

A dynamic market in knowledge is essential. It is not enough for businesses to rely only on internal research and human resources to maintain their ability to innovate. Indeed, even within companies, the matching of problems to available solutions is not always easy to achieve. European managers rank “*finding or using new technologies*” and “*knowledge sharing or networking*” among enterprises’ most difficult problems.²⁶

The lack of transparency of the knowledge market makes it difficult for companies to access relevant knowledge. SMEs in particular often lack experience in the culture of networking and technology absorption.

Knowledge flows should therefore be facilitated, both across the science-industry interface and within the industry. Companies efforts to access and use the best knowledge available worldwide should be supported. As a matter of fact, it is a serious cause for concern that Europe’s share of patent revenues (an estimated \$120 billion worldwide in 2003²⁷) is decreasing. This suggests that we are losing grounds on a fast growing market, multiplied by 40 in 20 years, but also that the majority of European enterprises are not yet fully taking advantage of the new global market for knowledge. This implies that they might not necessarily get the best technology at the most advantageous price, or do not get the best revenue from their efforts in R&D, or do not develop the most promising partnerships that might open new markets and new avenues for innovation. It therefore suggest that a number of market deficiencies should be addressed in this domain, particularly in favour of SMEs.

The Transfer of Technology Block Exemption Regulation which should enter into force on 1 May 2004 recognises the pro-competitive potential of transfer of technology agreements. It therefore fosters knowledge flow by creating space for the licensing of technology, provided certain restrictions are avoided and as long as certain market share thresholds are not exceeded. It thereby strengthens the incentive for R&D, reduces duplication of R&D, spurs innovation and facilitates knowledge diffusion.

A dynamic market for knowledge depends on stimulating the supply of new knowledge and adapting it to business needs. The Community Framework Programmes for Research and Development and national research programmes clearly have an important role in this. It also depends on encouraging and facilitating knowledge transfer. Fostering links between national, regional and local innovation systems can support networking and clusters, open to cooperation and new ideas, that facilitate knowledge transfer.

3.1. Make the most of intellectual property opportunities

Intellectual property rights underpin the market in knowledge. Without property, there is no market and no incentive to develop and exploit innovation. Intellectual property rights provide for innovators to obtain a return on their investments, whether these are based on scientific, technological or artistic creativity. Licensing of intellectual property is an important potential source of revenue²⁸. It is an intangible resource, a key component of innovative business strategy and a precious source of knowledge and information. Not least, it can point towards potential partners.

IPRs provide both a mechanism for the protection of intellectual property and for technology transfer. But they can also be used to block potential rivals. Intellectual property protection can be used positively or negatively. Its management, use and value varies widely across sectors, regions or business size. Full exploitation of the potential of intellectual property requires sufficient means.

The EU lags behind the United States in the number of patents per head. Although this is not the only relevant criterion, it deserves to be analysed. Europeans obtain one fifth of the patents granted in the United States. Americans register more patents and trademarks in Europe than do Europeans. To remedy this situation, countries such as Ireland, Spain and the Netherlands have set quantitative objectives. Sweden, France and the United Kingdom have set objectives in terms of dissemination or of IPR management.

These gaps reflect differences in law and investment in research and innovation, as well as cultural differences regarding knowledge and awareness. They also reflect the high cost of patents in Europe, and the difficulties faced by European business in using patents to market knowledge.

The proposed Community patent would help to improve Europe's system of intellectual property protection. But with or without it, the Member States, Commission and the European Patent Office must simplify procedures and reduce costs, to make patents more accessible to SMEs. National offices also have a role to play in increasing the use by European business of tools such as trademarks, by dissemination of information and by acting as the first port of call for assistance.

It is not just effective intellectual property protection that is needed. Far greater dissemination of information and improved knowledge of the various systems of protection are needed if the EU is to make the most of its intellectual property.

Action 3.1

➤ Fostering an active intellectual property culture among European businesses

The Commission and the Member States could:

- encourage diffusion and dissemination activities, raising awareness of knowledge contained in existing IP and IPR resources: real and potential value of an IPR; patent information as a business tool and protection and enforcement alternatives; the main tools for this are information campaigns, seminars, brochures and websites;
- create, promote and support “first-line assistance services”: training, advice on representation before the EPO and on professional IP management services, valuation and defence related to IP management, the latter mainly for SMEs, in connection with action on non-technological innovation; identify and promote awareness of enterprises’ concerns with regard to the use of IP protection rights; remove obstacles to new EU action or regulatory developments, at a global level if need be;
- reinforce activity in different fora, whether internal or external (Member States, OECD, EPO, OHIM, WIPO and national patent offices); review, complement, support and improve the existing initiatives and structures.

The Commission will benchmark the cost of patents in various regions of the world.

3.2. Enhance knowledge transfer and absorption

Many large companies worldwide have developed a more outward-looking approach to R&D. They draw on technologies from networks of universities, research institutes, suppliers and start-ups from all over the world. This does not mean that such firms dismantle their internal R&D. Rather, they supplement it with external knowledge. This “**open innovation approach**”²⁹ is also valuable for SMEs. They have every bit as much need to be competitive as larger firms, but are often unable to carry out their own R&D.

Significant progress has been made in **linking national and regional innovation systems** by means of the innovation promotion programmes run under the EU Research Framework Programme. In this context, Member States could make better use of the ERA-NET scheme to coordinate national research and innovation in favour of SMEs. The recently launched CORNET projects on collective research for SMEs provide an example.

The development of technology platforms could accelerate the process. Market foresight from them will help identify key technological challenges to be pursued at a Community level with a view to industrial implementation. Technology platforms must plan for SME involvement. They should also pay attention to incremental innovation, to increase participation and make the development of the technologies in question as efficient as possible.

Clusters and networks have proved to be a highly effective way of triggering innovation. They help share knowledge, including tacit knowledge and know-how. Networking and clustering does not just work among enterprises. It is also successful between research institutions and enterprises.³⁰ Existing pan-European networks and initiatives such as the Innovating Regions in Europe (IRE)³¹ and Innovation Relay Centres (IRC)³² Networks and the Gate2Growth initiative³³, national-based activities, could be exploited further, moving focus from the transfer of knowledge to its absorption. Through increased specialisation, they could develop specific sectoral or thematic expertise.

Clusters may have detrimental effects by locking-in firms. It is important to reduce this by encouraging internationalisation and cooperation between sectors. Exchange of best practice and platforms for policy exchange, involving policymakers and cluster managers, can encourage clusters of different regions to benefit from common experience. Well-managed cluster approaches³⁴ can speed up the process of change and stimulate business to innovate. This is especially important in accession and candidate countries, which have a particular need to encourage an entrepreneurial and networking culture.

Action 3.2

➤ Fostering the identification, transfer and absorption of technologies by businesses

The Member States and the regions are invited to stimulate the transfer and absorption of technologies to and between businesses, taking advantage of linking structures. **The Commission** will consolidate European platforms, networks and services for disseminating technology (IRCs³⁵, Gate2Growth³⁶, CORDIS³⁷) and test new methods of transferring information between research and industry (methodologies for assessing and transferring to industry the results of publicly-funded research) or for the transfer or absorption of information between enterprises.

➤ Foster cross-border exchanges between clusters

The Commission and the Member States will work to unlock clusters, through internationalisation, inter-regional cooperation and cross-sector fertilisation. Sector-specific benchmarking and dissemination of best practices will be encouraged by extending the current PAXIS initiative³⁸ to local systems of innovation and clusters.

The above lines of action could exploit synergies between business support networks such as the IRE and IRC networks, the EuroInfoCentres (EIC)³⁹ and the Business and Innovation Centres (BIC)⁴⁰. They will be associated with the cluster activities under the Agenda for Entrepreneurship. Reinforcing links between such networks and with innovation players at European, national or regional level will provide easier access for business to the knowledge embedded in universities, research centres and clusters. Regional action will be developed and extended to new Member States in the Framework Programme. The networks should also be rationalised and strengthened to make their services more professional and effective and to raise their profile. Joint action will be encouraged to ensure that one-stop-shop services are available to European businesses of all sizes, in particular for technology transfer, innovation financing and intellectual property.

3.3. An R&D Framework Programme active for innovation

Research feeds the bank of knowledge that makes innovation possible. The R&D Framework Programme is therefore of the greatest importance for innovation and for business competitiveness. Existing activities under the Research and Innovation programme, for example the Trend Chart, Gate2Growth, Cordis, the network of Innovation Relay Centres and regional action, should be strengthened. Ways should be found to build up cooperation with the corresponding action financed by the Structural Funds.

Lessons should be drawn from the current assessment of the new instruments of the 6th Framework Programme and from a forthcoming study on the impact on innovation of the 5th and 6th Framework Programmes, to help the drafting of future actions in this area. Particular attention will have to be paid to transfer and absorption of technology and the instruments and procedures for implementing the Framework Programme, to ensure that they meet the needs of SMEs.

Particular attention is being given to the specific competitiveness needs of industry and ways in which the Framework Programme could help meet them. The effectiveness of research and its impact on innovation, for example, were recently addressed in the forum on the future of manufacturing technologies (“Manufuture”⁴¹). Following consultation with industry, such analysis could help identify priorities for future research and innovation in this field and so help prepare the next Framework Programme.

It will be important to ensure complementarity between the Framework Programme and the successor to the Multiannual programme for enterprise.

Action 3.3

➤ Increasing the impact on innovation of the Framework Programme

The Commission will pay particular attention to innovation in preparing the future actions of the European Union in the area of research, in particular:

- the “innovation and SMEs” aspect in the strategic projects and a stronger taking into account of the needs of applied research (in particular within technology platforms), in order to contribute to an improvement of competitiveness of industry,
- action in favour of SMEs including actions aiding the transfer and absorption of new or existing technology;
- specific activities to foster innovation, namely regional actions to support innovation in an enlarged Europe, actions in favour of young innovative businesses, technology transfer and the management of IPR portfolios, as well as actions for technology mediation (networks, brokerage, licensing), a central Innovation Help-desk and strengthening of IPR assistance, experimenting with new types of action.

4. OBJECTIVE 4 - INVEST IN INNOVATION

It is important that the right resources for innovation are in place. This implies that any gaps in the venture capital market should be filled, steps should be taken to reduce regional disadvantages to innovation and the rules governing state aid should be clear and as simple as possible.

4.1. Mobilise European Financial Instruments

Innovation involves risk. However, it is also widely recognised that some innovation offers externalities. As a result it therefore suffers from underinvestment, from the public viewpoint⁴² and some public support may be justified. The extent of such support has to be assessed in the light of the circumstances, including the risk assumed by private capital. Public assistance should be focussed on market failures.

The appropriate measures must be determined in the light of all the circumstances. These include a business’s stage of development and size, and the type of innovation project. Any sector, including traditional ones, should in principle be eligible.

Seed capital funds are important in innovation financing. However, like all venture capital funds the economic downturn has created difficulties because of non-performing investments, the lack of exit mechanisms and increased risk aversion. The costs of due diligence are also high compared to the size of the seed investment. As a result, very few investments were made in 2002-2003, despite the existence of many public support schemes in the Member States.

To encourage seed investments, regulatory obstacles should be removed from cross-border venture capital operations⁴³, private-public partnerships in seed investment should be increased, as well as the exit possibilities for all venture investments through large liquid stock markets⁴⁴¹.

Where there is market failure, public support should not be limited to the creation and start-up phases. The obstacles faced by innovative medium-sized businesses when making a qualitative or quantitative leap in their development should also be better identified. Such businesses have important potential for growth and job creation. An appropriate tax environment could encourage them to reinvest profits.

Many SMEs, particularly in the traditional sectors, need to undertake process innovation, involving purchase of new equipment, to remain competitive. Such investment is often financed by bank loans. It is important that banking regulations facilitate such loans and that suitable guarantee systems are available.

The Risk Capital⁴⁵ Action Plan and Investing in Research Action Plan made important contributions to these subjects. The proposals for action presented here complement or update proposals already made, focusing on innovative activities, such as the creation, adaptation or adoption of new or improved products, services or processes.

There are few enough instruments for action at EU level. It is therefore important to make the most of their synergies and complementary nature, while remaining clear about their objectives. They can have considerable direct impact. But they must also act as signposts, supporting the functioning of markets. This does not prevent them from being used experimentally when financial innovations appear on the market.

The March 2003 Communication on Innovation showed that innovation was not just a matter of technology. The logical consequence of this is that the financing of community innovation activities should not come solely from the Framework Programme.

The procedures of the Framework Programme are centralised and relatively complex. This makes it difficult for it to attract more than a small part of the 23 million European businesses. Efforts to make the Framework Programme more accessible for SMEs must continue, but the less centralised procedures of the Structural Funds, the EIB and the EIF could prove to be better adapted to SMEs and to their funding needs for research and innovation.

In accordance with the Commission's proposals regarding the financial perspectives for 2007-2013, the future multi-annual programme for enterprise, competitiveness and entrepreneurship will include provisions on innovation, and will reinforce the financial instruments, increasing and broadening their scope. It will also take full account of EU enlargement.

¹ As recommended in the Commission Communication on Implementation of the Risk Capital Action Plan (RCAP) COM(2003) 654 final, 4.11.2003.

Action 4.1

➤ **Reinforce the multi-annual programme's financial instruments:**

The Commission will strengthen the financial instruments in the support programme for enterprise, competitiveness and entrepreneurship. Their scope should be extended to innovative enterprises, both young high-tech high growth start-ups as well as existing SMEs in traditional sectors, including possibly via new modalities. Flexibility should be maintained to accommodate new financing needs that might emerge over the life of the programme.

➤ **Reinforce cooperation with the European Investment Bank (EIB)**

Cooperation between the **EIB, the Commission and the Member States** must be increased to take account of the action plan. The EIB's "Innovation 2010" initiative is a powerful instrument for supporting innovation. This initiative will help develop regional innovation systems. It should focus on loans and global loans for innovative activities (in particular those of SMEs), for measures in favour of innovative mid-caps and for support infrastructure for young innovative businesses, such as science parks, business incubators and new facilities. Synergies between these actions and the risk capital activities managed by the EIF should be explored.

4.2. Gear the European Structural Funds towards Innovation

The Structural Funds are another important source of finance for research and innovation infrastructure. As they evolve, they should concentrate on the knowledge economy and on reinforcing local innovation systems, to help European regions implement ambitious regional innovation strategies.

There should be closer cooperation between the Structural Funds and regional action on research and innovation under the Research Framework Programme.

Action 4.2

➤ **Increasing the impact on innovation of the Structural Funds**

The Commission will dedicate an increasing share of the Structural Funds to innovation. To achieve this, it would have make the most of the new objective 2 by developing guidelines which reflect the principles of this action plan, and by focusing on helping regions to implement ambitious innovation strategies. Among other things, the Structural Funds will help internationalise regional clusters and will support projects fostering the absorption of knowledge and technology by SMEs in all sectors.

4.3. Proactive State Aid Policies for Innovation

The Competitiveness Council of May 2003 invited the Commission to "*support the creation of an environment conducive to innovation by considering, in particular, when reviewing the Community framework on state aid, the best means of taking into account market failures in generating innovation and its dissemination*". A Communication planned for 2005 will identify market failures which affect innovation and, to the extent that these are not fully covered, adapt the prevailing State aid frameworks and rules. This will in particular focus on support for SME investment in innovative projects, the recruitment of qualified personnel and the development of intermediaries that provide innovation services: incubators, technology centres, business angels, science parks, innovation consultants, IPR brokers and advisers and technology transfer units are examples.

The Commission will also draw up a Vade-mecum or “Practitioner’s guide” before the end of 2004, bringing together in a single text existing guidance for measures in support of innovation from State aid regulations and frameworks. It will illustrate the Commission’s approach to aid measures for innovation-related activities and intermediary undertakings on the basis of landmark decisions. It will also put forward examples of fiscal measures that have been deemed acceptable, either because they have the characteristics of general measures or because they have been judged compatible with State aid rules. These examples could for instance encourage a friendlier fiscal environment for micro-enterprises or fast-growing young innovative businesses through tax exemptions or the carry-over of losses for the first years of existence.

The Commission has already announced its intention to simplify the approval of small amounts of aid which do not have a significant impact on competition (LASA), including aid to innovation. This could cover aid up to a ceiling of 1 million Euro per company over a period of three years. Such an amount would be significant for SMEs. It would represent a tenfold increase compared with the present *de minimis* rule. The treatment of aid to the development of risk capital will also be reviewed in 2005.

Action 4.3.

➤ Increase synergies between innovation and State aid policies

The Commission will introduce aid to innovation in the future “LASA” (aids without a significant impact on competition) instrument⁴⁶. Before the end of 2004 it will elaborate a Vade-mecum on the State aid rules applicable in the field of innovation. By 2005, the Commission will draw up a Communication on State aid for innovation.

5. OBJECTIVE 5 - SKILLS FOR INNOVATION

To become more innovative, companies must absorb knowledge and turn it into action. Their capacity to do so depends to a large extent on the accumulated knowledge and skills in the company and on the extent to which innovation is perceived as the responsibility of everyone in a business, rather than just a research department.

The quality of a region’s human resources is crucial for attracting new businesses and revitalising its economic fabric. The European Union’s human capital is qualified and diversified, but it is not always sufficiently adapted to the specific needs of the knowledge economy and innovation⁴⁷. Europe is for instance faced with the challenge of technological outsourcing, namely in the software design sector.

EU workers are not sufficiently mobile, whether geographically or between professional specialisations and sectors⁴⁸. Further, as the Irish example shows, intellectual emigrants who return can bring valuable experiences and the seeds of new thinking.

The ageing of the population in Europe, by reducing the size of the workforce could further aggravate the EU’s human capital problems. In this context, it is a cause for concern that the EU attracts less talent from third countries than the US, whether scientists, engineers, software designers or workers in the creative professions. European countries sometimes end up competing with each other to attract the highly qualified workers they need. Several countries have taken measures in this respect: Germany launched a plan to attract Indian IT experts in 2002; and the United Kingdom has drawn up a labour shortage list.

Innovation requires constant adaptation of knowledge, lifelong learning and re-training, a flexible labour market and individual mobility in order to speed up the flow of knowledge between nations and across sectors.

There are a number of human resource and skills policy issues, which are of general interest for enterprises. For instance, young scientists and engineers are the lifeblood of innovation. Initiatives to attract students into S&E studies, show some positive results⁴⁹, but efforts will have to be continued. Women are still highly underrepresented in research, especially in industrial R&D, although they constitute the majority of graduates and 40% of PhD students. Innovation policy should therefore foster gender diversity and participation of women⁵⁰.

SMEs, especially the smallest ones, face a number of obstacles in activities to develop competence. These include short-term business pressures, costs, resistance to change, limited ability to diagnose their own skills needs or their limited contact with relevant sources of competence. In addition, SMEs very often feel reluctant to invest in people who may be poached by competitors or attracted by large firms.⁵¹ National authorities are developing a range of different policy measures intended to upgrade SMEs' competence base. These include support for formal training, access to external consultancy services, promotion of pooling by SMEs to recruit high-skilled employees, empowering methods for management and organisational innovation.

The “Leonardo da Vinci” programme⁵² or mobility strategies⁵³ can be used to promote mobility of professionals with specific innovation competences, such as the scientific professions. Greater mobility could also help SMEs to overcome the difficulties they face in obtaining the innovation skills they need to successfully carry out innovative activities.

Innovation plays a leading role in the three overarching objectives of the new European Employment Strategy: full employment, since innovation is vital for job creation; quality and productivity at work, as innovation is the best way to increase productivity; and social cohesion and inclusion, as it must be assured that new technologies do not increase social exclusion but increase inclusion and social cohesion. The potential of the European Employment Guidelines for directing national employment policies towards innovation-relevant action should be further exploited.

A broad debate could be encouraged on the interaction between employment, social, population, education and immigration policies and ways in which they could contribute to providing a sustainable supply of innovation skills.

Some specific innovation skill issues and specific problems to attract innovation skills to enterprises, in particular SMEs, have already emerged⁵⁴.

In particular, **more e-skills are needed** in Europe to tackle the unsatisfying exploitation of ICT and possible ICT-based innovative business and organisational models. Important initiatives to foster their development have been launched, using ICT both as a tool for improving learning and collaboration (via e-learning⁵⁵), and should be strengthened.

Innovation economy and management are now beginning to be taught in universities (see also objective 1). They cover various disciplines and many types of skills: management of intellectual property, technology transfers (licensing, brokerage, creation of spin-offs), system integration, managing innovation projects, production methods, organising change, analysis of the risks of financing innovation, information technologies and knowledge management, technology watch, regulation watch, economic intelligence, design, business models, etc. All of these **innovation management techniques** (and the related professions) deserve to be identified and promoted, for instance through the Bologna⁵⁶ and Copenhagen⁵⁷ processes.

Investment in innovation-relevant education and training is a win-win situation. Innovative businesses create more jobs than non-innovative ones⁵⁸. There is a clear need for all players (public sector, businesses and individuals) not only to **invest more, but to invest more effectively in those fields of education and training** which produce the greatest returns⁵⁹.

For many sectors, however, the skills needed for innovation in the long or medium term have not yet been thoroughly analysed.

Action 5

➤ Identifying, promoting and simplifying access to innovation professions and skills

The Commission will study the skills needed for innovation in businesses. On the basis of the results, it could promote initial and ongoing training at EU level to match the identified needs for innovation skills, in particular e-skills and innovation management techniques.

The Commission, the Member States and stakeholders should promote the recognition of professions dedicated to innovation and encourage life long learning, mobility, particularly between sectors and towards SMEs. They must also mobilise women for innovation, for instance based on the “Women in industrial research” (WIR) initiative and encourage ways to attract engineers and high-skilled employees towards SMEs..

Skill needs analysis should draw on the available foresight information and mechanisms (such as the e-skills forum⁶⁰, e-business watch⁶¹, European Information Technology Observatory⁶², etc.) and bring the different policy strands and national skill foresight activities together.

6. OBJECTIVE 6 - EFFICIENT INNOVATION GOVERNANCE

The European Council has recognised the need for co-ordinated action, to define common objectives to increase innovation, and to set up an assessment mechanism for taking stock of the progress achieved.

Subsequently, the Competitiveness Council invited the Member States and the Commission to:

- ensure appropriate coordination of innovation policy, on a voluntary basis, at EU, national and regional levels;
- strengthen existing processes, in the framework of the Trend Chart on Innovation in Europe, enabling Member States to learn from each other’s experience in innovation policy development and implementation;
- intensify their cooperation and create a framework of common objectives for strengthening innovation in the EU, including an assessment mechanism for taking stock of progress achieved, while respecting the characteristics of national innovation systems and the diversity of national approaches.

The measures below are in line with these demands.

This draft action plan will be the subject of a wide-ranging debate and an extended impact assessment to develop broad consensus around its the **common objectives** (Annex I) and its contents. A range of quantitative objectives have already been adopted by several Member States, and several of these relate to innovation policy. The Commission has published them⁶³. Once these common objectives are finalised, they should be included in an annex to a joint declaration in favour of innovation, to be adopted by the Member States in spring 2005.

Innovation can only develop and flourish if it is a recognised value of society, with wide support. It is to be hoped that it will also become the subject of national debates and that the economic, social and environmental challenges that it represents will be the subject of wide-ranging exchanges involving all stakeholders⁶⁴. To this end, Member States are invited to set up national innovation councils or something similar, to encourage dialogue between representatives of public administrations, employers, unions, research establishments and

institutes of higher education, and recognised experts. The Commission will hold a European Innovation Policy Forum, bringing together representatives of the national innovation councils to discuss innovation policy, promote innovation issues in policy circles and influence the legislative process at European level. Observers from wider Europe should be invited to participate in this Forum.

The Member States should confirm their common objectives by setting levels of performance and progression in terms of indicators. These should build on the structural indicators developed for the Lisbon process and on the work of the European Trend Chart on Innovation, including the Innovation Scoreboard. They should supplement these common objectives as need be with national objectives which reflect the specific nature of their national innovation systems. Pursuant to the Council's conclusions, they could put into place "improved indicators within the context of an upgraded European Innovation Scoreboard and [...] set their own quantitative and/or qualitative targets on a voluntary basis".

A mechanism for monitoring and assessing the results obtained should be established with the Member States, based on the experiences with the European Trend Chart on Innovation⁶⁵ and the Innovation Scoreboard. Following the call of the Competitiveness Council of May 2003 for regular reporting on progress in strengthening innovation policy at national and EU level, a report will be published every two years to analyse the action taken by the Member States and the EU, assessing their relevance, effectiveness and impact, and drawing international comparisons. If necessary, it should recommend that the common objectives be updated. The report should be fed into the already existing processes of open policy coordination, in particular those underpinning the Commission's annual Spring Report.

To serve as a basis for this report, the European Trend Chart on Innovation should be expanded and brought into line with the common objectives. The countries of wider Europe should be gradually included in the reporting and assessment mechanism. The Innobarometer⁶⁶ should be upgraded and re-designed as a panel-based instrument to observe the public perception of innovation policy in the Member States.

The Commission should be responsible for monitoring the implementation of the action plan, including the aspects related to national policies. An advisory Group of Senior Officials should assist it. The Council's high-level Competitiveness and Growth Group would be a suitable body to examine the Commission's follow-up reports and any alerts issued, thus allowing the Competitiveness Council to be regularly informed of the progress made in implementing the action plan.

Action 6

➤ Rallying Member States around the European model of innovation governance

The Commission, the Member States and stakeholders will try to build consensus around common objectives which could be included as an annex to a European declaration on innovation. They could promote a society-wide debate on innovation policy and ensure follow-up, taking account of indicators and opinion polls.

ANNEX I

PROPOSED COMMON OBJECTIVES AND POSSIBLE FOLLOW-UP INDICATORS

Objective 1: Innovate Everywhere

Promote innovation in enterprises and spread innovation excellence: *Promote innovation management in SMEs (emphasis on linking technological and non-technological aspects: organisational, presentational, marketing innovation, etc). Promote young innovative enterprises. Increase added value in EU production.*

Examples of possible follow-up indicators/targets:

- Scoreboard indicators on enterprise innovation (3.1, 3.2, 3.3 and 4.3);
- Scoreboard indicators on business demography (“company churning”);
- Indicators on the application of innovative management techniques (scattered survey data available)
- Indicators on “knowledge and innovation spending” (R&D, training, staff expenditure on engineers, researchers and innovation-related activities, design, trademarks and patenting costs) compared to turnover per sector and enterprise size (to be developed)
- Indicators on “value-added” compared to turnover as a proxy for a result of innovation, per sector and enterprise size (to be developed)

Objective 2: Get Innovation on the Market

Market acceptance and favourable framework conditions for innovation: *Enhance consumer confidence in innovative products and services and design innovation-friendly regulations.*

Examples of possible follow-up indicators/targets:

- Duration of conformity checks for innovative products (to be developed);
- Bureaucratic burden caused by conformity checks (to be developed);
- Innovation-friendly taxation system (composite qualitative indicator to be developed);
- Indicators on market response and the spread of innovation (under development);

Objective 3: Knowledge Everywhere

A dynamic knowledge market: *Stimulate the development and unlocking of innovative clusters and regional innovation systems. Encourage transnational innovation networks. Facilitate knowledge flows between science and industry. Promote knowledge sharing. Facilitate the use of and access to IP by enterprises.*

Examples of possible follow-up indicators/targets:

- Scoreboard indicators on regional innovation;
- Scoreboard indicator on collaborative innovation (3.2);
- Scoreboard composite indicator on “openness” (under development);
- Indicators on transnational collaborative innovation (to be developed).
- Indicators on the gap between costs of filing patents, trade marks and designs in the EU and in the US (to be developed).
- Participation rate of SMEs in research programmes (to be explored).

Objective 4: Invest in innovation

Mobilise private and public resources for innovation. *Seed and early-stage capital for new technology-based firms and start-up companies. Public-private partnerships for financing innovation. Support business angels and venture capitalists. Proactive State Aid Policies for Innovation.*

Examples of possible follow-up indicators/targets:

- Scoreboard indicators on innovation finance (4.1, 4.2);
- Indicators on VC, business angels etc (to be explored);
- Indicator on regional investments in innovation (to be developed);

Objective 5: Skills for Innovation

Improve human capital for innovation: *Adapt education and training systems to the innovation needs of companies. Life-long learning for innovation. Tackle skills shortages. Promote creativity and the international mobility of knowledge workers. Promote innovative professions.*

Examples of possible follow-up indicators/targets:

- Scoreboard indicators on human capital (1.1, 1.2, and 1.3);
- Scoreboard composite indicator on “life-long learning”;
- Scoreboard composite indicator on “receptivity to new ideas” (under development);
- Scoreboard composite indicator on “social equity” (under development);
- Mobility of the highly skilled (to be developed on basis of OECD work);
- Share of foreigners in workforce with tertiary education (to be developed).

Objective 6: Efficient innovation governance

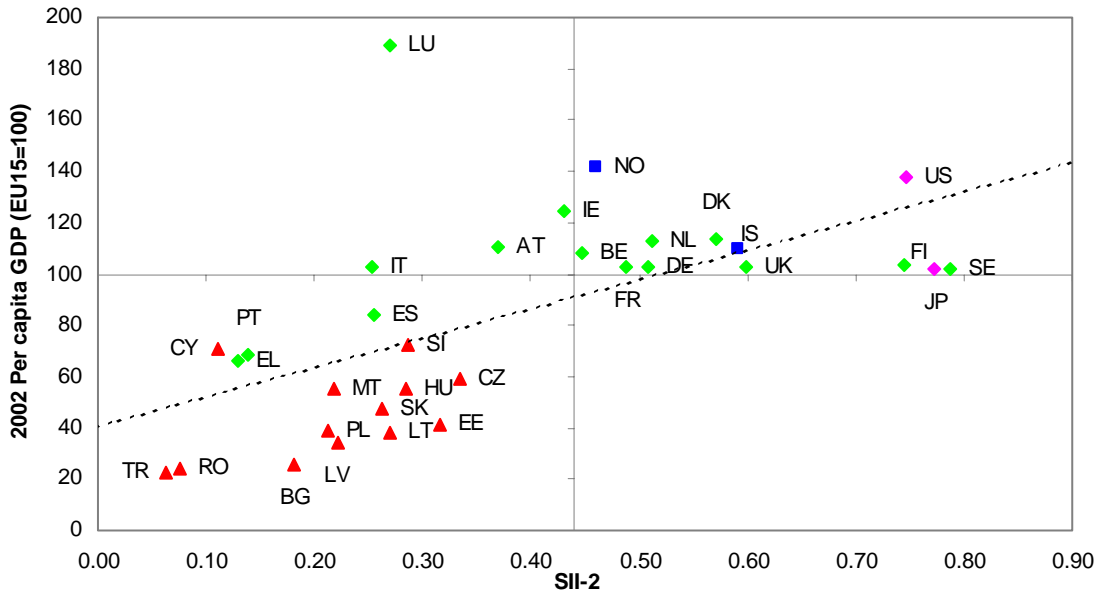
Mobilise Member States and improve innovation governance: *Create and reinforce “National Innovation Councils” and other innovation governance mechanisms. Foster efficient policy coordination and stakeholder involvement. Activate the public sector as an innovation driver.*

Examples of possible follow-up indicators/targets:

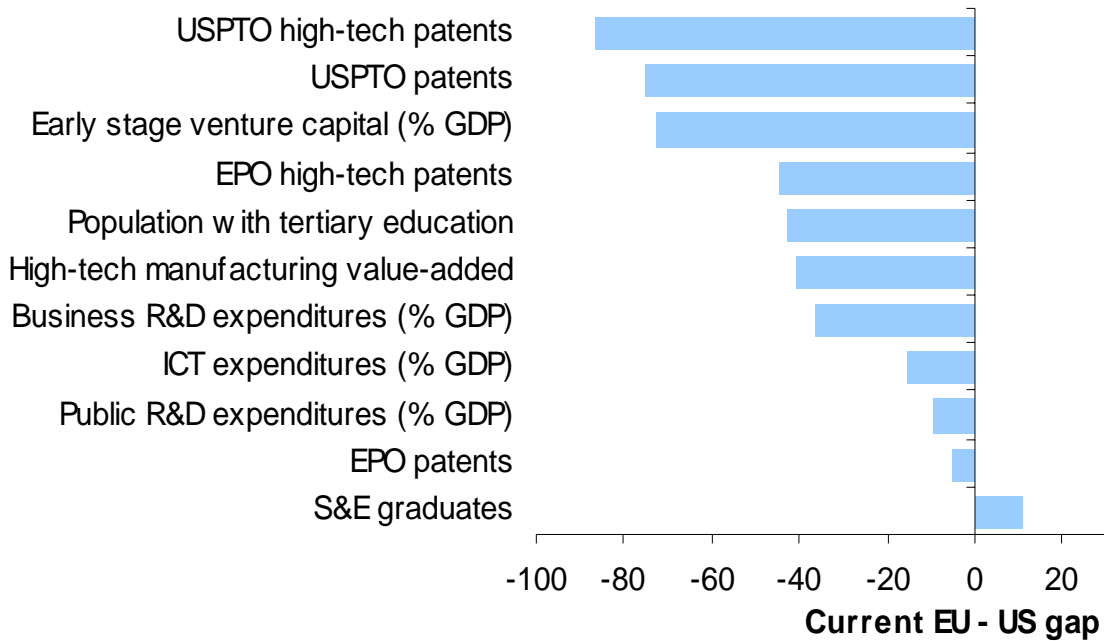
- Some qualitative indicators could be developed (existence of certain governance instruments).

ANNEX II

Innovation is correlated to GDP



...innovation must be boosted to close the EU – US gaps:



Source: European Innovation Scoreboard 2003 <http://trendchart.cordis.lu/scoreboard2003/index.html>

¹ In 2002, GDP per capita in the EU was 71.7 % of the corresponding level in the US (European Competitiveness Report 2003 (SEC(2003)1299), p. 28)

² SEC(2003) 1255, see also: <http://trendchart.cordis.lu/scoreboard2003/index.html>

³ COM (2002) 262 final, “Productivity: the key to competitiveness of European economies and enterprises“

⁴ COM(2002) 714 final

⁵ Communication « A European Initiative for Growth - Investing in Networks and Knowledge for Growth and Jobs», COM (2003) 690 final

⁶ “Investing in Research: An Action Plan for Europe (“3% Target”)", COM(2003) 226 final

⁷ Action Plan: The European agenda for Entrepreneurship, COM(2004)70 final

⁸ See in particular part A.1.a of the Communication “Building our common Future - Policy challenges and Budgetary means of the Enlarged Union 2007-2013” COM(2004) 101 final: Mobilising relevant players and resources to help realise the innovative potential of enterprises. Promoting technology transfer through knowledge flows and innovation networks will bring benefits to firms, particularly to young innovative enterprises. Innovation policy will also foster investment in innovation, in organisational change and in innovative design solutions. Facilitating common approaches, cross-border and regional activity as well as networking throughout the EU can contribute to the development and diffusion of an innovation-friendly regulatory environment.

⁹ Communication of March 2003

¹⁰ *Reference to be completed after adoption*

¹¹ **The definition of innovation for statistical, public aid and policy-making purposes is currently in discussion at EU level. Please refer to the specific question in the questionnaire for the public consultation.**

¹² see third Community Innovation Survey: Statistics in Focus 9-1/2004: Innovation output and barriers to innovation

http://europa.eu.int/comm/eurostat/Public/datashop/print-product/EN?catalogue=Eurostat&product=KS-NS-04-001-__-N-EN&mode=download

¹³ Competitiveness Report 2003

¹⁴ See Innovation Paper 30 : PAXIS - Results and policy recommendations

http://europa.eu.int/comm/enterprise/library/innovation-papers/paxis_issue30.pdf

¹⁵ <http://www.ebusiness-watch.org/>

¹⁶ See Study “Innovation Tomorrow”

¹⁷ Public procurement is one of the issues of the “Investing in Research: An Action Plan for Europe (“3% Target”)", COM(2003) 226 final

¹⁸ See COM(2003)112 final

¹⁹ See “Investing in Research: An Action Plan for Europe (“3% Target”)", COM(2003) 226 final.

²⁰ ZEW Discussion Paper N°. 30-01: "Lead Markets of Environmental Innovations: A Framework for Innovation and Environmental: A Framework for Innovation and Environmental Economics" by M. Beise and K. Rennings

<ftp://ftp.zew.de/pub/zew-docs/dp/dp0301.pdf>

²¹ Communication “Stimulating technologies for sustainable development: an environmental technologies action plan for the European Union” COM(2004)38 final.

²² Only 16 % of EU citizens make use of e-commerce. One in four consumers do not use e-commerce because they do not trust the medium itself. European consumers’ confidence in the guarantee of the **safety of services** in other EU 15 countries is about half of what it is for confidence in their own countries (24.3% for other EU countries, 50.4% for own countries). Source: Eurobarometer: Consumer protection in the EU, November 2003 : http://europa.eu.int/comm/consumers/topics/facts_en.htm

²³ The analyses of alternative scenarios should extend to the evaluation of potential recourse to co- and/or self-regulatory schemes to achieve given objectives, and policy instrument assessments should consider the suitability of inserting revision/sunset clauses in regulatory frameworks that are technology dependant.

²⁴ Action plan “Simplifying and improving the regulatory environment”, COM(2002) 278 final; see also: “European Governance: better lawmaking”, COM(2002) 275 final, and Communication on Impact Assessment, COM(2002) 276 final.

²⁵ *complete reference to study on “New Products and Services – Analysis of Regulations Shaping New Markets”*

²⁶ See 2002 Innobarometer <http://www.cordis.lu/innovation-smes/src/innobarometer2002.htm>

²⁷ European Patent Office estimate

²⁸ Patent revenues increased from an estimated \$3 billion in 1982 to approximately \$120 billion in 2003 (European Patent Office estimate)

²⁹ This concept was introduced by Prof. H. Chesbrough of Harvard University in his book: “*Open Innovation: The New Imperative for Creating and Profiting from Technology*”, Harvard Business School Publishing Corporation, 2003.

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- ³⁰ See for instance: Trend Chart Report “Cluster policies”, April 2003 <http://trendchart.cordis.lu/Reports/index.cfm?fuseaction=TrendReports>
- ³¹ Innovating Regions Network, see: <http://www.innovating-regions.org/>
- ³² Innovation Relay Centres, see: <http://irc.cordis.lu/>
- ³³ The Gate2Growth Initiative is part of the Innovation/SMEs Programme line of action from the 6th R&D Framework Programme. It supports innovative entrepreneurs in Europe, particularly by offering investor and technology matching services, a business plan preparation tool, and business plan diagnostics. See: <http://www.gate2growth.com>
- ³⁴ See, for example, the Cluster Initiative Greenbook, <http://www.ivorytower.se/eng/ivory/frame.htm>
- ³⁵ <http://irc.cordis.lu/>
- ³⁶ <http://www.gate2growth.com>
- ³⁷ <http://www.cordis.lu>
- ³⁸ Pilot Action of Excellence on Innovative Start-ups, see: <http://www.cordis.lu/paxis/src/home.htm>
- ³⁹ <http://europa.eu.int/comm/enterprise/networks/eic/eic.html>
- ⁴⁰ <http://www.ebn.be/>
- ⁴¹ http://europa.eu.int/comm/coreservices/forum/index.cfm?forum=Research&fuseaction=contribution.home&Debate_ID=49
- ⁴² see results of the 2003 Community Innovation Survey: <http://www.cordis.lu/innovation-smes/src/cis.htm>
- ⁴³ In this context it is important to proceed with action aimed at developing a harmonised European legal-fund structure ensuring tax transparency for risk capital operations as outlined in the Communication “Investing in research: an action plan for Europe”, COM(2003) 226 final.
- ⁴⁴ As recommended in the Commission Communication on Implementation of the Risk Capital Action Plan (RCAP) COM(2003) 654 final, 4.11.2003
- ⁴⁵ SEC(1998) 522
- ⁴⁶ LASA would concern agreements regarding lesser amounts of State aid, which do not appreciably restrict competition under Article 81(1) of the Treaty establishing the European Community.
- ⁴⁷ COM(2002)779: Communication on “Investing efficiently in education and training an imperative for Europe”
- ⁴⁸ See the conclusions of the Competitiveness Council (13 May 2003) on “Strengthening European Innovation Policy” in which the Council stated that “flexible, mobile and skilled human resources are required for innovation and that the quality of education and training, including vocational training, must be improved in order to move towards a knowledge-based economy”.
- ⁴⁹ see European Innovation Scoreboard 2003
- ⁵⁰ European Commission: Women in industrial research. A wake up call for European industry. Report from the High Level Expert Group, Luxembourg 2003
- ⁵¹ European Observatory for SMEs Report: Competences in SMEs http://europa.eu.int/comm/enterprise/enterprise_policy/analysis/observatory.htm
- ⁵² Community Vocational Training Action Programme (2000-2006) http://europa.eu.int/comm/education/programmes/leonardo/new/leonardo2_en.html
- ⁵³ “A Mobility Strategy for the European Research Area communication” (COM(2001)331) and Action Plan on Skills and Mobility (COM(2002)72)
- ⁵⁴ see for instance Innovation Papers: “Promoting innovation management techniques in Europe” (2000) http://www.cordis.lu/innovation-policy/studies/im_study2.htm , “Training needs of investment analysts” (2001) http://www.cordis.lu/innovation-policy/studies/fi_study3.htm , “Innovation management: Building competitive skills in SMEs” (2000) http://www.cordis.lu/innovation-policy/studies/im_study1.htm , Trend Reports: “Lifelong Learning – an overview of national measures in the EU Member States and Candidate Countries” (May 2002), “Transnational learning in innovation policy” (May 2002), “Progress towards the objectives set out in the EC Communication on Innovation in a Knowledge-Driven Economy “ (May 2002) <http://trendchart.cordis.lu/Reports/index.cfm?fuseaction=TrendReports>
- ⁵⁵ see for instance eLearning Programme: http://europa.eu.int/comm/education/programmes/elearning/programme_en.html
- ⁵⁶ Bologna Declaration of June 1999: Realising the European Higher Education Area. See: <http://www.bologna-berlin2003.de/en/activities/index.htm> and http://europa.eu.int/comm/education/policies/educ/bologna/bologna_en.html
- ⁵⁷ European cooperation in vocational education and training: Copenhagen Declaration, 30 November 2002, see: http://europa.eu.int/comm/education/copenhagen/index_en.html
- ⁵⁸ Innovation Paper N°. 23: Innovative small- and medium-sized enterprises and the creation of employment (2001); Statistics in Focus Theme 9, 3-2003: High-tech and knowledge-intensive sectors creating employment in Europe (http://europa.eu.int/comm/eurostat/Public/datashop/print-product/EN?catalogue=Eurostat&product=KS-NS-03-010-_-N-EN&mode=download): “Employment in high tech and medium-high tech in the EU continued

growing with an annual average growth rate of 0.9 % for the 1997-2002 period and accounted for 7.4 % of the EU's employment in 2002. Employment in knowledge-intensive services (KIS) in the EU grew at an annual average growth rate of 3.1 % during the 1997-2002 period, accounting for an increasing proportion of the EU's total employment (33.3 % in 2002).”; Brochure of the German Federal Ministry for Economics and Labour on “Innovation Policy - More Dynamic for Competitive Jobs” (<http://www.bmwi.de/Redaktion/Inhalte/Downloads/br-innovation-policy.property=pdf.pdf>): “Between 1997 and 2001 about 92,000 new jobs were created in the R&D-intensive branches of industry, while during the same period about 110,000 jobs were lost in the sectors of the manufacturing industry that are not R&D-intensive.”

⁵⁹ COM(2002)779: Communication on “Investing efficiently in education and training: an imperative for Europe” and Commission Communication “Education and training 2010” – the success of the Lisbon strategy hinges on urgent reforms. COM(2003) 685 final.

⁶⁰ <http://europa.eu.int/comm/enterprise/ict/policy/ict-skills.htm>

⁶¹ <http://www.empirica.com/marketwatch/>

⁶² <http://www.eito.com>

⁶³ Communication SEC(2003) 1278, 4/11/2003.

⁶⁴ The European Economic and Social Committee also supports “helping to develop public dialogue, directly involving civil society representatives in the evaluation process [of the results of the Lisbon Strategy]”. See DI-CES 139/2003 on the priorities of the Irish presidency.

⁶⁵ <http://trendchart.cordis.lu/>

⁶⁶ <http://www.cordis.lu/innovation-smes/src/innobarometer.htm>